IEEE WCCI 2024
Yokohama
Japan

IEEE World Congress on Computational Intelligence
June 30 – July 5, 2024

IEEE WCCI 2024
CONFERENCE PROGRAM

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IEEE Computational Intelligence Society

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INTERNATIONAL NEURAL NETWORK SOCIETY

Table of Contents

IEEE WCCI 2024 Welcome Message

Let's celebrate the 30th anniversary of IEEE WCCI!

On behalf of the WCCI 2024 Organizing Committee, we are delighted to invite you to Yokohama, Japan, for the 13th biennial "IEEE World Congress on Computational Intelligence - WCCI 2024" of the Computational Intelligence Society (CIS) of IEEE, the world's largest technical professional organization.

The conference will take place from June 30th to July 5th, 2024, at PACIFICO Yokohama, one of the largest convention centers in Japan.

It is the IEEE CIS flagship conference of more than 2,500 esteemed scientists and professionals in the fields of neural networks, fuzzy systems and evolutionary computation worldwide. It enthusiastically contributes to exchanging views, sharing experiences and mixing young and young-at-heart scientists, by opening new perspectives for research and development in academy and industry.

IEEE WCCI started in 1994 in Orlando, Florida, USA, to enhance the interdisciplinary discussion and cooperation by calling together the people in neural networks, fuzzy systems, evolutionary computation and related computational intelligence areas. At the beginning, it was a quadrennial event, with annually held individual conferences, namely, International Joint Conference on Neural Networks (IJCNN), IEEE International Conference on Fuzzy Systems (FUZZ-IEEE) and IEEE Congress on Evolutionary Computation (IEEE CEC). After 2008, it has been held every two years constantly.

In these years, artificial intelligence (AI) changes the world rapidly and dramatically. This is a great success of our continuous endeavor pioneering the essence, fundamentals, technology and applications in AI as computational intelligence (CI). It is also the consequence of our contributions to strengthen the relationship between engineering and human beings. But, at the same time, AI sometimes gives rise to ethical issues and even conflicts among people. In this sense, human beings are challenged by our own technology.

Now let's sail out to unlimited horizons further, imagine the next 30 years from now, and enjoy our next journey by starting at the WCCI this year!

Yokohama is a port city, known as one of the ports first opened to the world after the closed Edo era in 1859, one of the most exciting melting-pot of eastern and western culture in the world, and for a number of universities, institutes and companies of advanced information technology, electronics, robotics, mobility, medicine and foods. A WCCI held in this area will strongly inspire the attendees to imagine next-generation science and technology.

"Best experience for all the participants" is the motto of the Organizing Committee. We look forward to welcoming you all for a memorable WCCI 2024. Let's put heads and hands together to

explore CI with a long-range scope to develop a society full of comfort, peace and humanity based on our intelligence technology!

Akira Hirose
The University of Tokyo
Japan

Hisao Ishibuchi
Southern University of Science and Technology
China

IJCNN 2024 Welcome Message

On behalf of the IJCNN Organizing Committee, it is my pleasure to extend a warm welcome to all of you attending this year's International Joint Conference on Neural Networks (IJCNN) in Yokohama, Japan. IJCNN 2024 reflects the mission of INNS, a society established in 1987 as the first international, interdisciplinary and inclusive professional organisation focusing on theoretical and computational aspects of brain-inspired learning machines.

This year's IJCNN received over 3272 submissions from 80 countries, out of which 1701 have been accepted. The conference program includes over 40 Special Sessions including Deep Learning for Graphs, Trustworthy and Explainable Federated Learning: Towards Security and Privacy Future, Domain Adaptation for Complex Situations: Theories, Algorithms and Applications, Learning from Small Data: Techniques and Applications, Machine Learning and Signal Processing for Brain or Behavioral Analysis, Neural Network-Based Methods for Human-Centric Perception and Understanding, Neuromorphic/Brainmorphic AI Models, Hardware and Applications and many more sessions on pertinent topics.

I would like to thank everyone who has given their time, energy and ideas to assist in organizing this event, including all the members of the organizing committee, the Technical Chairs (Zeng-Guang Hou, Barbara Hammer, Teresa Ludermir and Seiichi Ozawa, all the reviewers, and our keynote speakers: Johan Suykens, Masashi Sugiyama, Plamen Angelov, Yukie Nagai and Divyashree-Shivakumar Sreepathihalli.

I wish you all a wonderful and memorable experience at the International Joint Conference on Neural Networks in Yokohama, Japan. Your participation here demonstrates the dedication and enthusiasm for neural networks research that will shape and develop the future of this field.

Chrisina Jayne

IJCNN Conference Chair and INNS VP for Conferences

IEEE CEC 2024 Welcome Message

On behalf of the Organizing Committee, it is my greatest pleasure to welcome you to the 2024 IEEE Congress on Evolutionary Computation (IEEE CEC 2024), as part of the 2024 IEEE World Congress on Computational Intelligence (IEEE WCCI 2024), to be held on 30 June to 5 July 2024 at Yokohama, Japan.

IEEE CEC 2024 is a major international conference in the field of evolutionary computation, which covers all topics in evolutionary computation from theory to applications. The aims of this conference are to provide a forum for researchers and practitioners to exchange the latest advances and demonstrate state-of-the-art theory, algorithm design, and real-world applications, and to explore new directions and potentials in the field of evolutionary computation.

This year, CEC highlights 24 tutorials given by experts in the most relevant and emerging topics of evolutionary computation. It also features 49 advanced special sessions organized by domain specialists covering focused topics in evolutionary computation and computational intelligence, 5 workshops in the most exciting and lively research areas and several competitions in the field.

IEEE CEC 2024 received 665 submissions from authors of 64 countries and regions, where the top contributors by country are China, Japan, Mexico, USA, Brazil, UK, and India. Under the guidance of the WCCI 2024 general co-chairs, technical co-chairs of IEEE CEC 2024, and the help of special session organizers, 350 papers (acceptance rate is 52.63%) were accepted for publication in the proceedings after a rigorous review process, where almost all papers have at least three reviews. IEEE CEC 2024 also includes 13 Late breaking papers as well as 16 Journal-to-Conference presentations. The accepted papers cover a heathy mix of research topics ranging from the latest advances in the evolutionary computation area to the next steps in our commitment on mimicking nature to solve real-world problems.

All this would not have been possible without all the people in the organizing committee. I would like to thank the guidance and support of the General Co-Chairs: Akira Hirose and Hisao Ishibuchi. Special thanks also go to the IEEE CEC 2024 Technical Co-Chairs Carlos Coello Coello, Xiaodong Li, Juergen Branke, Nelishia Pillay, and Mengjie Zhang. I am also very grateful to Handing Wang as the Special Session Chair, Chuan-Kang Ting as the Tutorial Chair, Sanaz Mostaghim as the Conflict-of-Interest Chair, Oscar Cordon as the Plenary Session chair, Yaochu Jin as the Panel Session Chair, Jialin Liu as the Competition Chair, Ying Bi as the Workshop Chair, Yi Mei as J2C Papers Chair, Andries Engelbrecht, Kalyanmoy Deb, Pietro Oliveto and Rong Qu as the Best Paper Committee members, as well as other chairs of the WCCI 2024 conference. Last but not least, I would like to thank the plenary/keynote speakers, Akira Oyama, Yew Soon Ong, Handing Wang, Jialin Liu, Mengjie Zhang, and Tobias Rodemann.

Finally, I would like to thank all the authors who submitted their work, to the reviewers, to all the participants of IEEE CEC 2024, and the IEEE WCCI 2024 sponsors for their great support.

Sincerely,

Bing Xue,

IEEE CEC 2024 Conference Chair

FUZZ-IEEE 2024 Welcome Message

On behalf of the Organizing Committee, I would like to welcome all the delegates and their guests to The IEEE International Conference of Fuzzy Systems 2024 (FUZZ-IEEE 2024) as part of the 2024 IEEE World Congress on Computational Intelligence (IEEE WCCI 2024) which is organized from June 30 – July 5, 2024 in Yokohama, Japan.

FUZZ-IEEE 2024 is a premier event in the areas of Fuzzy Systems. This conference covers all topics in Fuzzy Systems including Mathematical and theoretical foundations; Fuzzy Set theory, fuzzy measures, fuzzy integrals; Fuzzy control; Robotics and autonomous systems; Fuzzy hardware, software, sensors, actuators, architectures; Fuzzy data analysis; Fuzzy information processing; Type 2 fuzzy sets, computing with words, granular computing, rough set; Computational and artificial intelligence; Optimization and operations research; Decision analysis, multi-criteria decision making, and decision support; Fuzzy modeling, identification, and fault detection; Knowledge discovery; Fuzzy image, speech and signal processing, vision and multimedia data; Linguistic summarization, natural language processing; Fuzzy human interfaces (HCI for and with fuzzy approaches); Deep fuzzy systems; Fuzzy applications; Responsible and trustworthy AI; Role of fuzzy approaches in explainable AI; Multi- and inter-disciplinary advances in, for, or with fuzzy approaches; Fuzzy approaches in the social sciences; and Fuzzy pattern recognition. This year, we also have a session for "Late Breaking" papers to share newly developed ideas with preliminary results and a session called "J2C" for papers that summarize concepts from the authors' journal publications within 2-year of the conference date. There were 118 accepted regular papers out of 222 submitted papers, while there were 16 accepted late breaking papers out of 32 submitted papers. For the J2C session, the number of accepted papers is 2 out of 13. There were 51 countries of submission authors with the following top-10 countries:- Japan(13.4%), Italy(10.0%), China(8.6%), Spain(8.5%), UK(7%), India(5.4%), USA(5.2%), Taiwan(4.8%), Poland(4.5%), and Canada(3.6%), respectively.

We would like to express our deepest thanks to authors, plenary speakers, and keynote speakers for supporting FUZZ-IEEE by presenting their most recent works and sharing their ideas. We would like to thank reviewers for valuable comments. Finally, we would like to thank our supporting staffs for all helps in making this a great conference.

We wish you a fantastic conference experience and wonderful staying in Yokohama, Japan.

Welcome to Japan.

Sansanee Auephanwiriyakul, FUZZ-IEEE 2024 Conference Chair

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Rui Wang

Zi-Jia Wang

Yuping Wang

Shuai Wang

Jingyao Wang

Jung-Hua Wang

Zihan Wang

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Linlin Wang

Tengfei Wang

Xianzhi Wang

Yiran Wang

Zongwei Wang

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Jinwei Wang

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Feng-Feng Wei

Hongxi Wei

Hua Wei

Lai Wei
Zeming Wei
Yuning Wei
Jiahong Wei
Wenhong Wei
Tzer-Jen Wei
Chengxin Wen
Dongchao Wen
Juyang Weng
Lai Weng Kin
Tim Whitaker
Michał Wieczorek
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Ka-Chun Wong
Kok-Wai Wong
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Huyu Wu
Tianyu Wu
Yifan Wu
Yunong Wu
Ziyu Wu
Nier Wu
Xu Wu
YiFei Wu
Yujia Wu
Fengge Wu
Tong Wu
Hongjie Wu
Xiaojun Wu
Wenxuan Wu

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Yaoxin Xia
Chao Xia
Jingyuan Xia
Xiaolei Xia
Xuan Xia
Kexin Xiang
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Qi-Te Yang
Shengxiang Yang
Cuie Yang
Shangshang Yang
Zonghao Yang
Fengxiang Yang
Luyi Yang
Mengyu Yang
Congxian Yang
Dingcheng Yang
Dongping Yang
Qinmin Yang
Jian Yang
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Jie Yang
Haitian Yang
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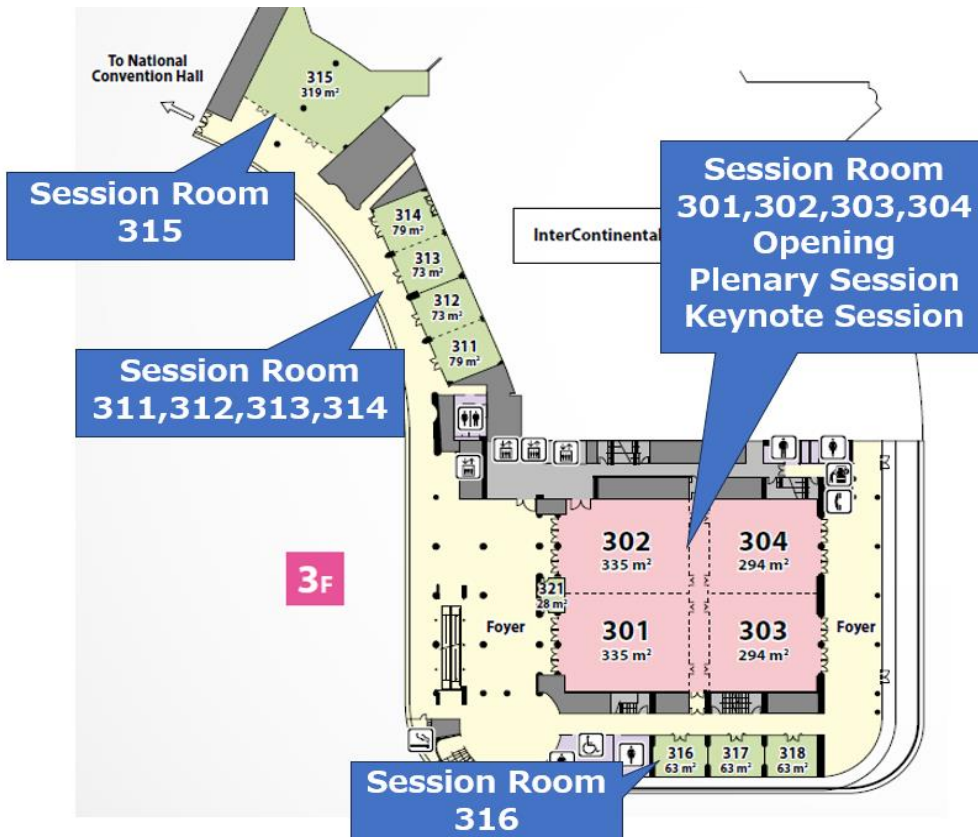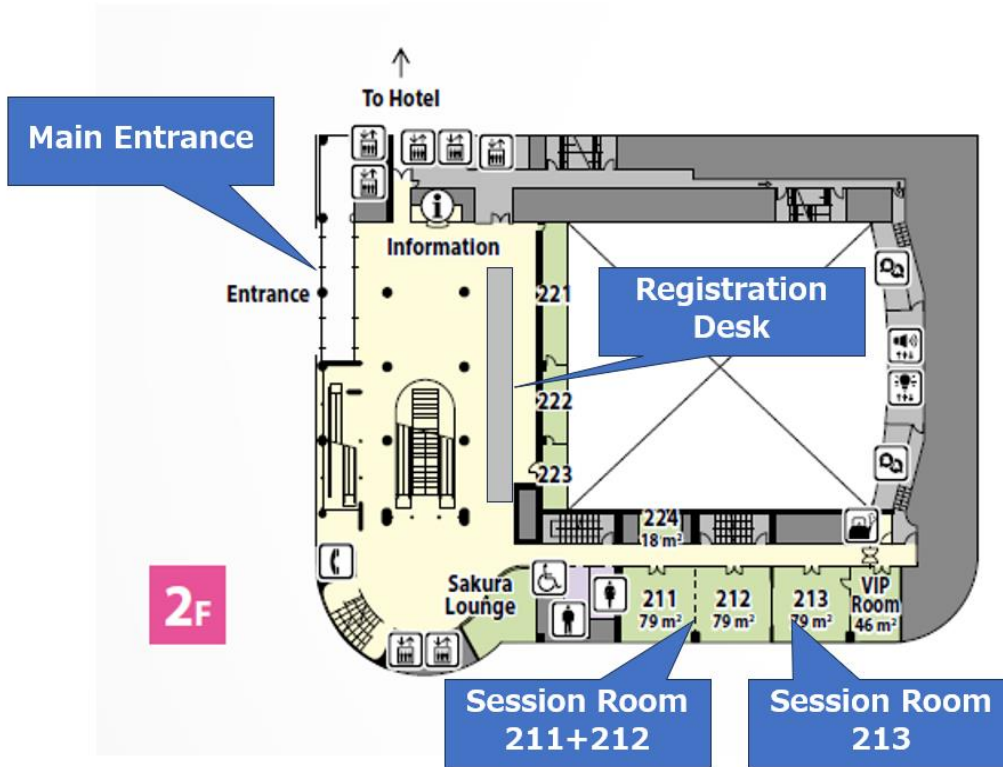Shanding Ye
Chung-Hsing Yeh
Christian Yeo

Ping Yi
Hanxi Yin
Fan Yin
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Jun Yoneyama
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Zhou You
Haochen You
Hua Yu
Xiao-Hua Yu
Lianbo Yu
Kunjie Yu
Dongjin Yu
Haowen Yu
Jiaheng Yu
Jiaming Yu
Yang Yu
Hong Yu
Jialin Yu
Yi Yu
Zehui Yu
Hang Yu
Zhang Yu qing
Imam Yuadi
Gonglin Yuan
Wenhao Yuan
Zijian Yuan
Wangyang Yue
Yutao Yue
Yuan Yue
Hoyin Yue
Tang Yuzhou
Daniela Zaharie
Munazza Zaib
Daniel Zambrano-Gutierrez
Aleš Zamuda
Raman Zatsarenko
Ricardo Zebulum
Jinshan Zeng

Guohang Zeng
Pinxian Zeng
Lingtao Zeng
Marco Zennaro
Minghui Zhai
Yanlong Zhai
Zhi-Hui Zhan
Kun Zhan
Huixin Zhan
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Huayan Zhang
Xuerui Zhang
Yuze Zhang
Shengxin Zhang
Shuyan Zhang
Jingyue Zhang
Fangfang Zhang
Xingyi Zhang
Chuangliang Zhang
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Shuo Zhang
Tuo Zhang
Yi fei Zhang
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Fan Zhang
Jian Zhang
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Ru Zhang
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Min Zhang
Peng Zhang
Xiao-Feng Zhang
Yang Zhang
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Li Zhang
Lin Zhang
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Jing Zhao
Xingyu Zhao
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Yi-Zhen Zheng
Shen Zheng
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Rui Zhong
Muyao Zhong
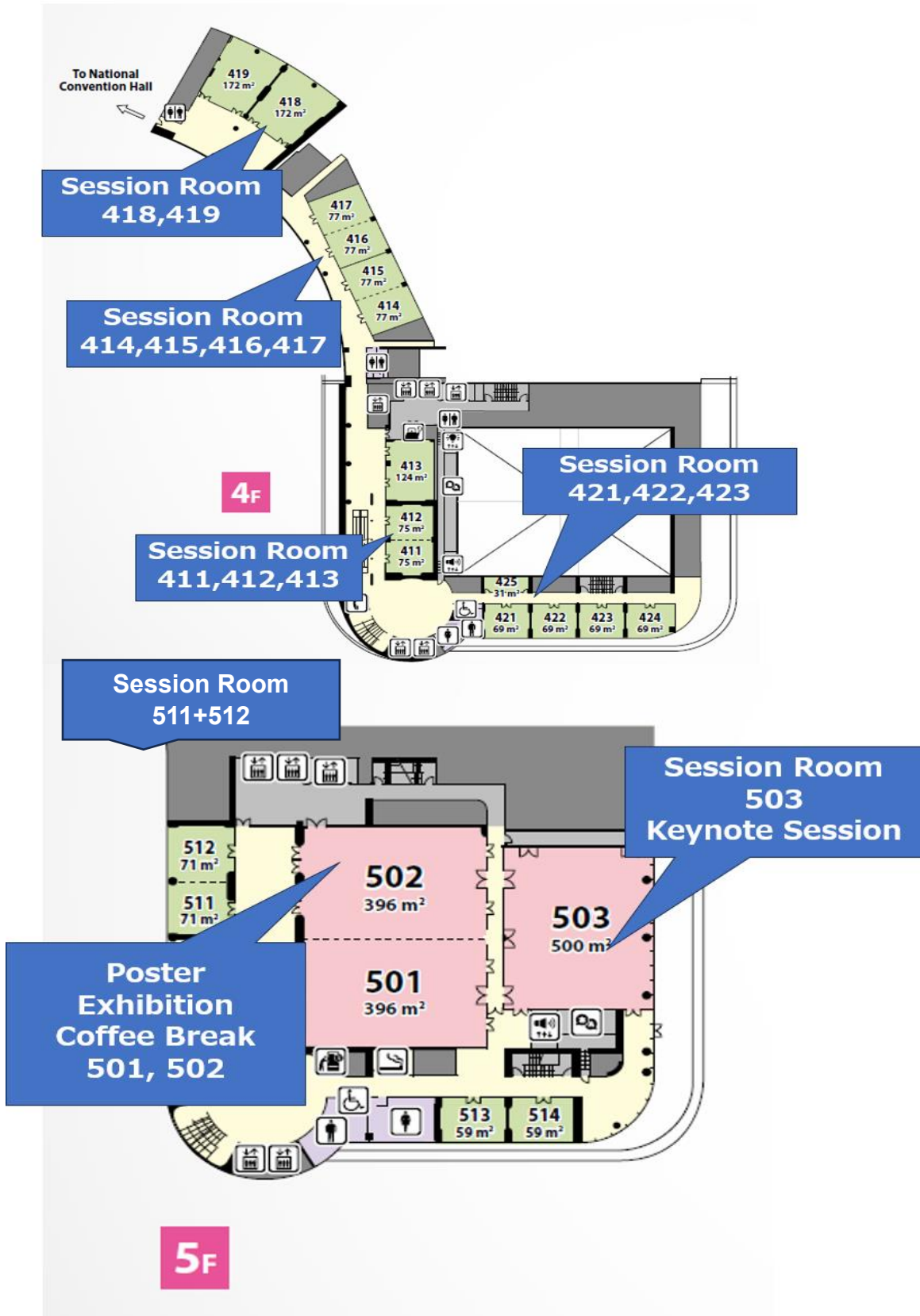Jinghui Zhong
Fangcen Zhong
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Yu Zhou
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Wenjun Zhou
Dong Zhou
Xiabing Zhou

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Dongmian Zou
Binghui Zou
Shicheng Zu
Pedro Zufiria
Andrea Zugarini
Nianming Zuo
Jiankai Zuo

Venue Map

Main Entrance

To Hotel

Information

Entrance

Registration Desk

221

222

223

224
18 m²

2F

Sakura Lounge

211
79 m²

212
79 m²

213
79 m²

VIP Room
46 m²

Session Room 211+212

Session Room 213

To National Convention Hall

315
319 m²

Session Room 315

InterContinental

Session Room 301,302,303,304 Opening Plenary Session Keynote Session

314
79 m²

313
73 m²

312
73 m²

311
79 m²

Session Room 311,312,313,314

3F

Foyer

321
28 m²

302
335 m²

304
294 m²

301
335 m²

303
294 m²

Foyer

316
63 m²

317
63 m²

318
63 m²

Session Room 316

To National Convention Hall

419
172 m²

418
172 m²

Session Room 418,419

417
77 m²

416
77 m²

415
77 m²

414
77 m²

Session Room 414,415,416,417

4F

413
124 m²

412
75 m²

411
75 m²

Session Room 411,412,413

Session Room 421,422,423

425
31 m²

421
69 m²

422
69 m²

423
69 m²

424
69 m²

Session Room 511+512

Session Room 503 Keynote Session

512
71 m²

511
71 m²

502
396 m²

501
396 m²

503
500 m²

Poster Exhibition Coffee Break 501, 502

513
59 m²

514
59 m²

5F

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76	71	67	63	58	54	50	46	42	38	33	26	18	10	2
77											27	19	11	3
78	72	68	64	59	55	51	47	43	39	34	28	20	12	4
79											29	21	13	5
80	73	69	65	60	56	52	48	44	40	35	30	22	14	6
81											31	23	15	7
82	74	70	66	61	57	53	49	45	41	36	32	24	16	8

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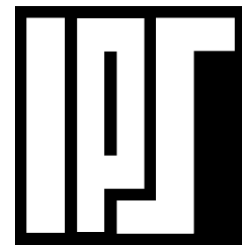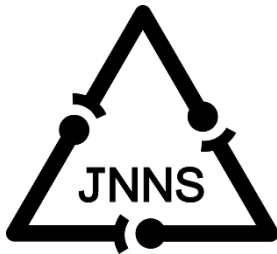
WCCI Plenary Speakers

Marios M. Polycarpou
"Connecting Computational Intelligence to the Cyber-Physical World"

University of Cyprus

Abstract: The development of cyber-physical systems with multiple sensor/actuator components and feedback loops has given rise to advanced automation applications, including energy and power, intelligent transportation, water systems, manufacturing, etc. Traditionally, feedback control has focused on enhancing the tracking and robustness performance of the closed-loop system; however, as cyber-physical systems become more complex and interconnected and more interdependent, there is a need to refocus our attention not only on performance but also on the resilience of cyber-physical systems. In situations of unexpected events and faults, computational intelligence can play a key role in improving the fault tolerance of cyber-physical systems and preventing serious degradation or a catastrophic system failure. The goal of this presentation is to provide insight into the design and analysis of intelligent monitoring methods for cyber-physical systems, which will ultimately lead to more resilient societies.

Bernadette Bouchon-Meunier
"Can intelligent systems be conscious?"

CNRS-Sorbonne Université

Abstract: The concept of consciousness is complex and takes various forms. The fact that an intelligent system can be conscious has long been discussed and the questions are getting louder as we see systems springing up everywhere that seem capable of dialoguing with humans in a very natural way. We propose to look at several facets of consciousness, from phenomenological consciousness linked to perceptions to access consciousness, which gives us information about one's actions. In 1982 already, Marvin Minsky 1 was considering that self-conscious systems could be done by providing machines with ways to examine their own mechanisms while they are working. Then Jacques Pitrat 2 in 2009 claimed that, for a conscious artificial being, the possibility of monitoring its own thought enables it to explain its decisions so that they can be accepted by others, which goes in the direction of eXplainable AI. A recent study 3 provides a list of indicator properties derived from scientific theories to assess consciousness for an intelligent system. We offer an overview of some interesting aspects of consciousness from the angle of intelligent systems, which can be different from human consciousness, and we wonder to what extent a present or a future system can have such a form of consciousness and what the advantages and drawbacks are.

Simon See
"Accelerating Science Discovery - High Performance Simulation, Math and AI"

Nvidia

Abstract: Modern scientific discovery relies on advances in data science, mathematics, and artificial intelligence (AI). The combination of these disciplines has led to significant breakthroughs in various fields, including materials science, drug discovery, and chip design. This talk discusses the role of AI-enriched simulation in accelerating science discovery and the use of high-performance computing, math, and AI to drive innovation.

Key aspects of AI-enriched simulation include:

Accelerating the discovery process: AI-enriched simulation uses AI to identify the most promising simulations to run on a massive dataset, reducing the computational expense and saving precious time and resources.

Automating complex simulations: AI-enriched simulation makes complex, predictive simulations automatable and user-friendly for researchers without deep computational expertise, removing a critical research bottleneck

Reducing the number of simulations needed: By using AI to analyze data and determine the most promising simulations, AI-enriched simulation can speed up screening by factors of 10-100 times.

Leveraging AI and machine learning: AI-assisted simulations use neural networks and machine learning algorithms to predict complex properties of materials and other systems, bypassing expensive physics-based routines and accelerating the discovery process.

Collaborative research: AI expertise, such as that found at Berkeley Lab, can be combined with traditional research methods to apply AI to various scientific problems, leading to innovative solutions and new discoveries.

In summary, the future of scientific discovery lies in the integration of high-performance simulation, math, and AI. By harnessing the power of these technologies, researchers can accelerate the discovery process, automate complex simulations, and unlock new possibilities in various fields.

Saori Tanaka

"Utilization of large-scale brain image database for digitalization of psychiatric and neurological disorders"

NAIST, ATR

Abstract: In recent years, neuroimaging databases for psychiatric and neurological disorders have enabled users to find common and disease-specific features and redefine disease spectra using data-driven approaches. In the Brain/MINDs beyond (2018-2023), the neuroimaging database projects have established the multiple sites, multiple disorders MRI database.

A remarkable feature of this database is the traveling-subjects dataset; each participant was scanned at each multisite. This led to the development of a harmonization method to reduce site differences and the development of a generalizable diagnostic marker with brain networks of major depressive disorder (Yamashita, et al., 2020). This database has expanded to 14 disorders and over 16 sites, and over 5,000 MRI data will be collected by the end of the project. This will be the largest MRI database of multiple neurological and psychiatric disorders from multiple sites. In addition, this database includes longitudinal patient data, allowing for the evaluation of treatment effects. This database is expected to lead to the stratification and the development of new treatment methods. Here, as a potential use of the database, I will suggest an integration with approaches based on the computational theory of the brain in addition to data-driven approaches. Computational neuroscience studies understanding the brain mathematically focused on the neural mechanisms of information processing. In recent years, these approaches have been applied to understanding psychiatric disorders. I will show some previous studies using large-scale behavioral data and computational models of psychiatric disorders and demonstrate possibilities of fusion with computational models and neuro-behavioral databases.

Akira Oyama

"Multiobjective evolutionary optimization in space engineering and spin-off to industry"

Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency

Abstract: Multiobjective evolutionary computation (MOEC) is getting popular in Japan because it has various advantages such as capability of finding wide variety of Pareto-optimal designs. In Japan Aerospace Exploration Agency (JAXA), I have been engaged in multiobjective design optimizations in space engineering such as rocket engine turbopump design, spacecraft trajectory design, reusable space transportation system design, spacecraft

landing system design, selection of Moon landing site. In this talk, I will introduce some examples of these applications of MOEC in JAXA.

Then, I will introduce spinoff of the multiobjective design optimization technology to industry. Here, I will present the collaboration work with Mazda, Kobe University, and Hiroshima University for aerodynamic car shape design and the collaboration work with Central Japan Railway Company for aerodynamic and aeroacoustics design of superconducting maglev. Finally, I will discuss current issues in using MOEC for real-world design problems and our recent approaches to overcome these issues.

Keynote Speakers

IJCNN Keynotes Speakers

Johan Suykens
"Least Squares Support Vector Machines and Deep Learning"

Katholieke Universiteit Leuven

Abstract: While powerful architectures have been proposed in deep learning, with support vector machines and kernel-based methods solid foundations have been obtained from the perspective of statistical learning theory and optimization. Simple core models were obtained within the least squares support vector machines framework, related to classification, regression, kernel principal component analysis, kernel canonical correlation analysis, kernel spectral clustering, recurrent models, approximate solutions to partial differential equations and optimal control problems, etc. The representations of the models are understood in terms of primal and dual representations, respectively related to feature maps and kernels. The insights have been exploited for tailoring representations to given data characteristics, both for high dimensional input data and large scale data sets. One can either work with explicit feature maps (such as e.g. convolutional feature maps) or implicit feature maps through the kernel functions.

Within this talk we will mainly focus on new insights connecting deep learning and least squares support vector machines. Related to Restricted Boltzmann machines and Deep Boltzmann machines we show how least squares support vector machine models can be transformed into so-called Restricted Kernel Machine representations. It enables to conceive new deep kernel machines, generative models, multi-view and tensor based models with latent space exploration, and obtain improved robustness and explainability. On most recent work, we will explain how the attention mechanism in transformers can be seen within the least squares support vector machine framework. More precisely it can be represented as an extension to asymmetric kernel singular value decomposition with primal and dual model representations, related to two feature maps (queries and keys) and an asymmetric kernel. In the resulting method of "Primal-Attention" a regularized loss is employed to achieve low-rank representations for efficient training in the primal.

Finally, these newly obtained synergies are very promising in order to obtain the bigger and unifying picture. Several future challenges will be outlined from this perspective.

Masashi Sugiyama
"Towards More Robust and Reliable Machine Learning"

Riken, The University of Tokyo

Abstract: In statistical machine learning, training data is often full of uncertainties due to insufficient information, label noise, and bias. In this talk, I will give an overview of our research on reliable machine learning, including weakly supervised learning, noise-robust learning, and transfer learning. Then, I will discuss our recent challenges to integrate these approaches and develop a generic machine learning methodology with fewer modeling assumptions.

Plamen Angelov
"Learning from Data in post-Foundation Models Era: bringing learning and reasoning together"

Lancaster University

Abstract: Deep Learning continues to attract the attention and interest not only of the wider scientific community and industry, but also society and policy makers. Fuelled by the remarkable generalisation and separability capabilities offered by the transformers (e.g. ViT), Foundation Models (FM) offer unparalleled feature extraction opportunities. However, the mainstream approach of end-to-end iterative training of a hyper-parametric, cumbersome, and opaque model architecture led some authors to brand them "black box". This degrades their generalisation, requires many labelled data, compute power and related energy, etc. costs. Cases were reported when such models can give wrong predictions with high confidence - something that jeopardises the safety and trust. Deep Learning is focused on accuracy and overlooks explainability and the semantic meaning of the internal model representations, reasoning and its link with the problem domain. In fact, it shortcuts from the large amount of (labelled) data to the predictions bypassing and substituting the causality with correlation and error minimisation. It relies on assumptions about the data distributions that are often not satisfied and suffers from catastrophic forgetting when faced with continual and open set learning. Once trained, such models are inflexible to new knowledge. They are good only for what they were originally trained for. Indeed, the ability to detect unseen and unexpected and start learning this new class/es in real time with no or very little supervision (zero- or few- shot learning) is critically important but is still an open problem. The challenge is to fill the gap between the high levels of accuracy and the semantically meaningful solutions. This talk will focus on "getting the best from both worlds": the powerful latent feature spaces formed by pre-trained deep architectures such as transformers combined with the interpretable-by-design (in linguistic, visual, semantic, and similarity-based form) models. One can see this as a

fully interpretable frontend and a powerful backend working in harmony. Examples will be demonstrated from the latest projects from the area of autonomous driving, Earth Observation, health and a set of well-known benchmarks.

Yukie Nagai
"Predictive Processing: Illuminating and Modeling Cognitive Development"

The University of Tokyo

Abstract: Cognitive development is an intricate and multifaceted process that has captivated researchers for decades. Human abilities related to perception and action continually evolve during development, exhibiting remarkable diversity among individuals.

This presentation explores the concept of predictive processing as a promising unified theory for illuminating and modeling cognitive development. Rooted in neuroscience, predictive processing offers a unique perspective for understanding how the brain constructs its perception of the world. The core idea posits that the brain continually generates internal models to predict the world and refines them in response to sensory input to minimize prediction errors. This dynamic process underlies the acquisition of cognitive abilities, from self-recognition to goal-directed actions, and even fosters the emergence of social behaviors like imitation and altruism, facilitated through multimodal predictions.

Moreover, this presentation sheds light on how disruptions in predictive processing lead to individual diversities, including developmental disorders. By emphasizing the concept of predictive processing and showcasing its practical application in robotic experiments, we aim to demonstrate its potential as a unifying framework for cognitive development. This presentation opens doors to exciting opportunities for creating more adaptive and intelligent systems.

Divyashree-Shivakumar Sreepathihalli
"Keras, A shortcut to master AI"

Google

Abstract: Discover the transformative capabilities of the Keras 3 API. Delve into deep learning best practices, where you'll gain insights into crafting uncomplicated models and executing them with your preferred backend—be it PyTorch, TensorFlow, or JAX. Explore the dynamic potentials of KerasNLP and KerasCV modules, unveiling the art of constructing powerful AI applications. Witness the seamless creation of generative image and language models, empowering you to achieve remarkable feats with just a few lines of code.

CEC Keynotes Speakers

Yew Soon Ong
"Multifactorial Evolutionary Computation with Applications in Machine Learning and Scientific Discovery"

Nanyang Technological University

Abstract: The human mind demonstrates an exceptional capacity to manage multiple tasks seemingly simultaneously while also exhibiting the ability to leverage knowledge acquired from solving one task and apply it to different yet related challenges. Given the exploding volume and variety of information streams, the opportunity, tendency, and (even) the need to address different tasks in quick succession is unprecedented. Yet, the design of population-based algorithms of evolutionary computation (EC) has traditionally focused on addressing a singular task (or problem) at a time. It is only recently that the idea of multifactorial evolution has come to the fore, leading to the growing popularity of transfer and multitask EC. The nomenclature signifies a search involving multiple optimization tasks, with each task contributing a unique factor influencing the evolution of a population of candidate solutions. The multifactorial evolutionary algorithm (MFEA) is distinguished by implicit genetic transfers between tasks, promising free lunches in optimization by reusing knowledge from related problems. The method makes possible the rapid discovery of diverse, high quality outcomes, and potentially out-of-the-box solutions through inter-task genetic crossovers. In this talk, some of the latest algorithmic advances of MFEAs shall be presented, encompassing both single-objective and multiobjective variants. The impact potential of algorithms designed to leverage multiple related tasks shall be showcased in the field of machine learning (through the creation of diverse sets of small but specialized models extracted from large pre-trained architectures) and in AI for scientific discovery (by facilitating fast simulations of multiple instantiations of the fundamental laws of nature). Multiobjective multitasking as a means to arrive at sets of Pareto optimal solution sets in other application domains shall also be highlighted.

Handing Wang
"Challenges in Data-Driven Evolutionary Optimization"

Xidian University

Abstract: Many real-world problems that are optimized based on data collected from historical records, numerical simulations, or physical experiments are called data-driven optimization problems. The interdisciplinary research area of data-driven evolutionary optimization involves techniques in data science, machine learning, and evolutionary algorithms. In an evolutionary data-driven optimization framework, data will be collected at first. Then, surrogate models, which are machine learning models, are built from the data to approximate the real objective functions and / or constraint functions. Given the approximated objective or constraint functions, evolutionary algorithms can then be applied to perform optimization. This talk will highlight the current challenges of data-driven evolutionary optimization based on the view of real-world applications. Also, the techniques to address those challenges will be introduced.

Jialin Liu
"Designing and playing games with computational intelligence"

Southern University of Science and Technology (SUSTech)

Abstract: Games provide an ideal playground for AI researchers to study, explore, evaluate, and experiment with different ideas in a controllable and safe environment. As an important application and product, games also involve complex decision-making and creative design tasks. Games have played important roles in the development of computational intelligence, while different computational intelligence methods have been widely applied to playing and designing games. In this talk, I will show how different computational intelligence methods (e.g., generative models, reinforcement learning and evolutionary computation) could be harnessed to procedurally generate new game contents, from game levels to accompanying music that correlates with game difficulties. In addition, I will also show how novel computational intelligence techniques, especially evolutionary reinforcement learning, could be used to play a range of different games. I will conclude the talk by discussing current challenges and potential research directions.

Mengjie Zhang
"Evolutionary Machine Learning: 50 Years of Progress"

Victoria University of Wellington

Abstract: Evolutionary machine learning have been very popular over the recent years. In this talk, I will firstly provide a brief overview of the history of evolutionary machine learning with the major developments over the past 50 years, then focus on the main paradigms of evolutionary machine learning and their successes in classification, feature selection, regression, clustering, computer vision and image analysis, scheduling and combinatorial optimisation, deep learning, transfer learning and explainable/interpretable machine learning. The main applications, challenges and lessons as well as potential opportunities will be also discussed.

Tobias Rodemann
"Trust in Optimization Algorithms – The End User Perspective"

Honda Research Institute Europe

Abstract: Evolutionary Algorithms have a potentially wide-spread usage. They can deal with various types of design parameters, constraints and objectives; non-linear, discontinuous, noisy fitness landscapes and many, even conflicting objectives can be handled. There are numerous open-source software packages for quickly applying EA methods on various problems. In practice, however, EAs are not used as frequently as we would hope. In this talk I would like to provide some insights from industrial projects and focus especially on the perspective of the end user. I will argue that hot topics in ML like trust, transparency and explainability, also need to be considered in Computational Intelligence.

FUZZ-IEEE Keynotes Speakers

Qiang Shen

"When There Is Little Data Can AI Still Work? – Approximate Reasoning with Knowledge Interpolation and its Applications"

Aberystwyth University

Abstract: AI is on the brink of revolutionising industries globally, having made significant advancements in recent years. These achievements are primarily attributed to the use of deep learning techniques that process vast amounts of data. Yet, a pivotal question emerges when faced with limited data for a new problem, especially if this data is ambiguously characterised. Can AI maintain its efficacy under these constraints? This presentation delves into contributions addressing this query, highlighting how fuzzy rule interpolation (FRI) enables approximate reasoning in situations marked by sparse or incomplete knowledge.

This is particularly relevant when traditional rule-based inference mechanisms falter because observations do not align with existing rules. Research into FRI techniques has been extensive within the realm of computational intelligence, yielding multiple methodologies. This presentation will centre on a prominent subset, Transformation-based FRI (T-FRI), which operates by mathematically modifying rules that bear resemblance to unmatched observations. Every technique within this category applies linear transformations of the nearest rules, automatically chosen relative to an unmatched observation. The talk will kick off with an exploration of the foundational T-FRI approach and segue into a concise overview of its expanded repertoire: adaptive T-FRI, backward T-FRI, higher-order T-FRI, dynamic T-FRI, and weighted T-FRI. Each addresses certain shortcomings inherent to the original method. Subsequently, real-world applications of these methodologies will be showcased, exemplifying their potency in tackling formidable challenges in domains like network security and medical diagnosis. These cases will underscore AI's capability to function effectively even with incomplete knowledge and ambiguous data. The presentation will wrap up with a glimpse into prospective advancements in this crucial research domain.

Francisco Herrera
"Fuzzy Systems to Support Safe and Trustworthy Artificial Intelligence"

University of Granada

Abstract: Artificial Intelligence (AI) has matured as a technology, AI has quietly entered our lives, and it has taken a giant leap in the last year. Image generative AI models or the latest evolutions of large language models have meant that AI has gone, in just a few months, practically from science fiction to being an essential part of the daily lives of hundreds of millions of people around the world.

This emergence goes hand in hand with a growing global debate on the ethical dimension of AI which raises the need for responsible, fair, inclusive, trustworthy, safe, transparent and accountable frameworks. Two essential concepts emerge in this scenario. 1) Trustworthy AI, supported on the legal, ethical, and technical robustness pillars, including seven technical requirements. 2) AI safety, which encompass machine ethics and AI alignment, aiming to make AI systems moral and beneficial, and robustness technical problems (including monitoring systems for risks, robustness against adversaries, detecting malicious use, attacks and backdoors, …) Safe and trustworthy AI is a critical area to meet upcoming regulations, the necessary auditability metrics for their analysis and compliance, address ethical issues, manage risk analysis in human-AI system interaction, and ensure the technical soundness of responsible AI systems (auditability and accountability during its design, development and use). This talk addresses the role that fuzzy systems can play in supporting the technical requirements of safe and trustworthy AI. The use of fuzzy sets and systems can support auditability and accountability metrics, to address different technical requirements for trustworthy (explainability, privacy and federated learning, fairness, …), and to design fuzzy monitoring systems for robustness, … Finally, we should delve into another essential aspect, discuss and think about the development of fuzzy technologies that fit into the design requirements for auditability and design frameworks for accountable AI systems. This is a great opportunity to explore in today's emerging safe and trustworthy AI scenario.

Jim Tørresen
"AI Ethics – Challenges and Opportunities"

University of Oslo

Abstract: Artificial intelligence (AI) has entered an increasing number of different domains. A growing number of people – in the general public as well as in research – have started to consider a number of potential ethical challenges and legal issues related to the development and use of AI technologies. This keynote will give an overview of the most commonly expressed ethical challenges and ways being undertaken to reduce their negative impact.

Among the most important challenges are those related to privacy, fairness, transparency, safety and security. Countermeasures can be taken first at design time, second, when a user should decide where and when to apply a system and third, when a system is in use in its environment. In the latter case, there will be a need for the system by itself to perform some ethical reasoning if operating in an autonomous mode. This keynote will introduce some examples from our own and others´ work and how the challenges can be addressed both from a technical and human side with special attention to problems relevant when working with AI research and development. AI ethical issues should not be seen only as challenges but also as new research opportunities contributing to more sustainable, socially beneficial services and systems.

Gabriella Pasi
"Large Language models: contextual knowledge matters."

University of Milano Bicocca

Abstract: The last few years have witnessed an increasing development of generative AI and its applications, which culminated in the large-scale sharing of ChatGPT on the Web, with its related potentials, risks and limitations. Large Language Models are one of the possible technologies at the basis of generative AI; they are nowadays successfully applied to a variety of NLP tasks, among which are machine translation, conversational agents, and several others. Despite this, LLMs are affected by some limitations, among which a lack in accounting for contextual knowledge related to the task at hand. A research trend is to inject such knowledge (in-context) into LLMs via prompting techniques. A more recent and promising research direction is to make use of neuro-symbolic approaches, to better model and control the process. In this talk, after a short introduction to LLMs, I will present some possible approaches finalized to this latter aim. I will also present the research issue of defining personal language models, i.e. LLMs tailored on the language of specific users or groups of users.

Jie Lu
"Fuzzy Machine learning"

University of Technology Sydney

Abstract: The talk will present the concepts, methodologies, and algorithms of fuzzy machine learning, including fuzzy transfer learning, fuzzy concept drift detection and adaptation, and fuzzy recommender systems. It will also present how the fuzzy machine learning techniques can effectively support data-driven prediction and decision-making in uncertain, complex, and dynamic situations.

Online Invited Speakers

Hussein Abbass
"Explaining Explainable Artificial Intelligence"

School of Systems and Computing, University of New South Wales

Abstract: Explainable Artificial Intelligence (XAI) is one of the hottest topics in AI today. Ironically, one would think that a motivation for the importance of XAI is for people to better understand AI and the AI models in use. However, diversity of opinions and perspectives on XAI has created more ambiguities and confusions than helping in any meaningful way. To even explain what an explanation is, some papers in the literature have confused the term, making it close to impossible to newcomers to the field to find coherence or aspire for consistency. The diversity is reaching unhealthy state with orthogonal definitions and taking antonyms and incommensurable concepts making them synonyms. The aim of this presentation is to disambiguate XAI, taking the audience into a trip that will start from the basics, travel through contemporary literature, land on current challenges of XAI and providing food for thoughts along the way. My aim is not to unify XAI or create a universal agreement. My aim is to maximise people understanding of XAI and to have the basis for those who disagree with me to communicate their disagreement in concise statements.

Erik Cambria
"Seven Pillars for the Future of AI"

NTU Singapore

Abstract: In recent years, AI research has showcased tremendous potential to impact positively humanity and society. Although AI frequently outperforms humans in tasks related to classification and pattern recognition, it continues to face challenges when dealing with complex tasks such as intuitive decision-making, sense disambiguation, sarcasm detection, and narrative understanding, as these require advanced kinds of reasoning, e.g., commonsense reasoning and causal reasoning, which have not been emulated satisfactorily yet. To address these shortcomings, we propose seven pillars (https://sentic.net/seven-pillars-for-the-future-of-artificial-intelligence.pdf) that we believe represent the key hallmark features for the future of AI, namely: Multidisciplinarity, Task Decomposition, Parallel Analogy, Symbol Grounding, Similarity Measure, Intention Awareness, and Trustworthiness.

Workshops

IJCNN Workshops

Workshop: Towards Realizing Whole-Brain Computational Models Guided by Cognitive Models
Organizer(s): Akira Taniguchi, Yoshimasa Tawatsuji, Junya Morita
Date: June 30, 2024
Time: 8:30 – 16:10
Room: 314
Abstract: In recent years, there has been a focused effort to develop Whole Brain Computational Models (WBCMs), aiming to represent the entire brain's functions and contribute to creating artificial intelligence with human-level capabilities. WBCMs involve not only neuroscientific but also cognitive models, especially in constructing a cognitive architecture for consistency. Cognitive models enhance interpretability in implementing WBCMs into AI agents, providing insight into thought processes. This approach, resembling human cognition, offers potential psychological reassurance to users. The discussion about the relationship between cognitive models and WBCMs is linked to AI alignment debates, crucial as powerful AI systems develop. The workshop aims to discuss methodologies to realize WBCMs, emphasizing the role of cognitive models.

Workshop: IEEE Humanitarian Activities Workshop with AI Technologies
Organizer(s): Kojiro Nishimiya; Kohei Ohno; Mayumi Suzuki; Toshihiko Sugie; Yasuhiro Takishima
Date: June 30, 2024
Time: 8:30 – 12:40
Room: 418
Abstract: A workshop to discuss Humanitarian Activity from a broad perspective, including global warming, renewable energy, and the SDGs, with participants. The workshop is divided into two sessions. In the first half, each participant will give a presentation on an issue broadly related to Humanitarian Activity, using his or her own technology to find a solution. In the second half, participants will be divided into small groups for discussion, which may include in-depth discussions of the presentations by the presenters in the first half, or discussions of solutions to the other Humanitarian Activity issues using the participants' own technologies. This workshop is intended for those who are interested in Humanitarian Activity but have not yet started full-scale research, and for those who are motivated by the opinions of others and wish to apply them to their future research. Therefore, student presentations are also welcome. We also welcome those who are already conducting full-scale research on Humanitarian Activity. As for technology, the workshop is open to all those who are broadly involved in computing technology, such as neural

networks, fuzzy and Evolutional computing, etc. This workshop is organized by the IEEE Tokyo Section SIGHT (Special Interest Group on Humanitarian Technology).

Workshop: International Workshop on Forging Trust in Artificial Intelligence

Organizer(s): Nistor Grozavu; Nicoleta Rogovschi; Corina Besliu; Seiichi Ozawa; Aikaterini Tzompanaki; Dimitris Kotzinos

Date: July 2, 2024

Time: 8:20-18:40

Room: 211+212

Abstract: Establishing and upholding trust in AI systems is an imperative pursuit as Machine Learning becomes intricately interwoven into our daily lives. The workshop, "Forging Trust in Artificial Intelligence" brings together a group of experts and researchers from diverse subfields, converging on the exploration of how transparency, fairness, privacy, and security collectively contribute to making machine learning trustworthy. By uniting experts across these pivotal disciplines, this workshop illuminates the best practices that not only enhance the trustworthiness of AI but also reinforce its ethical foundations.

Ensuring trust in machine learning is necessary for unlocking its potential while minimizing risks. This is especially true in the current environment, where the constant expansion of data sources aligns with a growing interest in using them to develop comprehensive and universally applicable AI systems. This interest highlights the need to address issues related to transparency, fairness, privacy and security, particularly in the area of multimodal learning, where various data types and learners are combined to create sophisticated, but often opaque AI systems.

Within this context, establishing best practices for data integration is essential to ensure transparency and interpretability of AI systems based on diverse learners. Fairness considerations, on the other hand, may involve identifying and addressing potential biases from different modalities. This includes exploring approaches to mitigate their impact and leveraging fair representation learning when integrating information from sources with varying bias levels. By addressing such issues alongside data privacy and security concerns, this workshop aims to contribute to the development of ethical, transparent, and secure AI that has a positive impact on our global society's well-being.

Workshop: Advances in Optimizing and Transfer Learning Models

Organizer(s): Issam Falih; Chafik Samir

Date: June 30, 2024

Time: 16:20 –18:20

Room: 213

Abstract: Proposal This workshop will cover original and pioneering contributions, theory as well as applications on optimizing, combining, and transferring learning models, and aim at an inspiring discussion on the recent progress and the future developments. Learning models, especially those based on different paradigms, can be combined and optimized for improving their accuracy. Thus, each learning method imposes specific modeling from observations which translates to a set of constrains. However, such assumptions may lead to weak and non adapted learners if they are not satisfied. In many cases, the ill-posed of the learning process and the data partiality of observations make the optimization methods converge to different solutions and subsequently fail under various circumstances. The workshop will be a good opportunity, to discuss recent advances in optimizing and learning models. Furthermore, the effectiveness of these methods will be discussed considering the concepts of diversity and selection of these approaches. The workshop will strive to bring together the practitioners of these approaches in an attempt to study a unified framework under which these interactions can be studied, understood, and formalized. Authors of the most insightful papers already accepted for publication, will be invited to submit an extended version of their work to a Special Issue of the Computational Intelligence journal (IF: 2.8). The following is a partial list of relevant topics (not limited to) for the workshop: Transfer learning and domain adaptation Optimization of cost functions for learning Bagging and boosting techniques Collaborative clustering and learning Hybrid systems Mixtures of distributions or experts Modular approaches Multi-task learning Multi-view learning Task decomposition ... Format and activities We propose a Workshop composed of one or two invited speakers, a set of contributed papers and presentations, and a panel discussion around the presented works. Depending on the number of contributions, the workshop's duration would be from half a day to one day. Program Committee members Shantanu Joshi, University of California Los Angeles, USA Razvan Andonie, Central Washington University, USA Rosanna Verde, Università della Campania "Luigi Vanvitelli", Italy Rushed Kanawati, Sorbonne Paris Nord University Seichi Ozawa, Kobe University Engelbert Mephu Nguifo, Clermont Auvergne University Mourad El Hamri, Université Paris cité Nistor Grozavu, CY Cergy Paris University Nicoleta Rogovschi, Paris Descartes University Preliminary list of invited speakers: Shantanu Joshi, University of California Los Angeles, USA Stephane Chretien, University of Lyon, France Razvan Andonie, Central Washington University, USA

Workshop: IEEE Brain Workshop on AI for Neurotechnology
Organizer(s): Damien Coyle, Cuntai Guan, Nik Kasabov
Date: June 30, 2024
Time: 8:30 – 16:10
Room: 301

Abstract: Neural Networks and Computational Intelligence researchers have a lot to offer in terms of dealing with the challenges to create robust and trustworthy AI for Neurotechnology. The IEEE Brain AI for Neurotechnology workshop aims to bring together researchers specifically focused on neurotechnology with experts in AI to present and learn about the most recent advances in AI for neurotechnology data gathering and data sharing initiatives federated learning for privacy preserving model training building towards foundational models approaches

The workshop, associated with the Institute for the Augmented Human at the University of Bath will provide opportunities for AI and neural networks researchers to contribute to and benefit from improving neurotechnology with the latest advances in AI.

The workshop will include a keynote talk, invited speakers, a panel session and a poster session for papers submitted by delegates. Invited speakers will include this working at the cutting edge of applying Deep Neural Network Technologies to process brain data for neurotechnology applications.

There are prizes for best papers/poster.

According to IEEE Brain from whom we have sought sponsorship for this workshop (http://www.ieeebrain.org/), neurotechnologies represent the next technology frontier – the workshop is supported by the IEEE Brain Technical Community and IEEE CIS.

Workshop: AI Innovations for Education: Transforming Teaching and Learning through Cutting-Edge Technologies

Organizer(s): Irwin King, Danilo Mandic, Eyad Elyan and Zenglin Xu

Date: June 30, 2024

Time: 8:30 – 12:40

Room: 423

Abstract: In this workshop, we will explore the latest advancements in AI technology, with a particular focus on its applications in education. Our aim is to provide an in-depth understanding of how these innovations can revolutionize content creation, teaching methods, and assessments. Topics may include Augmented Reality (AR), Virtual Reality (VR), Gamification, Generative AI for content creation, language learning, administrative task automation, accessibility, automated grading and assessment systems, and Intelligent Tutoring Systems.

We will also discuss the practical challenges and ethical considerations related to integrating AI in education. This includes the potential impact of AI on job roles within the education sector, how AI can complement rather than replace teachers, and the importance of developing AI literacy among educators. The need for ongoing research and development in this field will also be emphasized.

The workshop will feature a keynote, a panel discussion, and invited talks. The keynote will underscore the workshop's theme, while the panel will probe into the future of AI in education, exploring potential advancements and their advantages for both educators and students. Invited talks will envision a future where AI holds a substantial role in education and discuss how we can prepare for this change.

Remember, the future of education lies at the crossroads of pedagogy and technology. Join us as we venture into this exciting future.

The workshop, associated with the Institute for the Augmented Human at the University of Bath will provide opportunities for AI and neural networks researchers to contribute to and benefit from improving neurotechnology with the latest advances in AI.

The workshop will include a keynote talk, invited speakers, a panel session and a poster session for papers submitted by delegates. Invited speakers will include this working at the cutting edge of applying Deep Neural Network Technologies to process brain data for neurotechnology applications.

There are prizes for best papers/poster.

According to IEEE Brain from whom we have sought sponsorship for this workshop (http://www.ieeebrain.org/), neurotechnologies represent the next technology frontier – the workshop is supported by the IEEE Brain Technical Community and IEEE CIS.

FUZZ-IEEE Workshops
Workshop: Computational Intelligence in Human Informatics
Organizer(s): Javier Andreu-Perez; Satoru Hiwa; Tomoyuki Hiroyasu
Date: June 30, 2024 / July 3, 2024
Time: 8:30-12:40 / 14:20 – 18:00
Room: 316 / 213

Abstract: This workshop is a multi-conference event focused on Human Informatics. It is designed for researchers engaged in exploring and modelling human data through computational intelligence. This includes data gathered from real-world observations or experimental situations, with the aim of enhancing human-machine interfaces and deepening our understanding of human behaviours or biological processes. It further included computational theories aimed at improving the harmonious integration of AI and intelligent machines with humans. The goal is to enable these technologies to be effectively utilized by humans, to work collaboratively and in tandem with them, and to promote a deeper comprehension and collaboration between artificial intelligence and their human operators. The event will feature presentations by global experts and panel discussions. These sessions will delve into the newest advancements in computational intelligence within this research area. Additionally, there will be a focus on discussing the current challenges and trends in the field. Existing research can also be brought in for discussion with the community. This platform aims to foster a comprehensive exchange of ideas and insights among senior and early-career scientists in this intense field of research.

CEC Workshops

Workshop: Workshop on Computational Intelligence Applications
Organizer(s): Hiroyuki Sato, Akira Oyama, Ohta Yoshihiro, Takehisa Kohira, Takakuni Minewaki, and Masaya Nakata.
Date: July 2, 2024
Time: 8:20 - 18:40
Room: 213
Abstract: In this workshop, we discuss research related to computational intelligence, mainly evolutionary computation. Computational intelligence is attracting attention as a way to tackle complex and large-scale real-world problems and reduce human intervention. The objectives of this workshop are to share real-world applications using computational intelligence and their methodologies and intensively discuss things that can be, cannot be, and should be done by computational intelligence. Although the main topic is evolutionary computation, other computational intelligence methodologies can be discussed in this workshop to advance the research in this domain further. Each speaker in this workshop can make a presentation with/without paper submission. Organizers will make a proceeding including the submitted papers and share only among the participants of this workshop.

Workshop: Workshop on Search and Selection in Continuous Domains
Organizer(s): Stephen Chen and Marjan Mernik
Date: June 30, 2024
Time: 14:10 – 18:20
Room: 423
Abstract: A recurring theme in metaheuristics research is to consider the balance between Exploration and Exploitation. An often forgotten area of research is the effect of Selection on Search/Exploration. It is noted that Selection has the ability to turn any search process into a hill climber by rejecting all exploratory search solutions (and keeping only exploitative solutions). The first goal of this workshop will be to reanalyze current metaheuristics from the perspective of selection (as opposed to exploration and/or an underlying metaphor). Subsequent results/goals include a selection-based taxonomy for the explosion of metaphor-based metaheuristics, tools to accurately measure exploration and the effects of selection on exploratory search solutions, the identification and categorization of selection errors, and suggestions for future methods of selection and metaheuristic design.

Workshop: Workshop on Multimodal Optimization for Machine Learning
Organizer(s): Jing Liang, Caitong Yue, Kunjie Yu, Ying Bi
Date: July 4, 2024
Time: 14:20-18:40
Room: 211+212

Abstract: The theme of this workshop is the use of multimodal optimization for machine learning, covering ALL different evolutionary computation-based techniques paradigms for machine learning. The aim of this workshop is to investigate both the new theories and applications in different multimodal optimization paradigms for machine learning. This workshop will bring together researchers and practitioners from around the world to discuss the latest advances in the field and will act as a major forum for the presentation of recent research.

Workshop: Privacy-Preserving and Fairness-Aware Optimization
Organizer(s): Xilu Wang, Shiqing Liu, Xiangyu Wang, Yaochu Jin, Ulrich Rückert
Date: July 4, 2024
Time: 8:30 – 16:40
Room: 213

Abstract: Optimization problems widely exist in many economic, scientific and engineering applications. Evolutionary optimization algorithms have been extensively studied and achieved remarkable results in the fields of mathematics, operations research and computer science. A common implicit assumption in most existing optimization methods is that all resources for an optimization task are available and stored on a single device. Unfortunately, the assumption is violated in many applications with the growing storage of personal data and computational power of edge devices. Furthermore, jointly addressing optimization tasks among multiple edge devices with distributed data raises concerns about data security, privacy protection and fairness. As a result, it is crucial to develop new optimization paradigms to leverage the power of distributed computing and storage.

Over the past years, federated learning has become a popular machine learning paradigm that can leverage distributed data without leaking sensitive information. This is achieved by constructing a global model by aggregating local models separately trained on different devices/clients using local data. In contrast to federated learning, privacy preserving optimization has received much less attention. For data-driven optimization, it could be affected by data or algorithmic bias and thus generate unfair results: when the objective function values are correlated with real-world rewards (e.g., money), parties may be hesitant to collaborate if they risk incurring smaller real-world rewards than others. Hence, addressing the potential unfairness problems in optimization is also vital for building a positive and sustainable ecosystem, highlighting the need for new optimization techniques.

Workshop: The Evolutionary Computation in Health (TECH)
Organizer(s): Neil Vaughan
Date: July 1, 2024
Time: 14:20 – 16:20
Room: 213

Abstract: This Evolutionary Computation for Healthcare workshop (TECH-2024) is multidisciplinary, bringing together AI and Healthcare researchers working in the fields of personalised medicine, medical devices; clinical diagnostics, and patient monitoring by applying advanced genetic and evolutionary computation techniques to address critical problems in digital healthcare and medical applications.

The Evolutionary computation for health (TECH) and novel AI solutions, offer the next generation of healthcare solutions, when the demand on health systems and hospitals worldwide is increasingly becoming unsustainable. As the mode of treatment turns from the hospital to the home, there has been a particular focus on AI and EC for personalized medicine in the hope of improving patient care and reducing costs.

Topics of interest include (not exhaustive):

• Medical imaging

• Medical signal processing

• Medical text analysis

• Clinical diagnosis and therapy

• Data mining medical data records

• Clinical expert systems

• Modelling and simulation of medical processes

• Drug description analysis

• Genomic-based clinical studies

• Patient-centric care

• Patient/hospital management optimization

Competitions

CEC Competition Session 1

Date: July 1, 2024
Time: 8:20 – 9:40
Room: 213

Competition: Competition on Multiobjective Neural Architecture Search Challenge for Real-Time Semantic Segmentation
Website: https://www.emigroup.tech/index.php/news/ieee-cec-2024-competition-on-multiobjective-neural-architecture-search/

Competition: Competition on Super Large-scale Multiobjective Optimization for Status Assessment of Measuring Equipment
Website: https://github.com/ChengHust/IEEE-CEC-2024-Competition

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CEC Competition Session 2

Date: July 3, 2024
Time: 16:40 – 18:00
Room: 419

Competition: Competition on Constrained Multiobjective Optimization
Website: http://www5.zzu.edu.cn/ecilab/info/1036/1354.htm

Competition: Competition on Numerical Optimization (Single/Multi-Objectives, with and without constraints)
Website: https://github.com/P-N-Suganthan/2024-CEC

Competition: Competition on Fuzzy AI agent for Python game Kessler
Date: June 30, 2024
Time: 14:10 – 16:10
Room: 213
Website: https://xfuzzycomp.github.io/XFC/

Competition: 2024 IEEE CIS Student Grand Competition on Computational Intelligence in Biomedicine and Healthcare
Date: June 30, 2024
Time: 13:00 – 17:00
Room: 418

Competition: A Sandbox for Teaching and Learning in QCI for Pre-University and Undergraduate Students
Date: June 30, 2024
Time: 8:30 – 18:20
Room: 419
Website: https://sites.google.com/asap.nutn.edu.tw/ieee-wcci-2024/

Competition: Competition on Multi-Objective Black-Box Optimization Benchmarks in Human-Powered Aircraft Design
Date: July 1, 2024
Time: 16:40 – 18:40
Room: 213
Website: https://ec-comp.jpnsec.org/competitions/wcci2024

Panels

Panel: Explainable Artificial Intelligence - Recent Developments and Future Aspirations
Chair(s): Jonathan Garibaldi
Panelist(s): Keeley Crockett, Hussein Abbass, Alexander Gegov, Uzay Kaymak, Joao Sousa
Date: July 3, 2024
Time: 14:20 – 16:20
Room: 503
Explanation: The purpose of this panel session is to provide an open forum for discussing a wide range of important aspects of Explainable Artificial Intelligence (XAI) such as informativeness, trustworthiness, fairness, transparency, causality, transferability, reliability, accessibility, privacy, safety, verifiability and accountability.

Building citizen trust in Artificial Intelligence (AI) products and services requires clear responsibility and accountability pipelines. Human centred explainability is a key aspect of accountability and clear communication of how and why automated decisions are made requires user facing approaches. The panel will discuss explanations from a user perspective and why a mutual language of understanding about AI is important.

The topics discussed at the panel will cover technical aspects of XAI that may include local and global scope, specific and agnostic models, as well as aspects of constructive, what-if, counterfactual and example-based explanations.

Potential topics within the scope of the panel will include aspects related to real world bias of AI, how this bias is reflected in data bias, the encoding of data bias in algorithmic bias, its uncovering by XAI, and how the latter can then be used for closing the loop by mitigating real world bias.

The panel will also explore current challenges and future perspectives in XAI that may include formalisation and evaluation of explanations, their adoption in industry, their potential for improving human machine collaboration as well as their ability to facilitate collective intelligence, responsibility, security and causality in AI.

The actual selection of topics covered will be guided by the questions from the audience.

Panel: IEEE Standards Developments: Recent Advancements and Hot Topics
Chair(s): Bruno DiStefano and Robert Kozma
Panelist(s): Edward Au, Plamen Angelov, Autilia Vitiello
Date: July 1, 2024
Time: 16:20 – 18:40
Room: 301+302
Explanation: The Panel addresses the importance of standards in modern technologies overall, and describes the goals of IEEE Standards Association (SA), in particular. Target audience goes beyond volunteers who are actively involved in standards development at present. We reach out to a wide range of researchers and scientists, academic and industry experts, and describe that involvement in standards can be very beneficial for their professional development, their IEEE membership grades, including Fellows. We also involve young researchers, who are interested in learning about this important technical activity and potentially would get involved in it in the future.

The covered topics include: (i) Main features and advantages of standards development by IEEE SA, considering today's diverse field of Standards Development Organizations (SDOs). (ii) The key role of standards in Strategic Planning of IEEE and other organizations aiming at maintaining cutting edge expertise in technologies. (iii) Common threads and specifics in various industrial segments and geographic regions. (iv) Successful Standards Working Groups (SWGs) in CIS SC, such as Fuzzy Markup Language (FML) SWG, eXtensible Event Streams (XES) SWG, Explainable AI (XAI) SWG, and Video Games Vocabulary (VGV) SWG. (v) Present challenges in standards developments and hot topics, including public perception and ethical issues surrounding AGI, ChatGPT, and computational intelligence, in general.

Panel: Inside the Editorial Room: Conversations with CIS Editors-in-Chief

Chair(s): Kay Chen Tan

Panelist(s): Hussein Abbass, Yiu-ming Cheung, Carlos A. Coello Coello, Jonathan Garibaldi, Yongduan Song, Huajin Tang, Chuan-Kang Ting, Dongrui Wu, Georgios N. Yannakakis

Date: July 2, 2024

Time: 8:20 – 10:00

Room: 301+302+303+304

Explanation: The purpose of the Editors-in-Chief Panel Session is to create a forum where Editors-in-Chief from CIS Transactions/Magazine can share their insights, experiences, and best practices in academic publishing with the conference attendees. As the academic publishing landscape evolves rapidly, this panel discussion will shed light on the latest trends, challenges, and opportunities in the field.

During this panel session, attendees can engage with the Editors-in-Chief as they delve into a range of pertinent topics. The discussion will cover evolving trends in academic publishing and their implications for research dissemination, ethical considerations and best practices for authors, reviewers, and editors; strategies for successful manuscript submission, review, and publication; addressing issues related to peer review, plagiarism, and scientific misconduct, and the importance of collaboration between researchers and journals.

Panel: Can AI Craft AI Inspired by the Brain?: Insights from the Fathers
Chair(s): Hiroshi Yamakawa
Panelist(s): Kunihiko Fukushima, Shunichi Amari, Shiro Takagi
Date: July 3, 2024
Time: 14:20 – 16:20
Room: 301+302
Explanation: In recent years, neural network research has seen remarkable development of Transformer-based models, including large-scale language models, basic models, and generative AI. However, current technological advances may be approaching their limits, and it remains to be seen whether the realization of advanced AI, such as Artificial General Intelligence (AGI), is possible using only existing methods. This may be partly due to the inability to rapidly expand the readily available data.

This panel invites two pioneers in neural network-based AI to explore whether insights from neuroscience can be incorporated into future AI research. The session will begin with a talk by Kunihiko Fukushima. He will discuss lessons learned from AI and its contributions to the technology behind deep learning. Shiro Takagi will then talk about the current state of the art in this field and present the current state and potential of AI research conducted by AI itself. In addition, Shunichi Amari, author of "The New Era of AI," will address a wide range of topics related to evolving AI research in light of the rapid progress of AI.

The panel discussion will delve into AI's impact on AI researchers' work and the evolution of AI research methods. Through this discussion, we aim to explore AI's future of AI research and humans' evolving role in this research domain. Ultimately, this panel discussion will provide valuable insights to the participants and catalyze specific action plans and new research directions for the future of AI research.

Panel: How to Improve and Promote EC Research and EC Conferences
Chair(s): Yaochu Jin and Mengjie Zhang
Panelist(s): Carlos Coello Coello, Kalyanmoy Deb, Hisao Ishibuchi, Yew Soon Ong, Kay Chen Tan, Bing Xue
Date: July 2, 2024
Time: 14:20 – 16:20
Room: 418

Explanation: In recent years, neural network research has seen remarkable development of Transformer-based models, including large-scale language models, basic models, and generative AI. However, current technological advances may be approaching their limits, and it remains to be seen whether the realization of advanced AI, such as Artificial General Intelligence (AGI), is possible using only existing methods. This may be partly due to the inability to rapidly expand the readily available data.

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Panel: What will bring AI towards AGI?
Chair(s): Hava Siegelmann and Robert Kozma
Panelist(s): Hiroshi Yamakawa, Jose Principe, Roy Siegelmann, Alvaro Velasquez, Don Wunch
Date: July 1, 2024
Time: 14:20 – 16:20
Room: 301+302

Explanation: Artificial General Intelligence (AGI) is the not-yet-achieved goal of highly capable systems which can do far more than static classification, playing computer games or operating robot in sterile environments. The strong definition of AGI is a system that is more intelligent than all humanity together, since it will learn all expertise that any person can have, and as such will be able to solve all problems of the world. The weak definition of AGI includes systems capable of performing a wide array of human-like abilities – such as perhaps walking, speaking, and

creating new ideas, rendering them practical to safely perform a variety of tasks including in complex, real-world environments. We will boldly consider the feasibility of both AGI definitions and what steps the community can take to advancing AI to be more general that it is now. Among questions we will ask:

- Is the strong AGI possible, or is it a religious fantasy for people who push the belief in God and want to find a substitute through technology?
- Does the development of Large Language Models change our way in believing or accepting the future of AGI?
- Is the Turing computing enables the existence of AGI? Or does it necessitate the Super-Turing computation?
- What inherent changes do we need to do in our research directions within AI to enable it to develop into AGI? What are the serious hurdles?
- If AI is that strong, how will our world change? Are these changes desirable? What developments are required to improve the chance of good-to-humanity usage?

Panel: Envisioning the Future: Continuing the Legacy of Professor Michio Sugeno

Chair(s): Isao Hayashi

Panelist(s): Kaoru Hirota, Katsushige Fujimoto, Kazuo Tanaka, Ichiro Kobayashi, Hiroshi Nakajima

Date: June 30, 2024

Time: 16:20 – 18:20

Room: 211+212

Explanation: Professor Michio Sugeno (Emeritus, Tokyo Institute of Technology), 83, passed away on August 9th, 2023. He has long been a world authority in the field of fuzzy theory and applications, with countless outstanding achievements ranging from fuzzy measure/Sugeno integral to fuzzy control and everyday language computing. For his achievements, he received the IEEE CIS Fuzzy Systems Pioneer Award in 2000, the IEEE Frank Rosenblatt Award in 2010, and the IEEE Systems, Man, and Cybernetics (SMC) Society's Lotfi A. Zadeh Pioneer Award in 2017 to name a few. His legacy is not only his research achievements but also his attitude and philosophy toward research. This panel welcomes professors closely related to Prof. Sugeno as panelists to discuss the future of the three significant achievements in fuzzy theory that he had developed. Furthermore, this panel also shares his memories and the future that he would have envisioned with the audience.

IEEE CIS Student and Early Career Mentoring Program

Event: Paper Development Workshop (PDW)
Date: July 1, 2024
Time: 14:20 – 16:20
Room: 211+212
Abstract: The purpose of the PDW is to provide the mentoring program's participants the opportunity to hear from and engage with the editorial team(s) from the IEEE CIS flagship journals. The focus of the PDW is for potential authors to learn about paper development for publication in top journals and get hands-on feedback on their own papers. At WCCI 2024, the PDW will be run by members (Editors-in-Chief and Associate Editors) of the IEEE Transactions on Evolutionary Computation (TEC) and IEEE Transactions on Fuzzy Systems (TFS), editorial teams, offering both an overview of the journal and its priorities, as well as small-group, hands-on sessions for participants.

IEEE CIS Young Professionals

Event: Young Professionals Session
Date: July 4, 2024
Time: 8:30 – 10:10
Room: 211+212
Website: https://aingames.cn/wcci2024-yp/

Tutorials

IJCNN Tutorials

Tutorial: Dynamic Programming (DP) for AI with DP Perceptions of Back-Propagation
Organizer(s): Eiji Mizutani
Date: June 30, 2024
Time: 10:40 – 12:40
Room: 311+312
Abstract: In this tutorial, we begin with a quick review of various DP principles for AI including A* search (using cost-so-far and cost-to-go values), dynamic time warping (DTW) for pattern recognition, and temporal-difference reinforcement learning (TDRL) including Q-learning. Then, for neural-network learning, we show an efficient derivation of standard back-propagation (BP) using a nominal state-action Q-value-to-go function in the spirit of DP. We also show how BPTT (back-propagation through time) for recurrent networks will be derived in the same manner as well as for fully-connected cascaded networks.

As an application, we describe a constrained Markov decision process (MDP) problem, in which we first show a standard state-augmenting DP approach and then highlight how a recurrent network function approximation can be employed for model-free TDRL with no state augmentation.

Tutorial: Methods for Learning with Few Data
Organizer(s): Marcus Liwicki; Prakash Chandra Chhipa; Richa Upadhyay
Date: June 30, 2024
Time: 14:10 – 16:10
Room: 302
Abstract: Deep Neural Networks are data hungry, they require millions of labelled data in order to work! — Really? — The last decade has shown useful approaches to work with less labelled data, either by having a lot of data from a similar domain or by letting the network learn meaningful representations without explicit supervision. This tutorial first brings self-supervised learning to a general perspective of learning with few data, covering typical transfer learning and auto-encoder approaches or perceptual loss. Furthermore, the tutorial will investigate some typical (mis-) conceptions of these methods and suggest some practical tips on how to learn with few data. By participating in this tutorial, you will get deep insights in representation learning and learning with few data, as well as practical tools to start working on data in your own domain.

Tutorial: Efficient and Secure Foundation Models

Organizer(s): Minjing Dong; Daochang Liu; Chang Xu

Date: June 30, 2024

Time: 14:10-16:10

Room: 303

Abstract: With the development of machine learning algorithms, more and more challenging tasks can be well-addressed by foundation models, such as Vision Transformers in computer vision tasks, BERT in natural language processing tasks, diffusion models in generative tasks, etc. These models, while achieving remarkable performance, face challenges related to efficiency and security. This tutorial aims to provide a comprehensive exploration of these foundation models, emphasizing their role in addressing real-world applications, and discussing their potential issues as well as current solutions regarding efficiency and security.

Tutorial: From Natural Language Processing to Technical Language Processing

Organizer(s): Marcus Liwicki; Karl Löwenmark; Fredrik Sandin

Date: June 30, 2024

Time: 10:40 – 12:40

Room: 303

Abstract: Narrow AI systems have achieved super-human performance in Natural Language Processing (NLP) - this is at least, what some big companies state and publish. But in most applications, specifically in industrial context, we cannot observe a major adoption of NLP methods. Domain-specific data, technical terms, and expectations for perfect performance are hindering the wide-spread use of NLP.

This tutorial will give a short overview of the recent developments in NLP and introduces into the area of technical language processing. Methods for dealing with technical terms, adapting to specific domains, and integrating log data and sensor values will be presented. Furthermore, this tutorial presents langchain and it's usage in practice to create context-aware, reasoning large language model applications in industrial contexts and beyond.

Tutorial: Instance Space Analysis for Rigorous and Insightful Algorithm Testing
Organizer(s): Kate Smith-Miles; Mario Andrés Muñoz
Date: June 30, 2024
Time: 14:10 – 16:10
Room: 316

Abstract: This hands-on tutorial introduces Instance Space Analysis (ISA), a methodology for experimental evaluation of algorithms, by making use of the on-line tools available at the Melbourne Algorithm Test Instance Library with Data Analytics (MATILDA - https://matilda.unimelb.edu.au). ISA offers a more nuanced opportunity to gain insights into algorithm strengths and weaknesses for various types of test instances, and to objectively assess the relative power of algorithms, free from any bias introduced by the choice of test instances. An instance space is constructed whereby test instances can be visualised as points in a 2d plane, with algorithm footprints identified as the regions of predicted good performance of an algorithm, based on statistical evidence from empirical testing. From this view of a broad instance space, including the theoretical boundary where additional test instances could exist, we can assess the diversity of a chosen test set, and gain much needed insights into how structural properties of various instances influence the strengths and weaknesses of algorithms. Moreover, through ISA we can identify where additional test instances would be valuable to support greater insights. By setting target points in the instance space, new test instances with controllable properties can be generated to fill the instance space, enabling algorithms to be comprehensively "stress-tested" under all possible conditions.

Tutorial: Learning from Imbalanced Data Streams
Organizer(s): Alberto Cano
Date: June 30, 2024
Time: 10:40 – 12:40
Room: 302

Abstract: This tutorial covers the many challenges in learning from data streams with imbalance, including data-level difficulties, concept drift, and the data and algorithm level approaches to address these issues. The tutorial will provide an overview of the state of the art, discuss benchmarks and performance metrics, and will give the participants the code of a framework for evaluating and comparing algorithms for imbalanced data streams. The tutorial can have a duration between 2 and 4 hours.

Tutorial: A Comprehensive Tutorial on Active Learning: Strategies and Applications

Organizer(s): Alaa Othman

Date: June 30, 2024

Time: 8:30 – 10:30

Room: 303

Abstract: This tutorial provides a comprehensive exploration of active learning strategies in machine learning and covers key aspects such as active labeling, active class selection, active feature detection and their integration with deep learning. Participants will gain practical insights into optimizing model performance through strategic data annotation, dealing with uncertainty, and effective use of active learning techniques. The tutorial aims to demystify the basics of active learning and make it accessible to both beginners and practitioners. Join us as we dive into the basics and advanced applications of active learning to unlock its potential for improving machine learning models.

Tutorial: TinyML: An Introduction to Machine Learning on Tiny Devices

Organizer(s): Massimo Pavan; Manuel Roveri

Date: June 30, 2024

Time: 10:40 – 12:40

Room: 304

Abstract: Long considered an impossible task, the execution of Machine and Deep Learning algorithms on tiny devices is becoming more and more feasible every day. Following the computing-everywhere paradigm, the pervasive diffusion of smart, tiny devices (such as Internet-of-things or edge computing devices), is expected to become pervasive in the next few years. Achieving this goal requires a complete redesign of the standard machine and deep learning solutions that until now have been primarily targeting high level hardware.

The tutorial will introduce TinyML models and algorithms, deepening their architectures and the optimizations that enable their execution on tiny devices. A specific focus will be given to the execution of neural networks and deep learning algorithms on tiny devices and approximate computing solutions, such as quantization, pruning and knowledge distillation, will be introduced. This algorithmic deepening will be complemented by a hands-on session, in which the attendees will be introduced to the implementation and porting of TinyML models on tiny devices with a specific focus on the wake-word detection application scenario, a widely used solution in TinyML applications.

Tutorial: Hypercomplex Neural Networks for Multidimensional Data
Organizer(s): Danilo Comminiello; Clive Cheong Took; Danilo Mandic
Date: June 30, 2024
Time: 14:10 – 16:10
Room: 313

Abstract: Hypercomplex algebras have recently become popular in the field of deep neural networks due to their properties that lead to superior results when dealing with multidimensional data in real-world 3D and 4D paradigms.

This tutorial provides a foundational framework that serves as a roadmap for understanding why hypercomplex neural networks are so successful and how their potential can be exploited. Such a theoretical framework is described in terms of inductive bias, i.e., a collection of assumptions, properties, and constraints that are built into training algorithms to guide their learning process toward more efficient and accurate solutions. In the hypercomplex domains, which deal with numbers and data structures beyond the complex numbers, specific inductive biases can be derived to handle the unique properties of such domains as well as the structures of multidimensional data. This novel perspective for hypercomplex deep networks promises to both demystify this class of methods and clarify their powerfulness, under a unifying framework. We show how to develop neural networks in the hypercomplex domain to deal with a wide variety of classic and emerging applications. This may boost the prominence of hypercomplex models as viable alternatives to classical neural networks for multidimensional data.

The tutorial is divided in 5 main parts involving both theoretical and practical aspects of hypercomplex deep learning. Danilo P. Mandic will introduce the topic, problems and motivation, and will explain why hypercomplex models are so advantageous for complex problems. Clive Cheong Took will then talk about the fundamental tools required for the hypercomplex domain in terms of calculus, functions, and statistics, and their exploitation in neural networks. The most popular and important models in the hypercomplex domain will be introduced. Danilo Comminiello will provide an in-depth explanation of inductive biases and why hypercomplex neural networks can provide outstanding results for multidimensional data. Then, an extension of these models is presented to generalize the hypercomplex properties regardless of the dimensionality of the signals. All the speakers will then cover some of the possible applications on which we can successfully apply hypercomplex neural networks. Danilo Mandic will close the tutorial providing a view on future possibilities in this field.

Tutorial: Causal Reinforcement Learning: Empowering Agents with Causality

Organizer(s): Zhihong Deng; Jing Jiang; Chengqi Zhang

Date: June 30, 2024

Time: 14:10 – 16:10

Room: 311+312

Abstract: Reinforcement learning has made significant progress in solving sequential decision problems under uncertainty. However, reinforcement learning agents generally lack a fundamental understanding of the world and must therefore learn from scratch through numerous trial-and-error interactions. They may also face challenges in providing explanations for their decisions and generalizing the acquired knowledge. Causality presents a promising approach to address these issues by formalizing knowledge in a systematic manner and leveraging invariance for effective knowledge transfer. This tutorial aims to comprehensively review the emerging field of causal reinforcement learning. We will introduce the basic concepts of causality and reinforcement learning and demonstrate how causality can enhance traditional reinforcement learning algorithms. The tutorial will categorize and systematically review existing causal reinforcement learning approaches based on their target problems and methodologies. We will also outline open issues and future research directions to foster the continuous development and application of causal reinforcement learning in real-world scenarios. We believe that this tutorial will contribute significantly to the machine learning community, offering a unique perspective on integrating causality into reinforcement learning and providing participants with valuable knowledge to explore this emerging field.

Tutorial: Explainable AI (XAI) for Computer Vision – A Review of Existing Methods and a New Method to Extract a Symbolic Model from a CNN Model

Organizer(s): Asim Roy

Date: June 30, 2024

Time: 14:10 – 16:10

Room: 304

Abstract: Along with the advent of deep learning and its quick adoption, there is concern about using models that we don't really understand. And because of this concern, many critical applications of deep learning are hindered. The concern about transparency and trustworthiness of these models is so high that it is now a major research focus of Artificial Intelligence (AI) programs at funding agencies like DARPA and NSF in the US. If we can make deep learning explainable and transparent, the economic impact of such a technology would be in the trillions of dollars.

One of the specific forms of Explainable AI (XAI) envisioned by DARPA includes the recognition of objects based on identification of their parts. For example, the form requires that to predict an object to be a cat, the system must also recognize some of the specific features of a cat, such as the fur, whiskers, and claws. Object prediction contingent on recognition of parts provides additional verification for the object and makes the prediction robust and trustworthy.

The first part of this tutorial will review some of the existing methods of XAI in general and then those that are specific to computer vision.

The second part of this tutorial will cover a new method that decodes a convolutional neural network (CNN) to recognize parts of objects. The method teaches a second model the composition of objects from parts and the connectivity between the parts. This second model is a symbolic and transparent model. Experimental results will be discussed including those related to object detection in satellite images. Contrary to conventional wisdom, experimental results show that part-based models can substantially improve the accuracy of many CNN models. Experimental results also show part-based models can provide protection from adversarial attacks. Thus, a school bus will not become an ostrich with the tweak of a few pixels.

Tutorial: Deep Learning for Graphs
Organizer(s): Davide Bacciu
Date: June 30, 2024
Time: 16:20-18:20
Room: 311+312

Abstract: The tutorial will introduce the audience to the area of deep learning on graph data and some of its most compelling research challenges. Current models dealing with graph data almost inevitably leverage a neural message-passing like approach. We will first introduce the foundations of such an approach and discuss its reference literature models. Then we will identify and discuss the limitations of these approaches and the research opportunities that are stemming from this. In this second part, we will cover research topics under development in the community, touching upon generative models, neural graph ODEs, dynamic graphs and algorithmic reasoning.

Tutorial: Collaborative Learning and Optimization
Organizer(s): A. Kai Qin
Date: June 30, 2024
Time: 8:30 – 10:30
Room: 304

Abstract: Machine learning (ML) and optimization are two essential missions that Computational Intelligence (CI) aims to address. Accordingly, many CI-based ML and optimization techniques have been proposed, where deep neural networks (used for ML) and evolutionary algorithms (used for optimization) are the most well-known representatives. Intrinsically, CI-based ML and optimization are closely related. On the one hand, CI-based ML consists of various model-centric or data-centric optimization tasks. On the other hand, CI-based optimization is often formulated into ML-assisted search problems. In recent years, there emerges a new research frontline in CI, as the proposed title (COLO), which studies how to synergise CI-based ML and optimization techniques while unleashing the unprecedented computing power (e.g., via supercomputers) to generate more powerful ML and optimization techniques for solving challenging problems. This tutorial aims at introducing this newly emerging research direction. Specifically, we will first introduce CI, CI-based ML and optimization techniques, and their relationships, and then describe COLO from three aspects, i.e., how to make use of ML techniques to assist optimization (Learn4Opt), how to leverage optimization techniques to facilitate ML (Opt4Learn), and how to synergise ML and optimization techniques to deal with real-world problems which involve ML and optimization as two indispensable and interwoven tasks (LearnOpt), where the most representative research hotspot in each of these three aspects, i.e., automated construction of deep neural networks, data-driven evolution optimization, and predictive optimization will be discussed in detail.

Tutorial: Prospects and Limits of Generative Artificial Intelligence for Medical Systems: Intelligent Healthcare
Organizer(s): Eros G Pasero
Date: June 30, 2024
Time: 16:20 – 18:20
Room: 314

Abstract: The elderly population's increasing numbers, dwindling healthcare resources, and the perilous doctor-patient contact due to pathologies like COVID-19 signal a need for a shift in the current medical model. Yet, the question remains: what new model to adopt? Artificial Intelligence (AI), the foundation of contemporary life changes, pledges a transformative impact on patient care and the healthcare system. However, the genuine challenge lies in devising a practical model to curb the escalating demand for elderly operations amidst a larger populace with fewer health issues. The potential frontier emerges in Generative Artificial Intelligence, offering fresh data and models for future healthcare systems. These systems facilitate the interpretation of outcomes and the generation of personalized medicine. Leveraging digital twins, models can discern the treatment effects on patients through their digital counterparts. Additionally, AI wearable technology in virtual hospitals enables the remote monitoring of multiple patients within their homes. An overarching query persists: can these systems earn trust in medicine? Questions revolve around the accuracy, precision, sensitivity, ROC curve, and F-score of data produced by generative AI. Addressing these concerns, the latter part of this tutorial will contribute insights, utilizing metrics common in the world of Metrology

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Tutorial: Conscious Learning vs. Deep Learning
Organizer(s): Juyang Weng
Date: June 30, 2024
Time: 8:30 – 10:30
Room: 302

Abstract: Autonomous development needs a general-purpose theory. Experimental studies require such a theory. Consciousness seems not a wishful add-on to AI, but instead a necessary condition toward strong AI. Unfortunately, consciousness has been largely overlooked or deliberately avoided in AI research. This situation resulted in a major weakness in many well-known neural networks, such as deep learning and ChatGPT. This tutorial will teach basic knowledge about biologically inspired neural networks that enables on-the-fly learning for the three bottleneck problems in AI, Vision, Audition, Natural Languages, plus subjects that have been extremely challenging for neutral networks but are necessary, such as planning and machine thinking. All these subjects are essential for conscious learning. This tutorial will also compare with deep learning, ChatGPT, and evolutional computation that suffer from Post-Selection misconduct. More updated detail of Conscious Learning is available at https://doi.org/10.21203/rs.3.rs-1700782/v2

Tutorial: Neural Network Design and Optimization for 3D Point Cloud Computing

Organizer(s): Wei Gao; Ge Li

Date: June 30, 2024

Time: 10:40 – 12:40

Room: 313

Abstract: 3D point cloud computing has become very popular in both academia and industry communities, due to its powerful modeling capability for 3D real world with high-precision geometry and attributes. Deep learning-based 3D point clouds can bring better visual experience and machine vision performance, where neural network design and optimization play a critical role for efficient compression, enhancement and analysis of this new type of data.

Tutorial: Ethical Risks and Challenges of Computational Intelligence

Organizer(s): Jim Tørresen; Xin Yao

Date: June 30, 2024

Time: 8:30 – 10:30

Room: 313

Abstract: Artificial intelligence (AI) has entered an increasing number of different domains. A growing number of people – in the general public as well as in research – have started to consider a number of potential ethical challenges and legal issues related to the development and use of AI technologies. There have been related initiatives across the globe, such as the High-Level Expert Group on Artificial Intelligence (AI HLEG) appointed by the European Commission that has a general goal of supporting the implementation of the European Strategy on Artificial Intelligence. This has been followed up with the proposal of the European Artificial Intelligence Act (AIA) and the New Machinery Directive (MD), focusing on developing a framework for trustworthy Artificial Intelligence within Europe, laying down harmonised rules for both AI systems with and without a physical layer (e.g., chatbots vs. robots etc.). This tutorial will give an overview of the most commonly expressed ethical challenges and ways being undertaken to reduce their negative impact using the findings in an earlier undertaken review (https://www.frontiersin.org/articles/10.3389/frobt.2017.00075/full) and an overview paper of Artificial Intelligence Ethics

(https://www.computer.org/csdl/journal/ai/5555/01/09844014/1Fnr097UNd6), supplemented with recent work and initiatives.

Among the most important challenges are those related to privacy, fairness, transparency, safety and security. Countermeasures can be taken first at design time, second when a user should decide where and when to apply a system and third when a system is in use in its environment. In the latter case, there will be a need for the system by itself to perform some ethical reasoning if operating in an autonomous mode. This tutorial will introduce some examples from our own and others´ work and how the challenges can be addressed both from a technical and human perspective with special attention to problems relevant when working with AI research and development. AI ethical issues should not be seen only as challenges but also as new research opportunities contributing to more sustainable, socially beneficial services and systems. The tutorial is an updated version of the one given in IJCNN 2023: https://2023.ijcnn.org/tutorials

Tutorial: A Guided Tour of Neural Architecture Search

Organizer(s): Szymon Lukasik; Bing Xue

Date: June 30, 2024

Time: 8:30 – 10:30

Room: 311+312

Abstract: In the ever-evolving landscape of Artificial Intelligence, Deep Learning has emerged as a dominant force, revolutionizing industries and scientific research. However, the success of neural networks-based methods crucially depends on finding the right network architecture—a task that has proven vital and challenging.

The tutorial will aim to provide a comprehensive guide on Neural Architecture Search a category of methods designed to adapt the structures of the network to the problem at hand. We will explore various approaches for NAS, including reinforcement learning-based methods, evolutionary algorithms, and gradient-based optimization techniques. Participants will gain an understanding of the theoretical foundations and practical implications of each approach. Through case studies and practical demonstrations, attendees will also learn about state-of-the-art NAS methods. To facilitate hands-on learning, the tutorial will provide code snippets and practical examples that attendees can readily incorporate into their research and projects. These resources will empower participants to apply NAS techniques to their datasets and problems.

As a follow-up to the highly successful WCCCI 2022 keynote, this tutorial will be primarily intended for early-career researchers and graduate students who are beginning their journey in Deep Learning. Its role will be to serve as a foundational resource, equipping them with the expertise needed to explore NAS.

Tutorial: In-Material Physical Computing

Organizer(s): Takuya Matsumoto; Tsuyoshi Hasegawa; Hirofumi Tanaka; Ryosho Nakane; Seiya Kasai; Akira Hirose

Date: June 30, 2024

Time: 16:20 – 18:20

Room: 316

Abstract: This tutorial will provide an introduction to "computing based on material", which utilizes the inherent structure and properties in materials to perform in-situ environmental recognition such as speech and text. The talks will be given by leading researchers in a wide range of fields, from theoretical background to applications to devices and robotics using inorganic, organic, and nanomaterials. This tutorial contains six talks: 1. Overview – theory and applications, 2. Physical computing based on dynamics in analog electronic devices and circuits, 3. Reservoir computing with spin waves: how to leverage waves in materials, 4. Electrolyte-based physical reservoir computing, 5. Molecular physical computing, 6. Material physical reservoir computing with chemical dynamics.

Tutorial: Quantum Tensor Networks in Machine Learning and Artificial Intelligence
Organizer(s): Jun Qi, Ying-Jer Kao, Samiel Yen-Chi Chen, Mohammadreza Noormandipour
Date: June 30, 2024
Time: 16:20 – 18:20
Room: 313

Abstract: Quantum tensor networks, along with their applications in classification, time-series modeling, and natural language processing, signify a burgeoning and interdisciplinary field within the realms of quantum computing and machine learning. This tutorial strives to empower researchers in the fields of machine learning and artificial intelligence by offering insights and tools to explore this cutting-edge domain, presenting accessible entry points and illustrative code samples.

CEC Tutorials

Tutorial: What You Always Wanted to Know About Evolution Strategies, But Never Dared to Ask
Organizer(s): Hans-Georg Beyer
Date: June 30, 2024
Time: 8:30 – 10:30
Room: 411+412

Abstract: While Evolution Strategies (ES) are widely known as one of the streams of evolutionary computation and are meanwhile regarded as a competitive alternative to standard learning techniques in Reinforcement Learning, most people associate ES with the covariance matrix evolution strategy.

However, there is more than just this particular evolutionary algorithm designed for unconstrained real-valued search spaces.

This introductory tutorial provides a broader perspective and view stressing the design philosophy of Evolution Strategies being not restricted to a specific search space, such as unconstrained real-valued optimization, but also includes discrete and combinatorial search spaces. This philosophy can be best understood from the ES history that started from the evolution of material objects - nowadays often referred to as hardware-in-the-loop evolutionary optimization. That is, evolution is done on the "phenotype."

Accepting the constraints involved in such optimizations, one naturally can derive design principles for mutation and recombination operators and the control of those operators by self-adaptation - one of the great inventions of ES. Special emphasis is put on a vivid understanding of how the ES explores the search spaces. Recent findings will be presented and supported by live experiments to explain the ES's ability to locate global optima in landscapes with a huge number of local optima. The tutorial will also investigate the reasons why ESs are now regarded as a scalable alternative to Reinforcement Learning.

The tutorial will include a live computer experiment demonstrating the relevance of the design and working principles discussed. This tutorial will be on an introductory level requiring only a minimum of maths.

Tutorial: Towards Better Explainable AI Through Genetic Programming

Organizer(s): Yi Mei; Qi Chen; Andrew B J Lensen; Bing Xue; Mengjie Zhang

Date: June 30, 2024

Time: 8:30 – 10:30

Room: 413

Abstract: Although machine learning has achieved great success in many real-world applications, it is criticised as usually behaving like a black box, and it is often difficult, if not impossible, to understand how the machine learning system makes the decision/prediction. This could lead to serious consequences, such as the accidents of the Tesla automatic driving cars, and biases of the automatic bank loan approval systems.

To address this issue, Explainable AI (XAI) is becoming a very hot research topic in the AI field due to its urgent needs in various domains such as finance, security, medical, gaming, legislation, etc. There have been an increasing number of studies on XAI in recent years, which improves the current machine learning systems from different aspects.

In evolutionary computation, Genetic Programming (GP) has been successfully used in various machine learning tasks including classification, symbolic regression, clustering, feature construction, and automatic heuristic design. As a symbolic-based evolutionary learning approach, GP has an inherent great potential to contribute to XAI, as a GP model tends to be interpretable. However, the interpretability in GP is not as straightforward as one expect it to be, and the models evolved by GP can still be huge and complex, thus less interpretable.

This tutorial will give a brief introduction on how one may achieve better model interpretability in XAI using GP. To this end, we will first briefly introduce XAI and GP. Then we will introduce the GP techniques/strategies that could lead to better model interpretability. We follow the common taxonomy of XAI, and divide the techniques into intrinsic and post-hoc methods. In addition, we will also review some visualisation methods by/for GP to improve interpretability. The tutorial is concluded with some discussions on the current trend, challenges, and potential future research directions.

This tutorial will be interested to all researchers who are interested in XAI, GP, and more general evolutionary machine learning and optimisation, as well as practitioners who want to solve their real-world problems with more interpretable solutions.

Tutorial: Decomposition Multi-Objective Optimization: Current Developments and Future Opportunities

Organizer(s): Ke Li; Qingfu Zhang

Date: June 30, 2024

Time: 10:40 – 12:40

Room: 416+417

Abstract: Evolutionary multi-objective optimization (EMO) has been a major research topic in the field of evolutionary computation for three decades. It has been generally accepted that combination of evolutionary algorithms and traditional optimization methods should be a next generation multi-objective optimization solver. As the name suggests, the basic idea of the decomposition-based technique is to transform the original complex problem into simplified subproblem(s) so as to facilitate the optimization. Decomposition methods have been well used and studied in traditional multi-objective optimization. Multi-objective evolutionary algorithm based on decomposition (MOEA/D) decomposes a multi-objective problem into a number of subtasks, and then solves them in a collaborative manner. MOEA/D provides a very natural bridge between multi-objective evolutionary algorithms and traditional decomposition methods. It has been a commonly used evolutionary algorithmic framework in recent years.

Tutorial: Evolutionary Algorithms and Hyper-Heuristics
Organizer(s): Nelishia Pillay
Date: June 30, 2024
Time: 14:10 – 16:10
Room: 411+412

Abstract: Hyper-heuristics is a rapidly developing domain which has proven to be effective at providing generalized solutions to problems and across problem domains. Evolutionary algorithms have played a pivotal role in the advancement of hyper-heuristics and is continuing to do so. The aim of the tutorial is to firstly provide an introduction to evolutionary algorithm hyper-heuristics for researchers interested in working in this domain. An overview of hyper-heuristics will be provided including the assessment of hyper-heuristic performance. The tutorial will examine each of the four categories of hyper-heuristics, namely, selection constructive, selection perturbative, generation constructive and generation perturbative, showing how evolutionary algorithms can be used for each type of hyper-heuristic. A case study will be presented for each type of hyper-heuristic to provide researchers with a foundation to start their own research in this area. The EvoHyp library will be used to demonstrate the implementation evolutionary algorithm hyper-heuristic. A theoretical understanding of evolutionary algorithm hyper-heuristics will be provided. A new measure to assess the performance of hyper-heuristic performance will also be presented. Challenges in the implementation of evolutionary algorithm hyper-heuristics will be highlighted. The tutorial will also examine recent trends in evolutionary algorithm hyper-heuristics such as transfer learning, hyper-heuristics for continuous optimization and machine learning and hyper-heuristics. The tutorial will end with a discussion session on future directions in the field.

Tutorial: Evolutionary Feature Reduction for Machine Learning

Organizer(s): Bach Hoai Nguyen; Bing Xue; Mengjie Zhang

Date: June 30, 2024

Time: 16:20 – 18:20

Room: 414+415

Abstract: We are now in the era of big data, where vast amounts of high-dimensional data become ubiquitous in a variety of domains, such as social media, healthcare, and cybersecurity. When machine learning algorithms are applied to such high-dimensional data, they suffer from the curse of dimensionality, where the data becomes very sparse. Furthermore, the high-dimensional data might contain redundant and/or irrelevant features that blur useful information from relevant features. Feature reduction can address the above issues by building a smaller but more informative feature set.

Feature selection and feature construction are two main approaches of feature reduction. Feature selection aims to select a small subset of original (relevant) features. Feature construction aims to create a small set of new high-level (informative) features based on the original feature set. Although both approaches are essential data pre-processing steps, they are challenging due to their large search spaces and complex interactions between features. While exhaustive searches are impractical due to their intensive computation cost, traditional heuristic searches require less computational resources but can be trapped at local optima. Recently, evolutionary computation (EC) has been widely applied to achieve feature reduction because of its potential global search ability. Existing EC-based feature reduction approaches successfully reduce the data dimensionality while still improve the classification performance as well as the interpretability of the built models.

This tutorial firstly describes a general framework of feature reduction followed by the applications of feature reduction in real-world scenarios. Then, we will show how EC techniques, particularly genetic algorithms, particle swarm optimisation, differential evolution, genetic programming, ant colony optimisation and evolutionary multi-objective optimisation (EMO) can be applied to address challenges in feature reduction. The effectiveness of EC-based feature reduction is illustrated through several applications including bioinformatics, image analysis and pattern classification, symbolic regression, and cybersecurity. The tutorial concludes with existing challenges for future research.

Tutorial: Evolutionary Bilevel Optimization: Methods and Applications

Organizer(s): Ankur Sinha; Hemant K Singh; Kalyanmoy Deb

Date: June 30, 2024

Time: 16:20 – 18:20

Room: 413

Abstract: Many practical optimization problems should better be posed as bilevel optimization problems in which there are two levels of optimization tasks. A solution at the upper level is feasible if the corresponding lower level variable vector is optimal for the lower level optimization problem. Consider, for example, an inverted pendulum problem for which the motion of the platform relates to the upper level optimization problem of performing the balancing task in a time-optimal manner. For a given motion of the platform, whether the pendulum can be balanced at all becomes a lower level optimization problem of maximizing stability margin. Such nested optimization problems are commonly found in transportation, engineering design, game playing and business models. They are also known as Stackelberg games in the operations research community. These problems are too complex to be solved using classical optimization methods simply due to the "nestedness" of one optimization task into another.

Evolutionary Algorithms (EAs) provide some amenable ways to solve such problems due to their flexibility and ability to handle constrained search spaces efficiently. Clearly, EAs have an edge in solving such difficult yet practically important problems. In the recent past, there has been a surge in research activities towards solving bilevel optimization problems. In this tutorial, we will introduce principles of bilevel optimization for single and multiple objectives, and discuss the difficulties in solving such problems in general. With a brief survey of the existing literature, we will present a few viable evolutionary algorithms for both single and multi-objective EAs for bilevel optimization. Recent studies on bilevel test problems and some application studies will be discussed. Finally, a number of immediate and future research ideas on bilevel optimization will also be highlighted.

Tutorial: Fair Performance Comparison of Evolutionary Multi-Objective Algorithms

Organizer(s): Lie Meng Pang; Ke Shang; Hisao Ishibuchi

Date: June 30, 2024

Time: 14:10 - 16:10

Room: 421

Abstract: Evolutionary multi-objective optimization (EMO) has been a very active research area in recent years. Almost every year, new EMO algorithms are proposed. When a new EMO algorithm is proposed, computational experiments are usually conducted in order to compare its performance with existing algorithms. Then, experimental results are summarized and reported as a number of tables together with statistical significance test results. Those results usually show higher performance of the new algorithm than existing algorithms. However, fair comparison of different EMO algorithms is not easy since the evaluated performance of each algorithm usually depends on experimental settings. This is also because solution sets instead of solutions are evaluated.

In this tutorial, we will first explain some commonly-used software platforms and experimental settings for the comparison of EMO algorithms. Then, we will discuss how to specify the common setting of computational experiments, which is used by all the compared EMO algorithms. More specifically, the focus of this tutorial is the setting related to the following four issues: (i) termination condition, (ii) population size, (iii) performance indicators, (iv) test problem. For each issue, we will provide a clear demonstration of its strong effects on comparison results of EMO algorithms. Following that, we will discuss how to handle each of these issues for fair comparison. These discussions aim to encourage the future development of the EMO research field without focusing too much on the development of overly-specialized new algorithms in a specific setting. Finally, we will also suggest some promising future research topics related to each issue.

Tutorial: New EMO Algorithm Framework with an Unbounded External Archive: Basic Ideas and Research Directions

Organizer(s): Lie Meng Pang; Ke Shang; Hisao Ishibuchi

Date: June 30, 2024

Time: 16:20 – 18:20

Room: 421

Abstract: In the field of evolutionary multi-objective optimization (EMO), early EMO algorithms in the 1990s are called non-elitist algorithms where no solutions in the current population are included in the next population. That is, the next population is the offspring population of the current population. This non-elitist algorithm framework is clearly inefficient since we cannot preserve good solutions during the execution of EMO algorithms. As a result, almost all EMO algorithms in the last two decades are based on the elitist framework where the next population is selected from the current population and its offspring population. In both frameworks, the final population is presented to the decision maker as the final output from EMO algorithms. Recently, some potential difficulties of the elitist framework have been pointed out. One is that the final population is not always the best subset of all the examined solutions. It was demonstrated in the literature that some solutions in the final population are dominated by other solutions generated and deleted in previous generations. It is also difficult to utilize solutions in previous generations to generate new solutions. Offspring are always generated from solutions in the current population. Another difficulty is that only a limited number of solutions (i.e., only solutions in the final population) are obtained. A new framework with an unbounded external archive can easily handle these difficulties since the final solution set is selected from all the examined solutions. In this framework, we can select an arbitrary number of solutions as the final output from EMO algorithms. Stored solutions in the external archive can be used to create new solutions and also to select solutions for the next population. In this tutorial, some interesting research issues in the new EMO algorithm framework are explained.

Tutorial: Multi-Objective Machine Learning

Organizer(s): Vishnu Naresh Boddeti; Zhichao Lu; Xi Lin; Qingfu Zhang; Kalyanmoy Deb

Date: June 30, 2024

Time: 14:10 – 16:10

Room: 414+415

Abstract: Real-world applications of machine learning (ML) often have to contend with objectives beyond predictive performance, i.e., more than one equally important and competing objective or criterion. Examples include cost functions pertaining to invariance (e.g., to photometric or geometric variations), semantic independence (e.g., to age or race for face recognition systems), privacy (e.g., mitigating leakage of sensitive information), algorithmic fairness (e.g., demographic parity), generalization across multiple domains, computational complexity (FLOPs, compactness), to name a few.

In such situations, seeking a single solution that optimizes all objectives simultaneously becomes infeasible. Instead, the goal shifts towards finding a set of solutions that adequately describe the trade-off among the objectives. Various strategies have been developed to address these problems, including simple scalarization and population-based methods.

This tutorial aims to provide a comprehensive introduction to fundamentals and recent advances in multi-objective optimization (MOO), and its applications to representative machine learning tasks with hands-on coding examples. Some emerging machine learning applications of MOO include (1) multi-task learning as multi-objective optimization; (2) representation learning for privacy and fairness; and (3) neural architecture search. Potential research directions intersecting MOO and machine learning research will be summarized.

This tutorial also seeks to convene researchers who are pioneering methods and applications at the crossroads of MOO and machine learning. The goal is to foster a dynamic exchange of ideas, reveal new insights, and explore the untapped potential within this interdisciplinary domain.

Tutorial: Pareto Optimization for Subset Selection: Theories and Practical Algorithms

Organizer(s): Chao Qian

Date: June 30, 2024

Time: 8:30 – 10:30

Room: 416+417

Abstract: Pareto optimization is a general optimization framework for solving single-objective optimization problems, based on multi-objective evolutionary optimization. The main idea is to transform a single-objective optimization problem into a bi-objective one, then employ a multi-objective evolutionary algorithm to solve it, and finally return the best feasible solution w.r.t. the original single-objective optimization problem from the generated non-dominated solution set. Pareto optimization has been shown a promising method for the subset selection problem, which has applications in diverse areas, including machine learning, data mining, natural language processing, computer vision, information retrieval, etc. The theoretical understanding of Pareto optimization has recently been significantly developed, showing its irreplaceability for subset selection. This tutorial will introduce Pareto optimization from scratch. We will show that it achieves the best-so-far theoretical and practical performances in several applications of subset selection. We will also introduce advanced variants of Pareto optimization for large-scale, noisy and dynamic subset selection.

Tutorial: Particle Swarm Optimization: A Multi-Purpose Optimization Approach
Organizer(s): Andries Engelbrecht
Date: June 30, 2024
Time: 10:40 – 12:40
Room: 411+412

Abstract: The main objective of this tutorial is to show that particle swarm optimization (PSO) has emerged as a multi-purpose optimization approach. In the context of this tutorial, this means that the PSO can be applied to a wide range of optimization problem types as well as search domain types. The tutorial will start with a very compact overview of the original, basic PSO. The remainder and bulk of the tutorial will cover a classification of different problem types, and will show how PSO can be applied to solve problems of these types. This part of the tutorial will be organized in the following sections, one for each problem type: Continuous-valued versus discrete-valued domains; Unimodal versus multi-modal landscapes; Multi-modal optimization to find multiple solutions; Constrained versus unconstrained problems, also covering boundary constraints; Multi-objective and many-objective optimization; Dynamic environments to include problems where constraints change over time, dynamic multi-objective optimization, tracking multiple optima, and changing problem dimensionality; Large-scale optimization problems. For each problem type, it will be shown why the standard PSO cannot solve these types of problems efficiently without modification. Simple adaptations to the PSO that will allow it to solve each problem type will then be discussed. The focus will be on PSO adaptations that do not violate the foundational principles of PSO. For each of these problem types a small subset of the most successful algorithms will be discussed and links to benchmark problems will be provided.

Tutorial: Genetic Programming and Machine Learning for Scheduling
Organizer(s): Fangfang Zhang; Mengjie Zhang; Yi Mei; Su Nguyen
Date: June 30, 2024
Time: 10:40 – 12:40
Room: 413

Abstract: Scheduling is an important optimisation problem that reflects the practical and challenging issues in real-world scheduling applications such as order picking in warehouses, the manufacturing industry and grid/cloud computing. Job shop scheduling (JSS) is a typical scheduling problem, which covers a full range of topics and tasks including static JSS, dynamic JSS, flexible JSS, dynamic flexible JSS, from basic research to a huge number of real-world industrial applications. With recent technological advances in internet-of-things, artificial intelligence, and automation, modern production systems are digitalized and more flexible, and production environments can be monitored and diagnosed in real-time. Scheduling in such dynamic and complex environments is challenging since scheduling needs to be more efficient and reactive, and scheduling decisions have to incorporate dynamic information and uncertainty.

Instead of manually designing scheduling heuristics and algorithms for each problem, we can use machine learning and hyper-heuristics to automatically learn effective scheduling heuristics from low-level heuristics, characteristics of scheduling problems, and dynamic information from production environments. Among the techniques studied and applied within the research field of JSS, genetic programming (GP), a powerful evolutionary machine learning technique, has been successfully used to learn scheduling heuristics for JSS, especially for dynamic JSS. This automated design approach can significantly reduce the time required to develop solution methods by domain experts and increase the chance of discovering novel and effective scheduling heuristics.

Although GP has shown its advantage in learning scheduling heuristics for JSS, GP still has several limitations for handling JSS such as high computational cost and large search space. In addition, most of existing studies focus mainly on single JSS task optimisation, the multiple tasks solving ability of GP has not been explored.

This tutorial will provide a comprehensive introduction to evolutionary machine learning techniques for JSS. This tutorial will cover different types of (advanced) evolutionary machine learning approaches for JSS. From this tutorial, you are expected to get familiar with evolutionary machine learning in four aspects. First, you will learn the definition of hyper-heuristic learning with a comparison of heuristic learning. Second, the details of JSS (e.g., static, dynamic, flexible JSS) will be given. Third, how to use GP as hyper-heuristic approaches to learn heuristics for JSS will be introduced with examples. Last, this tutorial will show how to use advanced machine learning techniques such as feature selection, surrogate and multitask learning with GP to JSS. All the techniques mentioned will be introduced with promising results.

Tutorial: Evolutionary neural architecture search

Organizer(s): Yanan Sun; Bing Xue; Mengjie Zhang; Gary Yen

Date: June 30, 2024

Time: 10:40 – 12:40

Room: 414+415

Abstract: Deep Neural Networks (DNNs), as the cornerstone of deep learning, have demonstrated their great success in diverse real-world applications, such as image classification, natural language processing, speech recognition, to name a few. The architectures of DNNs play a crucial role in their performance, which is usually manually designed with rich expertise. However, such a design process is labor-intensive because of the trial-and-error process, and also not easy to realize due to the rare expertise in practice.

Neural Architecture Search (NAS) is a kind of technique that could automatically designing promising DNN architectures by formulating the design process as optimization problems. Among existing optimizers for solving NAS, the Evolutionary Computation (EC) methods have demonstrated their powerful ability and have drawn increasing attention.

This tutorial will provide a comprehensive introduction to NAS techniques based on EC, i.e., ENAS, for automatically designing the architectures of DNNs. Specifically, this tutorial will cover the ENAS algorithms over 200 papers of most recent ENAS methods in light of the core components, to systematically show their design principles as well as justifications on the design. From this tutorial, the audiences are expected to get familiar with ENAS in four aspects. First, audiences will learn the encoding space categories, different encoding strategies and architecture representations. Second, audiences will learn a variety of EC paradigms use respective metaphors to generate new individuals. Third, audiences will learn the methods to reduce the need for large amounts of time and computing resources, which is a huge obstacle to efficiency. Last, current challenges and issues will be introduced to identify future research in this emerging field.

Tutorial: A Deep Dive into Robust Optimization Over Time: Problems, Algorithms, and Beyond

Organizer(s): Danial Yazdani; Xin Yao

Date: June 30, 2024

Time: 10:40 – 12:40

Room: 421

Abstract: In the evolving landscape of optimization, Dynamic Optimization Problems (DOPs) manifest as a pivotal area of exploration. These problems, characterized by their changing search space over time, present a maze of challenges for optimization algorithms. While much of the existing literature on DOPs primarily focuses on tracking the moving optimum, many real-world DOPs present a different set of challenges and impose a distinct set of requirements. In many practical scenarios, frequent changes to deployed solutions are often undesirable. This aversion stems from various factors, including the high cost associated with switching between deployed solutions, limitations on the resources required to deploy new solutions, and the system's inability to tolerate frequent changes in the deployed solutions.

Robust Optimization Over Time (ROOT) emerges as a beacon in such dynamic scenarios, intertwining the principles of robust optimization and dynamic optimization to form a robust framework capable of navigating the turbulent waters of DOPs. ROOT acknowledges the high cost and resource limitations associated with frequent solution deployments, striving for algorithms capable of dealing with the implications of deploying or maintaining solutions over longer time horizons involving multiple environmental changes.

In this tutorial, we unravel the intricacies of ROOT, providing a gateway to understand, analyze, and address these problems adeptly. The tutorial is structured to offer a panoramic view of the ROOT realm, covering the underlying problems, innovative algorithms designed to tackle these problems, and benchmarks and performance indicators crucial for evaluating the robustness and effectiveness of these algorithms.

Tutorial: Principle and Applications of Semantic Genetic Programming

Organizer(s): Qi Chen; Bing Xue; Mengjie Zhang

Date: June 30, 2024

Time: 14:10 – 16:10

Room: 413

Abstract: Semantic genetic programming is a rapidly growing research track of Genetic Programming (GP). Semantic GP incorporates semantic awareness into GP and explicitly uses more information on the behaviour of programs in the search. When evaluating a program, semantic GP characterises it with a vector of outputs instead of a single scalar fitness value. Research has demonstrated the successfulness of additional behavioural information to facilitate the design of a more effective GP search. In addition, the geometric properties of the semantic space lead to more attractive search operators with better theoretical characteristics. With the geometric information of semantics, the GP dynamics are easier to understand and interpret. Inappropriate behaviours are easier to prevent. All these contribute to making GP a more informed and intelligent method. This tutorial will give a comprehensive overview of semantic GP methods. We will review various ways of integrating semantic awareness in the evolutionary process of GP. In particular, we will introduce geometric semantic GP and review its formal geometric semantic framework, and analyse the theoretical properties of the fitness landscape under this framework. This will be followed by a review of many novel developments of provably good semantic genetic operators. Another aspect is the efficient implementation of semantic search operators, which is still challenging. We will illustrate efficient and concise implementations of these operators. Another focus of this tutorial is to stimulate the audience by showing some promising applicative results that have been obtained so far in many applications of semantic GP including many symbolic regression and classification tasks in the areas of healthcare, civil engineering, natural language processing and so on. We will also identify and discuss current challenges and promising future directions in semantic GP with the hope of motivating new and stimulating contributions.

Tutorial: Benchmarking and analyzing iterative optimization heuristics with IOHProfiler

Organizer(s): Elena Raponi; Thomas Bäck; Jacob de Nobel; Diederick Vermetten; Anna V Kononova; Niki van Stein; Carola Doerr

Date: June 30, 2024

Time: 16:20 – 18:20

Room: 422

Abstract: Comparing and evaluating optimization algorithms is an important part of evolutionary computation and requires a robust benchmarking setup to be done well. IOHProfiler supports researchers in this task by providing an easy-to-use, interactive, and highly customizable environment for benchmarking iterative optimizers.

IOHProfiler is designed as a modular benchmarking tool. The experimenter module provides easy access to common problem sets (e.g., COCO/BBOB functions) and modular logging functionality that can be easily combined with other optimization functions. The resulting logs (and logs from other platforms, e.g., COCO and Nevergrad) are fully interoperable with the IOHanalyzer, which provides access to highly interactive performance analysis, in the form of a wide array of visualizations and statistical analyses. A GUI, hosted at https://iohanalyzer.liacs.nl/ makes these analysis tools easy to access. Data from many repositories (e.g., COCO, Nevergrad) are pre-processed, such that the effort required to compare performance to existing algorithms is greatly reduced.

This tutorial will introduce the key features of IOHProfiler by providing background information on benchmarking in Evolutionary Computation and showing how this can be done using the modules of IOHProfiler. The key components will be highlighted and demonstrated by the organizers. Guided examples will be provided to highlight the many aspects of algorithm performance, which can be explored using the interactive GUI. Participants will learn how a standardized benchmarking environment can facilitate their experimental setup and data analysis. Following the basic benchmarking setup, we will elucidate how to track adaptive parameters and customize the logging procedure for generating data. Also, we will illustrate how to add new problems to the existing problem sets. We also demonstrate how easy it is to compare your own data to previously recorded ones using IOHProfiler; our data repositories comprise data sets for the BBOB functions of the COCO environment https://github.com/numbbo/coco and from Nevergrad https://facebookresearch.github.io/nevergrad/.

Tutorial: Tracking the moving optimum in dynamic optimization problems
Organizer(s): Michalis Mavrovouniotis; Danial Yazdani
Date: June 30, 2024
Time: 8:30 – 10:30
Room: 421

Abstract: In the ever-evolving landscape of real-world problems, the dynamic nature of optimization challenges is increasingly prevalent. This tutorial delves into the exciting field of evolutionary dynamic optimization, focusing on tracking the moving optimum in both discrete and continuous search spaces. It is designed to cater to a wide audience, ranging from those with an interest in evolutionary computation to those seeking the latest advancements in dynamic optimization.

Tutorial: Evolutionary Diversity Optimization for Combinatorial Optimization
Organizer(s): Aneta Neumann; Frank Neumann
Date: June 30, 2024
Time: 10:40 – 12:40
Room: 422

Abstract: In the classical setting evolutionary algorithms (EAs) are used to compute a single solution of high quality with respect to the objective function or a set of trade-off solutions in the field multi-objective optimization where one deals with multiple, usually conflicting objectives. Here, diversity preservation is usually introduced as a means to prevent premature convergence. In many engineering applications and in the field of algorithm selection/configuration however, it is beneficial to produce a set of solutions that is (1) of high quality and (2) diverse with respect to the search space and/or some features of the given problem. Evolutionary Diversity Optimization enables the computation of a large variety of new and innovative solutions that are unlikely to be produced by traditional evolutionary computation methods for single-objective or multi-objective optimization. Related to evolutionary diversity optimization is the concept of novelty search. Here EAs are used to discover new designs/solutions without focusing on explicit objectives as a driver for the search process. The goal of novelty search is to explore solutions that are different to the ones previously obtained.

In this tutorial, we will give a detailed overview on evolutionary diversity optimization which is a new important research area within evolutionary computation that aims to provide sets of diverse solutions. Apart from that, we give a brief introduction into novelty search, highlight similarities and differences to evolutionary diversity optimization and give an outlook how both fields can benefit from each other.

Tutorial: Designing Metaheuristics with Large Language Models: Challenges and Opportunities
Organizer(s): Michal Pluhacek; Adam Viktorin; Roman Senkerik
Date: June 30, 2024
Time: 8:30 – 10:30
Room: 414+415

Abstract: This tutorial will explore the possibilities of utilizing Large Language Models (LLMs) like GPT-4 for designing metaheuristic algorithms tailored to specific optimization problems. The central theme of the talk revolves around a systematic approach to leveraging LLMs' capabilities in this innovative context.

Workflow and Analysis Process:

Proposing New Algorithms: We will start by prompting the model to propose new metaheuristic algorithms for predefined optimization problems. This will involve inputting detailed problem specifications into the LLM and analyzing the metaheuristic solutions it generates.

Logical and Correctness Evaluation: Each of the proposed algorithms will be meticulously analyzed for their logical structure and correctness. This stage is crucial in assessing whether the solutions provided by LLMs are not only innovative but also logically sound and applicable to the problem at hand.

Viability Assessment: The focus will then shift to evaluating the viability of these proposed algorithms. We will discuss and criticise the practicality of implementing the model output, considering factors such as computational efficiency, scalability, and adaptability to real-world scenarios.

Potential for Novel and Powerful Metaheuristics: A key aspect of the talk will be to determine if LLM's involvement can lead to the development of novel and more powerful metaheuristic algorithms. We will explore whether the LLM contributions can transcend conventional approaches, offering new perspectives and solutions in the field of metaheuristics.

Conclusion and Future Outlook:

The session will conclude with reflections on the broader implications of integrating LLMs like GPT-4 in metaheuristic development. We'll discuss the potential future directions this research could take and how it might shape the evolution of algorithmic problem-solving in various domains.

Tutorial: Embedding Knowledge into Optimization Process
Organizer(s): Amir H Gandomi
Date: June 30, 2024
Time: 14:10 – 16:10
Room: 416+417

Abstract: Real-world optimization problems are usually large-scale and involve several constraints and sometimes even finding a single feasible/acceptable solution is a challenging task. To solve these complex real-world problems, heuristics and concept-based approaches can be very helpful and narrow down the search space. Here, I am going to talk about four approaches used in order to incorporate information into the problem and the optimization process, listed below:

- Variable functioning: In this method, the relationships among one or more subsets of variables are defined with functions using information prior to optimization; thus, instead of modifying the variables in the search process, the function variables are optimized.

- Semi-Independent Variable: the concept of a semi-independent variable (SIV) problem representation is investigated that embodies a set of expected or desired relationships among the original variables, with the goal of increasing search effectiveness and efficiency.

- Boundary update: This study introduces a new approach for implicitly handling constraints. The proposed approach reduces the consideration of infeasible solutions by directly updating variable bounds with constraints, which is called the boundary update (BU) method.

- Variable grouping and co-evolution: In this approach, cooperative coevolution is presented and introduced to efficiently solve optimization problems.

These four approaches are coupled with several evolutionary optimization algorithms and the results show that they are practical and effective approaches, and lead to better solutions with fewer function evaluations in most cases. This tutorial should motivate optimization researchers and practitioners to pay more attention to embedding different sources of knowledge into the optimization process to boost it.

Tutorial: Landscape Analysis for Explainable Optimization

Organizer(s): Arnaud Liefooghe; Sébastien Verel

Date: June 30, 2024

Time: 14:10 – 16:10

Room: 422

Abstract: The aim of optimization algorithm designers is to choose the right algorithm and its proper configuration to solve the problem they face. It is, however, even more important to understand and to be able to explain why this choice is relevant. There is in fact a multitude of algorithms among which it is often difficult to determine which one to use for solving a particular optimization problem — or even a particular problem instance.

Indeed, many evolutionary and related search-based optimization algorithms have been proposed for solving a wide range of problems, ranging from single- to multi-objective or continuous to combinatorial optimization. Nevertheless, despite their efficiency and skillful design, it is not always clear in which context an algorithm works best. It is therefore essential to gain a fundamental understanding of their strength and weakness in view of the problem they are aiming to solve. In addition, the informed design and automated selection or configuration of an efficient optimization algorithm is also a challenge that attracts increasing attention from the research community. Landscape analysis is a well-established field that aims to understand the relationship between the underlying structure of a given problem search space and algorithms as well as their underlying components and parameters.

Starting by introducing state-of-the-art tools for single-objective landscapes, we identify the key differences and additional properties to address multi-objective landscapes. We expose and contrast the impact of landscape characteristics on the performance of single- and multi-objective optimization algorithms. We identify a sound and concise summary of features characterizing the landscape of a problem instance. We also review the fundamental principles for designing new relevant features, and we show the main methodologies for sampling combinatorial and continuous search spaces. By providing effective tools and practical examples from landscape analysis, further insights are provided on the importance of ruggedness, multimodality and objective correlation in predicting algorithm performance for unseens problems. We conclude with guidelines for the design of search-based optimization by means of key landscape features, and we identify a number of open challenges for the future of landscape analysis and (evolutionary) optimization algorithms.

Tutorial: Adversarial Optimisation through Competitive co-Evolutionary Algorithms
Organizer(s): Per Kristian Lehre; Mario A Hevia Fajardo
Date: June 30, 2024
Time: 8:30 – 10:30
Room: 422

Abstract: Classical evolutionary algorithms require a fitness function to compare the quality of candidate solutions. However, the quality of candidate solutions in real-world optimization is often a function of adversarial and unforeseen factors which are difficult to model explicitly. In fact, finding hard or worst-case scenarios to evaluate a given solution is itself a difficult optimization problem. Thus, solutions obtained by EAs using a fixed fitness function may perform poorly when deployed in a competitive, real-world scenario. Co-evolutionary algorithms -- which model evolutionary arms-races between populations of predators and prey -- do not rely on explicit fitness functions. They represent one of the most exciting ideas in evolutionary computation, with successful applications ranging from designing sorting networks, playing backgammon, and patching software bugs. Related approaches from the broader AI field, including self-play in reinforcement learning and generative adversarial networks (GANs), highlight the importance of co-evolution. This tutorial has been designed for those who want an introduction to competitive co-evolution, covering their design, analysis, and applications. It assumes no specific background in evolutionary computation, game theory, or analysis of randomized algorithms. We will begin by giving examples of practical adversarial optimization scenarios where co-evolutionary algorithms are applicable. Then we explain how such problems can be captured within a game-theoretic framework with appropriate solution concepts. This part allows participants to recognize problem types where co-evolution can be used. We will then proceed to give an overview of the design of co-evolutionary algorithms, including essential components such as evaluation and archiving methods. This part also covers so-called co-evolutionary pathologies and how they can be remedied. After attending this part, participants will be able to design and implement existing and new co-evolutionary algorithms. Finally, we will discuss theoretical analyses of co-evolutionary algorithms, including No Free Lunch theorems and runtime analysis. This part will give participants a deeper and theoretically founded understanding of how and why co-evolutionary algorithms work, and why they sometimes fail. Several interactive activities are planned, including visualization of algorithms using our own software. This will give the audience a practical and hands-on experience in how co-evolutionary population dynamics are influenced by characteristics of the game and the design of the algorithm. Based on our previously held tutorials in conferences such as CEC, GECCO, and PPSN, we expect an audience of approximately 50 people.

Tutorial: Evolutionary Multi-task Optimization

Organizer(s): Liang Feng; Abhishek Gupta; A. Kai Qin

Date: June 30, 2024

Time: 16:20 – 18:20

Room: 411+412

Abstract: Evolutionary algorithms (EAs) typically start the search from scratch by assuming no prior knowledge about the task being solved, and their capabilities usually do not improve upon past problem-solving experiences. In contrast, humans routinely make use of the knowledge learnt and accumulated from the past to facilitate dealing with a new task, which provides an effective way to solve problems in practice as real-world problems seldom exist in isolation. Similarly, practical artificial systems like optimizers will often handle a large number of problems in their lifetime, many of which may share certain domain-specific similarities. This motivates the design of advanced optimizers which can leverage on what has been solved before to facilitate solving new tasks. In this tutorial, we will present recent advances in the field of evolutionary computation under the theme of evolutionary transfer and multi-task optimization via automatic knowledge transfer. Particularly, we will describe a general definition of transfer optimization, encompassing the sequential transfer and multitasking paradigms. We will also introduce recent theoretical developments in transfer optimization and describe corresponding evolutionary methodologies that can be put into use in practice. Some potential applications of evolutionary transfer and multi-task optimization in real-world scenarios will also be discussed.

Tutorial: Differential Evolution with Ensembles, Adaptations and Topologies

Organizer(s): Ponnuthurai Nagaratnam Suganthan

Date: June 30, 2024

Time: 16:20 – 18:20

Room: 411+412

Abstract: Differential Evolution (DE) is one of the most powerful stochastic real-parameter optimization algorithms of current interest. DE operates through similar computational steps as employed by a standard Evolutionary Algorithm (EA). However, unlike traditional EAs, the DE-variants perturb the current-generation population members with the scaled differences of distinct population members. Therefore, no separate probability distribution has to be used for generating the offspring. Since its inception in 1995, DE has drawn the attention of many researchers all over the world resulting in a lot of variants of the basic algorithm with improved performance. This tutorial will begin with a brief overview of the basic concepts related to numerical optimization and DE, DE's algorithmic components and control parameters. It will subsequently discuss some of the significant algorithmic variants of DE for bound constrained single-objective optimization. Recent modifications of the DE family of algorithms for constrained, multi-objective and niching problems will also be included. The talk will discuss the effects of incorporating ensemble learning in DE – a relatively recent concept that can be applied to swarm & evolutionary algorithms to solve various kinds of optimization problems. The talk will also discuss neighborhood topologies based DE and adaptive DEs to improve the performance of DE. The talk will finally highlight a few problems that pose challenge to the state-of-the-art DE algorithms and demand strong research effort from the DE-community in the future.

FUZZ-IEEE Tutorials

Tutorial: A primer on challenges in Ethical AI – from practice to teaching
Organizer(s): Keeley Crockett; Tayo Obafemi-Ajayi; Christian Wagner
Date: June 30, 2024
Time: 14:10 – 16:10
Room: 211+212

Abstract: The aim of this tutorial is to briefly introduce and discuss a range of ethical issues that need to be considered by data scientists, software development teams, industry and academia professionals either when applying AI, conducting AI research, or developing teaching materials and research funding applications. We will highlight practical approaches such as consequence scanning to evaluate the ethical impact of AI research ideas/new products and services on individuals and society. There is no specific prerequisite knowledge required. It will be an interactive session where participants are expected to bring their own laptops with internet connection. Tools such as padlet and mentimeter will be used to help facilitate group discussions. Participants will be equipped with skills and tools to empower them to carry out their research and teaching within the scope of Ethical AI.

Tutorial: Interpretable Fuzzy Networks for Explainable Artificial Intelligence

Organizer(s): Alexander Gegov; Farzad Arabikhan

Date: June 30, 2024

Time: 8:30 – 10:30

Room: 211+212

Abstract: This is a 2-hour tutorial that includes two 45-minute parts. Each part will be followed by a 15-minute discussion session with questions and comments from the audience.

The tutorial focuses on the inherent interpretability of fuzzy networks which makes them a suitable tool for building explainable artificial intelligence models. These models facilitate the identification of causal relationships between inputs and outputs by intermediate variables.

The tutorial highlights some recent research results of the presenters that have been published in several specialised journals such as 'IEEE Transactions on Fuzzy Systems', 'Fuzzy Sets and Systems', 'Intelligent and Fuzzy Systems', 'Computational Intelligence Systems', 'Uncertainty, Fuzziness and Knowledge Based Systems' as well as in the Springer Book Series 'Studies in Fuzziness and Soft Computing'.

The tutorial is expected to be attended mainly by participants from the Fuzzy Systems strand of the congress but participants from the other two strands may also be interested to attend. In view of the current high popularity of Explainable Artificial Intelligence and the exponential growth in the number of recent publications in this area, the tutorial is expected to be well attended by a large number of congress participants.

Tutorial: Using Fuzzy Sets and Systems for Explainable Artificial Intelligence – How and Why?
Organizer(s): Jose M Alonso; Direnc Pekaslan; Christian Wagner
Date: June 30, 2024
Time: 10:40 – 12:40
Room: 211+212

Abstract: AI is pervading many aspects of our Society. This poses challenges to avoid people being put aside when their own data are processed by AI systems, which provide decisions that may result in harmful discrimination. Our focus is on knowledge representation and how to enhance human-centered information processing in the context of Explainable Artificial Intelligence (XAI in short). XAI is an endeavor to evolve AI methodologies and technology by focusing on the development of intelligent agents capable of both generating decisions that a human can understand, and explicitly explaining such decisions. This way, it is possible to scrutinize the underlying intelligent models and verify if automated decisions are made based on accepted rules and principles, so that decisions can be trusted, and their impact justified. Accordingly, intelligent systems are expected to naturally interact with humans, thus providing comprehensible explanations of decisions automatically made.

Accordingly, there are three main open research problems: (1) designing explainable algorithms; (2) implementing explainable human-machine interfaces; and (3) evaluating the goodness of explanations.

Even if this tutorial will briefly introduce the main concepts and methods in the context of XAI in general, the focus will be on how to deal (and compute) properly with words and perceptions in both generation and evaluation of explanations. More precisely, we will consider the explainable design of Fuzzy Sets and Systems for paving the way from interpretable machine learning to XAI. Such systems deal naturally with uncertainty and approximate reasoning (as humans do) through computing with words and perceptions. This way, they facilitate humans to scrutinize the underlying intelligent models.

This tutorial is of interest for researchers, practitioners, and students (PhD, MSc, BSc, or undergraduate students) working in the field of XAI; with special emphasis on fuzzy-grounded knowledge representation and reasoning.

Tutorial: A leap forward in overcoming the drawbacks of fuzzy set theory

Organizer(s): Gustavo Rivas-Gervilla

Date: June 30, 2024

Time: 8:30 – 10:30

Room: 213

Abstract: Adapting crisp systems and their crisp foundations (algorithms, concepts and theories) to the fuzzy case is both a necessity and a challenge. A necessity because "fuzziness" is at the core of human reasoning and communication abilities, and we are in the era of systems that intend to manage information provided by humans, communicate with humans using concepts and natural language, and emulate human reasoning. A challenge because, though a plethora of resources have been provided over fifty-five years of research in fuzzy set theory and their extensions, we still have to renounce to properties of crisp systems when moving to the fuzzy side. Paradigmatic examples are the unability of fuzzy set theories to keep all the Boolean properties of set operations simultaneously, and the unability of fuzzy numbers to keep the algebraic structure of crisp numbers. In this tutorial we talk about new theories for representing graduality for a swift, simple and property-lossless move to the fuzzy side.

Tutorial: Efficient Optimization of TSK Fuzzy Systems

Organizer(s): D. Wu

Date: June 30, 2024

Time: 10:40 – 12:40

Room: 213

Abstract: TSK fuzzy systems have been widely used in classification and regression. However, for big data, traditional evolutionary algorithm based and full-batch gradient descent based optimization strategies become too costly. This tutorial first introduces functional similarity/equivalence between TSK fuzzy systems and classical machine learning models such as radial basis function network, mixture of experts. Then, it extends their optimization techniques, such as mini-batch gradient descent, DropOut, Batch normalization and Adam, to the optimization of TSK fuzzy systems.

Technical Content
June 30, 2024

18:30 – 20:30
WCCI Welcome Reception
Room: 301-304

19:00 – 20:40
Virtual: Large Language Models 1
Conference: IJCNN
Room: Zoom 1
Session Chair(s):

19:00 Correcting Factuality Hallucination in Complaint Large Language Model via Entity-Augmented
Jiaju Kang (Shandong Jianzhu University & Wuhan University, China); Weichao Pan (Shandong Jianzhu University, China); Tian Zhang (ESIGELEC, France); Ziming Wang, Shuqin Yang, Zhiqin Wang, Jian Wang and Xiaofei Niu (Shandong Jianzhu University, China)

19:20 From Handcrafted Features to LLMs: A Brief Survey for Machine Translation Quality Estimation
Haofei Zhao (Northeastern University, China); Yilun Liu (Huawei co. LTD, China); Shimin Tao, Weibin Meng and Yimeng Chen (Huawei, China); Xiang Geng (Nanjing University, China); Chang Su and Min Zhang (Huawei co. LTD, China); Hao Yang (Huawei, China)

19:40 Event Temporal Relation Extraction Based on Retrieval-Augmented on LLMs
Xiaobin Zhang (IIE,China); Liangjun Zang (IIE, China); Qianwen Liu (CAS, China); Shuchong Wei (Chinese Academy of Sciences, China); Songlin Hu (IIE, China)

20:00 TFAD: An Image Multi-Label Recognition Method with Image-Text Powered Attention
Haoran Yin (Shanghai University of Engineering Science, China)

20:20 Adaptive Ensembles of Fine-Tuned Transformers for LLM-Generated Text Detection
Zhixin Lai (Snap Inc, USA); Xuesheng Zhang (Meituan, China); Suiyao Chen (USA))

19:00 – 20:40
Virtual: Large Language Models 4
Conference: IJCNN
Room: Zoom 2
Session Chair(s):

19:00 OSAgent: Copiloting Operating System with LLM-Based Agent

Jiaming Xu, Kaibin Guo, Wuxuan Gong and Runyu Shi (Xiaomi Corporation, China)

19:20 Mitigating Hallucination Issues in Small-Parameter LLMs Through Inter-Layer Contrastive Decoding

Fan Li (Zhejiang University, China); Xiao-Feng Zhang (Shanghai Jiao Tong University, China); Peng Zhang (Zhejiang University, China)

19:40 TableLLM: Effective Training Framework for Table Reasoning in Large Language Models

Jiashuo Sun (Xiamen University, China); Chengjin Xu and Jian Guo (International Digital Economy Academy, China)

20:00 Exploring Instruction Feature Adaptation for Event Argument Extraction in Large Language Models

Zonghao Yang (Information Research Center of Military Science, Academy of Military Science of the People's Liberat, China); Jintao Yang (Academy of Military Science of the People's Liberation Army, China); Yushan Tan (Academy of Military Science, China); Changhai Tian (Academy of Military Sciences, China); Junyao Zhou (Hebei University of Engineering, China); Jun Ma (China Research and Development Academy of Machinery Equipment, China); Wenpeng Hu (Peking University, China); Zhunchen Luo (Academy of Military Sciences, China); Wei Luo (Information Research Center of Military Science, China)

20:20 Face Morphing via Adversarial Attack-Based Adaptive Blending

Qiaoyun He (Sichuan University, China); Deng Zongyong (SiChuan University, China); Zuyuan He (Sichuan University, China); Qijun Zhao (Sichuan University & Tibet University, China)

19:00 – 20:40
Virtual: Transformers 1
Conference: IJCNN
Room: Zoom 3
Session Chair(s): Ignazio Gallo and Silvia Corchs

19:00 *MH-DETR: Video Moment and Highlight Detection with Cross-Modal Transformer*
Yifang Xu (Nanjin University, China); Yunzhuo Sun (Hubei Normal University, China); Benxiang Zhai (Nanjing University, China); Youyao Jia (Gosuncn Chuanglian Technology Co. Ltd., China); Sidan Du (Nanjing University, China)

19:20 *Semi-UFormer: Semi-Supervised Uncertainty-Aware Transformer for Image Dehazing*
Ming Tong, Xuefeng Yan, Yongzhen Wang and Mingqiang Wei (Nanjing University of Aeronautics and Astronautics, China)

19:40 *HWSformer: History Window Serialization Based Transformer for Semantic Enrichment Driven Stock Market Prediction*
Yisheng Hu and Guitao Cao (East China Normal University, China); Dawei Cheng (Tongji University, China)

20:00 *TATM: Task-Adaptive Token Matching for Few-Shot Transformer*
Yuheng Li and Fanzhang Li (Soochow University, China)

20:20 *Thinking is like Processing a Sequence of Spatial and Temporal Words*
Ignazio Gallo and Silvia Corchs (University of Insubria, Italy)

19:00 – 20:40
Virtual: Neural Networks for Natural Language Processing 1
Conference: IJCNN
Room: Zoom 4
Session Chair(s):

19:00 *Topic Paraphrasing Model for Abstractive Dialogue Summarization*
Zhizhuo Yang and Wei Zhang (Shanxi University, China)

19:20 *Option-Differentiated Clue Augmentation for Commonsense Question Answering*
Hao Li (TianJin University, China); Wenqing Deng, Zhe Wang and Kewen Wang (Griffith University, Australia); Zhiqiang Zhuang (TianJin University, China); Dongyu Yang (Tianjin University, China)

19:40 *Leveraging Intent Entity Enhancement for Task-Oriented Dialogue*
Jiale Chen, Shunhao Li and Baoshuo Kan (South China Normal University, China); Fu Lee Wang (Hong Kong Metropolitan University, China); Tianyong Hao (South China Normal University, China)

20:00 *Learning to Deliberate: Multi-Pass Decoding for Document-Grounded Conversations*
Junyan Qiu (University of Chinese Academy of Sciences, China); Yiping Yang (Chinese Academy of Sciences, China)

20:20 *Response Generation with Personal Attributes and Act Information*
Haitao Gui and Zhongqing Wang (Soochow University, China)

19:00 – 20:40
Virtual: Reinforcement Learning 1
Conference: IJCNN
Room: Zoom 5
Session Chair(s): Junyu Xuan

19:00 Real-Time Integration of Fine-Tuned Large Language Model for Improved Decision-Making in Reinforcement Learning
Xiancai Xiang (University of Chinese Academy of Sciences,China); Jian Xue, Lin Zhao, Yuan Lei, Chao Yue and Ke Lu (University of Chinese Academy of Sciences, China)

19:20 Robust Deep Reinforcement Learning with Adaptive Adversarial Perturbations in Action Space
Qianmei Liu, Kuang Yufei and Wang Jie (University of Science and Technology of China, China)

19:40 Conservative In-Distribution Q-Learning for Offline Reinforcement Learning
Zhengdao Shao and Liansheng Zhuang (University of Science and Technology of China, China); Jie Yan (Chinese Academy of Sciences, China); Liting Chen (McGill, Canada**)**

20:00 Decoupling Exploration and Exploitation for Unsupervised Pre-Training with Successor Features
JaeYoon Kim, Junyu Xuan, Christy Jie Liang and Farookh Khadeer Hussain (University of Technology Sydney, Australia)

20:20 RLBOF: Reinforcement Learning from Bayesian Optimization Feedback
Hailong Huang, Xiubo Liang, Quanwei Zhang, Hongzhi Wang and Xiangdong Li (Zhejiang University, China)

19:00 – 20:40
Virtual: Domain Adaptation 1
Conference: IJCNN
Room: Zoom 6
Session Chair(s):

19:00 Domain-Adaptive Multi-Frequency Underwater Image Enhancement Network

Qingzheng Wang, Bin Li, Jiazhi Xie and Ning Li (North China University of Water Resources and Electric Power, China)

19:20 Contrastive Sensor Excitation for Generalizable Cross-Person Activity Recognition

Ziyi Tan, Sitong Fang, Haoran Zhu and Chi Yang (Huazhong University of Science and Technology, China)

19:40 Edge Deployable Online Domain Adaptation for Underwater Object Detection

Djamahl Etchegaray and Yadan Luo (University of Queensland, Australia); Yang Li, Brendan Do and Jiajun Liu (CSIRO, Australia); Zi Huang (University of Queensland, Australia); Branislav Kusy (Commonwealth Scientific and Industrial Research Organisation (CSIRO) ICT Centre, Australia)

20:00 Time Series Domain Adaptation via Multiscale Feature Extraction and Mix-Up

Haoran Zhu, Ziyi Tan, Sitong Fang and Chi Yang (Huazhong University of Science and Technology, China)

20:20 Self-KT: Self-Attentive Knowledge Tracing with Feature Fusion Pre-Training in Online Education

Guoqiang Lu (Beijing Information Science and Technology University, China); Ke Niu (Beijing Information Science & Technology University, China); Xueping Peng (University of Technology Sydney, Australia); Yuhang Zhou, Ke Zhang and Wenjuan Tai (Beijing Information Science and Technology University, China)

19:00 – 20:40
Virtual: Neural Networks for Image Processing 1
Conference: IJCNN
Room: Zoom 7
Session Chair(s): Shicheng Zu

19:00 Rank and Sort Loss-Aware Label Assignment with Centroid Prior for Dense Object Detection

Shicheng Zu (Ericsson Inc. Nanjing, Hong Kong); Yucheng Jin (Jiangsu Province Hospital on Integration of Chinese and Western Medicine, China); Yujie Jiang (Nanjing Jinling Primary School, China)

19:20 PeINR: Periodic Implicit Neural Representation for Single-View Clothed Human Reconstruction

Yan Wan, Zhongqin Wei and Li Yao (Donghua University, China)

19:40 Updating Depth-Aware Feature in the Feedback Loop for Human Mesh Recovery

Zun Wang, Yang Hua, Xiaoning Song, Wenjie Zhang and Xiaojun Wu (Jiangnan University, China)

20:00 Implicit Multi-Spectral Transformer: An Lightweight and Effective Visible to Infrared Image Translation Model

Yijia Chen, Pinghua Chen and Xiangxin Zhou (Guangdong University of Technology, China); Yingtie Lei (China); Ziyang Zhou and Mingxian Li (Huizhou University, China)

20:20 A Feature Fusion-Based ResNet Using the Pooling Pyramid for Age Estimation

Chuanze Lin, Jin Gou, Zongwen Fan and Yongxin Liao (Huaqiao University, China)

19:00 – 20:40
Virtual: Neural Networks for Image Processing 2
Conference: IJCNN
Room: Zoom 8
Session Chair(s):

19:00 Gradient-YOLO: Exploring the Integration of Gradient Architecture into the YOLO Network

Gang Li (Qilu University of Technology & Shandong Computer Science Center, China); Cheng Zhang (Qilu University of Technology (Shandong Academy of Sciences), China); Delong Han and Letian Gao (Qilu University of Technology, China); Mingle Zhou (Qilu University of Technology & Shandong Computer Science Center, China)

19:20 Detecting Video Image Changes Based on Improved Difference Map and Image Fusion

Ang Tian (Xinjiang University, China); Jia Zhenhong (Xinjiang University,China); Xiaohui Huang, Sensen Song, Jiajia Wang, Gang Zhou and Fei Shi (Xinjiang University, China)

19:40 Surface Defect Detection of Steel Components Based on Improved YOLOv5s

Li Liu (Xinjiang University, China); Xuefeng Feng, Feng Li and Qinglong Xian (Xinjiang Uygur Autonomous Region Research Institute of Measurement Testing, China); Jia Zhenhong (the Autonomous University Key Laboratory of Signal and Information Processing Laboratory, Xinjiang University, China); Xiaohui Huang, Sensen Song, Jiajia Wang, Gang Zhou and Fei Shi (Xinjiang University, China)

20:00 Learning Energy-Based Models for 3D Human Pose Estimation

Xianglu Zhu (University of Science and Technology of China, China); Zhang Zhang (Institute of Automation, CAS, China); Wei Wang (NLPR, Chinese Academy of Sciences, China); Zilei Wang (University of Science and Technology of China, China); Liang Wang (Chinese Academy of Sciences, China)

20:20 Common Extraction and Distribution Guided for Weakly Supervised RGB-IR Vehicle Detection

Zhilong Cui and Chongyang Zhang (Nanjing University of Science and Technology, China)

19:00 – 20:40
Virtual: Neural Networks for Medical Data Processing 1
Conference: IJCNN
Room: Zoom 9
Session Chair(s):

19:00 An Efficient Spatial Modeling Conv-ViT Using Mask Supervision for 3D Medical Image Segmentation

Jiaxing Tian, Bingcai Chen and Qianyu Li (Dalian University of Technology, China); RuoLan Liu (Dalian University of Technology & Xinjiang Normal University, China); Yuanchao Feng (Xinjiang Normal University, China)

19:20 Exploiting Multi-View Clues for Context-Aware Unified Lumbar MRI Identification and Diagnosis

Weiwen Zhang (South China University of Technology, China); Cheng Xu (The Hong Kong Polytechnic University, China); Xuemiao Xu, Huaidong Zhang and Rongchen Zhao (South China University of Technology, China); Jing Qin (The Hong Kong Polytechnic University, China)

19:40 Multiple Query-Based Multi-Omics Fusion Algorithm for Cancer Classification and Metastasis Prediction

Xin Chen and Yun Tie (Zhengzhou University, China); Fenghui Liu (The First Affiliated Hospital of Zhengzhou University, China); Lin Qi (Zhengzhou University, China)

20:00 An Effective Dual-Scale Hybrid Encoder Network for Medical Image Segmentation
Chengzhang Zhu, Renmao Zhang, Yalong Xiao, Beiji Zou, Xian Chai and Zhangzheng Yang (Central South University, China); Lan Hua (The Second Xiangya Hospital of Central South University, China); Xuanchu Duan (Changsha Aier Eye Hospital, China)

20:20 Automatic Segmentation of Organs-At-Risk and Clinical Target Volume for Cervical Cancer Using Manifold Learning

Chenyu Zuo (Beijing University of Posts and Telecommunications, China); Runhong Lei (Peking University Third Hospital, China); Xi Liu (Beihang University, China); Kai Niu and Zhiqiang He (Beijing University of Posts and Telecommunications, China); Ruijie Yang (Peking University Third Hospital, China)

19:00 – 20:40
Virtual: Deep Learning for Graphs 1
Conference: IJCNN
Room: Zoom 10
Session Chair(s):

19:00 Collaborative Graph Neural Networks with Contrastive Learning for Sequential Recommendation
Bo Tao, Huimin Chen, Huazheng Pan, Yanhao Wang and Zhiyun Chen (East China Normal University, China)

19:20 GMCL: Graph Mask Contrastive Learning for Self-Supervised Graph Representation Learning
Long Xu, Zhiqiang Pan, Honghui Chen and Tianjian Zhou (National University of Defense Technology, China)

19:40 Masked Dual Graph Autoencoder for Attributed Graph Community Detection
Mingjiao Li, Xing Chu, Miao Luo, Haiyang Zhao and Hanxing Jiang (Yunnan University, China)

20:00 Inductive Link Prediction in Knowledge Graphs Using Path-Based Neural Networks
Canlin Zhang (Florida State University, USA & Sorenson Communications, USA); Xiuwen Liu (Florida State University, USA)

20:20 Hybrid Focal and Full-Range Attention Based Graph Transformers
Minhong Zhu, Zhenhao Zhao and Weiran Cai (Soochow University, China)

19:00 – 20:40
Virtual: Deep Learning for Graphs 2
Conference: IJCNN
Room: Zoom 11
Session Chair(s):

19:00 Unsupervised Graph Anomaly Detection on Directed Attribute Network
Haoyang Li (National University of Defense Technology, China); Siwei Wang (Intelligent Game and Decision Lab, China); Xinwang Liu (National University of Defense Technology, China); Xinbiao Gan (NUDT, China)

19:20 OCDIB: An Information Bottleneck-Guided Approach for Overlapping Community Detection
Moli Lu (Harbin Institute of Technology (Shenzhen), China); Linhao Luo (Monash University, Australia); Xiaofeng Zhang (Harbin Institute of Technology, China)

19:40 VQGG: Generating Adaptive Graphs for Traffic Forecasting via a Vector-Quantized Graph Generator

Songyu Ke (Shanghai Jiao Tong University, China); Chenyu Wu (Zhejiang University of Technology, China); Jinjin Guo, Junbo Zhang and Yu Zheng (JD Intelligent Cities Research, China)

20:00 CLGNN: UAV Fault Diagnosis via Causal Learning and Graph Neural Network

Jun Yao and Weiwei Li (Nanjing University of Aeronautics and Astronautics, China); Zhuoran Zheng and Xiuyi Jia (Nanjing University of Science and Technology, China)

20:20 Noise Perturbation Based Graph Contrastive Learning via Flexible Filters for Node Classification

Zhilong Xiong (xFusion Digital Technologies Company Limited, China); Jia Cai and Ranhui Yan (Guangdong University of Finance & Economics, China); Xiaolin Huang (Shanghai Jiao Tong University, China)

19:00 – 20:40
Virtual: Deep Learning Architecture 1
Conference: IJCNN
Room: Zoom 12
Session Chair(s):

19:00 Effective and Efficient: Deeper and Faster Fusion Network for Multimodal Summarization
Zhenyu Guan and Xun Liang (Renmin University of China, China)

19:20 FSMANet: Flash Shuffle Mix Attention Network for Human Sitting Posture Recognition
Tianxiang Zhao, Shoudong Shi, Kedi Qiu, Yongfang Ye and Ting Lan (Ningbo University, China)

19:40 KnowledgeIE: Unifying Online-Offline Distillation Based on Knowledge Inheritance and Evolution
Yiqing Shen (Johns Hopkins University, USA)

20:00 A Novel Loss Incorporating Residual Signal Information for Target Speaker Extraction Under Low-SNR Conditions
Sijie Wang (Xinjiang University, China); Askar Hamdulla (Xinjiang University of China, China); Ablimit Mijit (Xinjiang University, China)

20:20 Efficient Multi-Model Fusion with Adversarial Complementary Representation Learning
Zuheng Kang and Yayun He (Ping An Technology (Shenzhen) Co., Ltd., China); Jianzong Wang (Pingan, China); Junqing Peng (Ping An Technology (Shenzhen) Co. Ltd., China); Jing Xiao (Ping An Insurance Company of China, Ltd., China)

19:00 – 20:40
Virtual: Deep Learning Architecture 2
Conference: IJCNN
Room: Zoom 13
Session Chair(s):

19:00 GSLip: A Global Lip-Reading Framework with Solid Dilated Convolutions
Junxia Jiang, Zhongqiu Zhao, Yi Yang and Weidong Tian (Hefei University of Technology, China)

19:20 Continuous Target Speech Extraction: Enhancing Personalized Diarization and Extraction on Complex Recordings
He Zhao (Zhejiang University, China); Hangting Chen and Jianwei Yu (Tencent AI Lab, China); Yuehai Wang (Zhejiang University, China)

19:40 DCQNet: Collaborative Camouflaged Object Detection Using Cross-Sample and Cross-Scale Network
Panrui Tang, Zu-ping Zhang, Yubin Sheng and Bo Huang (Central South University, China); Yao Xiao (Xinjiang University, China); Lin Shen (Central South University, China)

20:00 Can I Trust You? Rethinking Calibration with Controllable Confidence Ranking
Wenshu Ge, Huan Ma and Changqing Zhang (Tianjin University, China)

20:20 Dual-Branch Knowledge Distillation for Long-Tailed Recognition
Yuge Xu, Chuanlong Lyu and Ziyi Xie (South China University of Technology, China)

19:00 – 20:40
Virtual: Generative Adversarial Networks 1
Conference: IJCNN
Room: Zoom 14
Session Chair(s): Jun Li

19:00 LRGAN: Learnable Weighted Recurrent Generative Adversarial Network for End-To-End Shadow Generation
Junsheng Xue and Hai Huang (Beijing University of Posts and Telecommunications, China); Zhong Zhou (Beihang University, China); Shibiao Xu and Aoran Chen (Beijing University of Posts and Telecommunications, China)

19:20 A Gauss-Newton Approach for Min-Max Optimization in Generative Adversarial Networks
Neel Ashok Mishra (International Institute of Information Hyderabad, India); Pawan Kumar (International Institute of Information Technology, Hyderabad, India); Pratik Jawanpuria and Bamdev Mishra (Microsoft, India)

19:40 Generalized Pareto GAN: Generating Extremes of Distributions

Jun Li (Fudan University, China); Dingcheng Li (Coupang, USA); Ping Li (LinkedIn, USA); Gennady Samorodnitsky (Cornell University, USA)

20:00 AV-GAN: Attention-Based Varifocal Generative Adversarial Network for Uneven Medical Image Translation

Zexin Li (1901, Information Building, SIGS & Tsinghua University, China); Yiyang Lin, Zijie Fang, Shuyan Li and Xiu Li (Tsinghua University, China)

20:20 X-Transfer: A Transfer Learning-Based Framework for GAN-Generated Fake Image Detection

Lei Zhang and Hao Chen (Chengdu University of Information Technology, China); Shu Hu (Purdue University, USA); Bin Zhu (Microsoft Research Asia, China); Ching Sheng Lin (Tunghai University, Taiwan); Xi Wu and Jin Rong Hu (Chengdu University of Information Technology, China); Xin Wang (University at Albany SUNY, USA)

19:00 – 20:40
Virtual: Feature Extraction 1
Conference: IJCNN
Room: Zoom 15
Session Chair(s):

19:00 Adaptive Feature Representation Based on Contrastive Learning for Few-Shot Classification

Jiajie Fang, Qian Qiao, Ziyin Zeng and Fanzhang Li (Soochow University, China)

19:20 FilterIE: A Joint Multimodel Information Extraction Model Under Two-Stage Visual Data Filtering

Yihan Zhao (University of Electronic Science and Technology of China & School of Information and Software Engineering, China); Jun Cheng and Tao Meng (Shanghai Media Group Co Ltd, China); Wu Xiaohua (University of Electronic Science and Technology of China, China)

19:40 TF-ChineseECE: A Chinese Event Causality Extraction Method Combining Roberta and Bi-FLASH-SRU

Quanlin Chen, Jun Jia and Shuo Fan (Academy of Military Sciences, China)

20:00 Distantly Supervised Relation Extraction Based on Non-Taxonomic Relation and Self-Optimization

Zhaorui Jian, Shengquan Liu, Wei Gao and Jianming Cheng (Xinjiang University, China)

20:20 PointMLFF: Robust Point Cloud Analysis Based on Multi-Level Feature Fusion

Miao Yin (University of Jinan, China); Lei Tan (Fudan University, China); Ping Wang (Jinan University, China); Jinshuo Zhang (Shandong University, China); Xiuyang Zhao (University of Jinan, China)

19:00 − 20:40
Virtual: Computational Intelligence in Software Engineering
Conference: IJCNN
Room: Zoom 16
Session Chair(s):

19:00 Leveraging In-And-Cross Project Pseudo-Summaries for Project-Specific Code Summarization

Yupeng Wu (Peking University, China); Tianxiang Hu and Ninglin Liao (Beijing Institute of Control and Electronic Technology & Key Laboratory of Information System and Technology, China); Rui Xie (Peking University, China); Minghui Zhang (Peking University & Handan Institute of Innovation, China); Dongdong Du (China Academy of Industrial Internet, China); Shujun Lin (Peking University, China)

19:20 Defect Correction Method for Software Requirements Text Using Large Language Models

Li Zhang, Liubo Ouyang and Zhuoqun Xu (Hunan University, China)

19:40 SeTemAPR: Incorporating Semantic Knowledge in Template-Based Neural Program Repair

Yanbo Zhang and Yawen Wang (Beijing University of Posts and Telecommunications, China)

20:00 MicroHFRCL: A History Faults Based Root Cause Localization Framework in Microservice Systems

Leyao Zhang (School of Software,Shandong University); Yuliang Shi (School of Software,Shandong University;Dareway Software Co., Ltd.); Kaiyuan Qi and Dong Wu (Jinan Inspur Data Technology Co., Ltd.); Xinjun Wang, Zhongmin Yan and Zhiyong Chen (School of Software,Shandong University**)**

19:00 − 20:40
Virtual: Learning from Small Data: Techniques and Applications 1
Conference: IJCNN
Room: Zoom 17
Session Chair(s):

19:00 Context Embedding Similarity Based Semi-Supervised Active Learning for Time Series

Xianwei Zhou, Yifan Lin, Songsen Yu, Shiqi Wu, Wencong Zhang and Chulue Zhang (South China Normal University, China)

19:20 An End-To-End Framework for Few-Shot Millimeter-Wave Radar-Based Hand Gesture Recognition

Yulin Ye (University of Electronic Science and Technology of China, China); Tianxiang Cui (University of Nottingham Ningbo China, China); Shisheng Guo (University of Electronic Science and Technology of China, China); Guolong Cui (University of Electronic Science and Technology of China (UESTC), China)

19:40 Pre-Training Graph Neural Networks via Weighted Meta Learning

Yiwei Dai, Mingchen Sun and Xin Wang (Jilin University, China)

20:00 Self-Supported Prototype Rectification for Few-Shot Medical Image Segmentation

Zhaoxu Li, Hailing Wang and Guitao Cao (East China Normal University, China)

20:20 Attentional Feature Fusion for Few-Shot Learning

Muhammad Rehman Zafar and Naimul Mefraz Khan (Toronto Metropolitan University, Canada)

19:00 – 20:40
Virtual: Neural Network Applications 1
Conference: IJCNN
Room: Zoom 18
Session Chair(s):

19:00 Lightweight Gaze Estimation Model via Fusion Global Information

Zhang Cheng and Yanxia Wang (Chongqing Normal University, China)

19:20 A Hybrid Solution for Predicting Any Stock Market Index: When a Causal Knowledge Graph Meets Transfer Learning and the Integration of Uncertainty Through the Distribution of Latent Variables

David R Djoumbissie, RDD (University of Montreal & CANADIAN Mortgage and Housing Corporation, Canada)

19:40 Enhanced Physics-Informed Neural Networks with Optimized Sensor Placement via Multi-Criteria Adaptive Sampling

Chenhong Zhou and Jie Chen (Hong Kong Baptist University, Hong Kong); Zaifeng Yang (Institute of High Performance Computing, Astar, Singapore); Alexander Matyasko (Institute of High Performance Computing, Singapore); Ching Eng Png (Institute of High Performance Computing, A*STAR, Singapore)

20:00 A Corpus and Method for Chinese Named Entity Recognition in Manufacturing

Ruiting Li, Peiyan Wang, Libang Wang, Danqingxin Yang and Dongfeng Cai (Shenyang Aerospace University, China)

20:20 Classroom Behavior Recognition Model for Elementary and Middle School Students Based on Improved YOLOPose and Feature Fusion

Zhuang Wang, Zhurong Zhou, Yi Chen, Tianci Zheng and Youlin He (Southwest University, China)

19:00 − 20:40
Virtual: Neural Network Applications 2
Conference: IJCNN
Room: Zoom 19
Session Chair(s): Wenjing Hong

19:00 FAMT: Fusion of Feature Attention Mechanisms and Multiscale Temporal Relationships for Traffic Accident Prediction

Weibin Deng and Hongxing Li (Chongqing University of Posts and Telecommunications, China)

19:20 Dual-Stage Training Frame-Level Overlapping Speech Detection Model Based on Convolutional Neural Network Architecture

Zhifei Pan, Guangcun Wei, Qingge Fang, Jihua Fu and Jianan Liu (Shandong University of Science and Technology, China)

19:40 An Implicit Relationship Extraction Model Based on Improved Attention and Gated Decoding for Intent Recognition and Slot Filling

Shuo Ge, Rongheng Lin and Hua Zou (Beijing University of Posts and Telecommunications, China)

20:00 Relation Knowledge Distillation Based on Prompt Learning for Generalized Few-Shot Intent Detection

Chaiyut Luoyiching, Yangning Li, Yinghui Li, Rongsheng Li and Haitao Zheng (Tsinghua University, China); Nannan Zhou and Hanjing Su (Tencent, China)

20:20 Improving Related Work Generation Through Knowledge Aggregation from Citation Networks

Kaixin Niu, Hongling Wang, Zhongqing Wang and Mengling Han (Soochow University, China)

19:00 − 20:40
Virtual: Representation Learning for Multi-Modal Data 1
Conference: IJCNN
Room: Zoom 20
Session Chair(s):

19:00 Global Similarity Relocation Hashing for Unsupervised Cross-Modal Retrieval

HongHao Wu (Chongqing Normal University, China); Mingyong Li (Chongqing Normal University, Chongqing, China)

19:20 FEW: Multi-Modal Recommendation for Cold-Start

Qiwei Ye (National University of Defense Technology, China); Linbo Qiao (University of Defense Technology, China); Zhixin Ou and Kaixi Yang (National University of Defence Technology, China)

19:40 Attention-Based Difficulty Feature Enhancement for Knowledge Tracing

Wang xinhua, Hao Lu, Liancheng Xu, Lei Guo and Xiaohui Zhao (Shandong Normal University, China)

20:00 Cascaded Encoder-Decoder Reconstruction Network with Gated Mechanism for Multimodal Emotion Recognition Under Missing Modalities

Linghui Sun, Xudong Li, Jingzhi Zhang, Chengjie Bai and Jie Pan (Shandong Normal University, China)

19:00 – 20:40
Virtual: Federated Learning 1
Conference: IJCNN
Room: Zoom 21
Session Chair(s):

19:00 pFedBEA: Combatting Data Heterogeneity for Personalized Federated Learning by Body Exchange and Aggregation Abandon

Jianyu He (Beijing Wuzi University, China); Detian Liu (Beijing University of Technology, China); Shiqiang Zhang, Shujie Ge, Yang Cao and Hengliang Tang (Beijing Wuzi University, China)

19:20 DCFL: Non-IID Awareness Dataset Condensation Aided Federated Learning

XingWang Wang, Shaohan Sha and Yafeng Sun (Jilin University, China)

19:40 A Behavioral Recognition-Based Federated Learning Framework for IoT Environments

Ruizhong Du (HeBei University, China); Shuai Li (Hebei University,China); Pengyuan Zhao (Wuhan University, China)

20:00 Federated Learning for Vehicle Trajectory Prediction: Methodology and Benchmark Study

Hongye Wang (Harbin Institute of Technology Shenzhen, China); Ruonan Li (Harbin Institute of Technology, College of Computer Science and Technology, Shenzhen, China); Zenglin Xu (Harbin Institute of Technology Shenzhen, China); Jinlong Li (South China University of Technology, China); Irwin King (The Chinese University of Hong Kong, Hong Kong); Jie Liu (Harbin Institute of Technology, China)

19:00 – 20:40
Virtual: Neural Networks for Question Answering 1
Conference: IJCNN
Room: Zoom 22
Session Chair(s):

19:00 *Bottom-Up Hierarchical Propagation Networks with Heterogeneous Graph Modeling for Video Question Answering*
Jinsheng Qi and Yuanxing Xu (Beijing University of Posts and Telecommunications, China); Bin Wu (Beijing University of Post and Telecommunications, China)

19:20 *Reducing Language Bias for Robust VQA Model with Multi-Branch Learning*
Zhenzhen Wang (Xiamen University, China); Wu Qingfeng (Schoo of Informatics Xiamen University, China)

19:40 *Reference-Free Review-Based Product Question Answering Evaluation via Distant Contrastive Learning*
Tony Danhui Huang and Yongli Ren (RMIT University, Australia); Lifang Wu (Beijing University Of Technology, China); Xiuzhen Zhang (RMIT University, Australia)

20:00 *Learning Choice Nuance for Multiple-Choice Commonsense Question Answering*
Dongyu Yang (Tianjin University, China); Wenqing Deng, Zhe Wang and Kewen Wang (Griffith University, Australia); Zhiqiang Zhuang and Hao Li (TianJin University, China)

20:20 *QLSC: A Query Latent Semantic Calibrator for Robust Extractive Question Answering*
Sheng Ouyang (Ping An Technology, China); Jianzong Wang (Pingan, China); Yong Zhang (PingAn Technology, China); Zhitao Li (Ping An Technology, China); Ziqi Liang (University of Science and Technology of China, China); Xulong Zhang (Shangfeng Road NO. 1288 & Ping An Technology (Shenzhen) Co., Ltd., China); Ning Cheng (Pingan, China); Jing Xiao (Ping An Insurance Company of China，Ltd., China)

19:00 – 20:40
Virtual: Efficiency, Security, and Generalization of Foundation Models 1
Conference: IJCNN
Room: Zoom 23
Session Chair(s):

19:00 Guided Diffusion-Based Adversarial Purification Model with Denoised Prior Constraint
Xiyao Liu, Ting Yang, Jiaqi Li and Xi Li (Central South University, China); Hui Fang (Loughborough University, UK (Great Britain))

19:20 LoFT: LoRA-Based Efficient and Robust Fine-Tuning Framework for Adversarial Training
Jiadong Fu (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China); Jiang Fang (Institute of Information Engineering, China); Jiyan Sun (Chinese Academy of Sciences, China); Shangyuan Zhuang (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China); Liru Geng (Institute of Information Engineering Chinese Academy of Sciences, China); Yinlong Liu (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China)

19:40 Anti-AsynDGAN: Black-Box Membership Inference Attacks Against Medical Distributed Generation Models
Yue Chen, Shuchao Pang and Rui Zhang (Nanjing University of Science and Technology, China)

20:00 Enhancing Data Augmentation with Knowledge-Enriched Data Generation via Dynamic Prompt-Tuning Method
Qianqian Qi, Qiming Bao and Alex Yuxuan Peng (University of Auckland, New Zealand); Jiamou Liu (The University of Auckland, New Zealand); Michael Witbrock (University of Auckland, New Zealand)

19:00 – 20:40
Virtual: Algorithms 1
Conference: CEC
Room: Zoom 24
Session Chair(s):

19:00 Using selected heuristic algorithms in solving nonlinear differential equations
Mariusz Pleszczyński (Silesian University of Technology, Poland)

19:20 Automated Synthesis of Commutative Approximate Arithmetic Operators
Zdenek Vasicek (Brno University of Technology, Czech Republic)

19:40 Prediction of Managed Forest Growth Based on Machine Learning and Cellular Automata
Pablo H. Freitas and Murillo G. Carneiro (Federal University of Uberlândia, Brazil); Thiago P. Protasio (Federal Rural University of Amazonia, Brazil); Delman A. Gonçalves (Brazilian Agricultural Research Corporation, Brazil); Rodrigo O. V. Miranda and Alvaro A. V. Soares (Federal University of Uberlandia, Brazil); Luiz Gustavo A. Martins (Federal University of Uberlândia, Brazil)

20:00 Using Island Model in Asynchronous Evolutionary Strategy to Search for Backdoors for SAT
Artem Pavlenko and Alexander Semenov (ITMO University, Russia)

20:20 Estimation of glycated hemoglobin by symbolic regression
Esther Maqueda (Hospital Universitario de Toledo, Spain); J. Ignacio Hidalgo and J. Manuel Velasco (Universidad Complutense de Madrid, Spain); Oscar Garnica (Complutense U. of Madrid, Spain)

19:00 – 20:40
Virtual: Applications
Conference: FUZZ-IEEE
Room: Zoom 25
Session Chair(s): Watchanan Chantapakul

19:00 MAAVSL-HIT2FS: Multi-Agent based Architecture for Variable Speed Limit Decision making based on Hierarchical Interval Type 2 Fuzzy System
Ameni Aloui (University of Tunis El Manar, Tunisia); Hela Hachicha (Higher Institute of Computer Science & LIMTIC Lab, University of Tunis El Manar, Tunisia); Ezzeddine Zagrouba (University Tunis El Manar & Higher Institute of Computer Science & LIMTIC Lab., Tunisia)

19:20 Stock Market Index Prediction: A framework based on transfer learning and knowledge graph enrichment through uncertainty using natural language and fuzzy logic
David R Djoumbissie, (University of Montreal & CANADIAN Mortgage and Housing Corporation, Canada); Philippe Langlais (University of Montreal, Canada)

19:40 Learning Automaton Induced Brain-Actuated Takagi-Sugeno Speed Modulation for Position Control of a Rehabilitative Robot Arm
Baishali De and Anwesa Mondal (Jadavpur University, India); Amit Konar (Jadavpur University, Kolkata, India); Anuradha Saha (NSEC, India); Atulya K Nagar (Liverpool Hope University, UK (Great Britain))

20:00 A Novel Fuzzy Trust-Based Secure Vehicular Data Forwarding Scheme Using Incentive Consensus
Tieming Chen (Zhejiang University of Technology, China); Zechen Liu (ZheJiang University of Technology, China); Yinglong Li (Zhejiang University of Technolgy, China); Tinghao Chen, Qingyan Jiang and Jiahui Li (Zhejiang University of Technology, China)

132

17:00 Modeling mean-semivariance portfolio selection problems using coherent trapezoidal fuzzy numbers

Pawan Kumar Mandal (Government Engineering College Munger, Bihar, India); Sourabh Garg (Galgotias University, India); Xiao-Zhi Gao (Aalto University, Finland)

21:00 – 22:40
Virtual: Large Language Models 2
Conference: IJCNN
Room: Zoom 1
Session Chair(s):

21:00 Training Large Language Models to Follow System Prompt with Self-Supervised Fine-Tuning

Junyan Qiu (University of Chinese Academy of Sciences, China); Yiping Yang (Chinese Academy of Sciences, China)

21:20 Multi-Model Consistency for LLMs' Evaluation

Qinrui Zhu, Derui Lyu, Xi Fan and Xiangyu Wang (University of Science and Technology of China, China); Qiang Tu (The First Affiliated Hospital of University of Sciences and Technology of China, China); Yibin Zhan (JD Explore Academy, China); Huanhuan Chen (University of Science and Technology of China, China)

21:40 Exploring and Improving Consistency in Large Language Models for Multiple-Choice Question Assessment

Wenjie Zhou and Xiangyu Duan (Soochow University, China)

22:00 Time-CoT for Enhancing Time Reasoning Factual Question Answering in Large Language Models

Baosheng Yin and Naiyu Hu (Shenyang Aerospace University, China)

22:20 Improving Accuracy and Generalizability via Multi-Modal Large Language Models Collaboration

Shuili Zhang and Hongzhang Mu (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China); Tingwen Liu (Chinese Academy of Sciences, China)

21:00 – 22:40
Virtual: Large Language Models 5
Conference: IJCNN
Room: Zoom 2
Session Chair(s): Aishik Nagar

21:00 Zero-Shot Visual Reasoning by Vision-Language Models: Benchmarking and Analysis
Aishik Nagar (Singapore); Shantanu Jaiswal (A*STAR Singapore, Singapore); Cheston Tan (A*STAR, Singapore)

21:20 Ladder-of-Thought: Using Knowledge as Steps to Elevate Stance Detection
Kairui Hu (Nanyang Technological University & Agency for Science, Technology and Research, Singapore); Ming Yan (Agency for Science Technology and Research, Singapore); Wen Haw Chong and Yong Keong Yap (DSO National Laboratories, Singapore); Cuntai Guan (Nanyang Technological University, Singapore); Joey Tianyi Zhou and Ivor W Tsang (Agency of Science Technology and Research, Singapore)

21:40 Baichuan2-Sum: Instruction Finetune Baichuan2-7B Model for Dialogue Summarization
Jianfei Xiao (University of Southern California, USA); Yancan Chen (National University of Singapore, Singapore); Yimin Ou (Cornell University, USA); Hanyi Yu (University of Southern California, USA); Kai Shu (University of Southern California & Alibaba Inc, USA); Yiyong Xiao (Taiyuan Normal University, China)

22:00 ToFC: Tree-Of-Fact with Continued Best-First Search for Commonsense Reasoning
Ling Dai and Ke Qin (University of Electronic Science and Technology of China, China)

21:00 – 22:40
Virtual: Transformers 2
Conference: IJCNN
Room: Zoom 3
Session Chair(s):

21:00 How Powerful are Decoder-Only Transformer Neural Models?
Jesse Roberts (Vanderbilt University & Tennessee Technological University, USA)

21:20 RA-LENet: R-Wave Attention and Local Enhancement for Noise Reduction in ECG Signals
Yaolong Zhu, Ding Zhu and Juan Liu (Institute of Artificial Intelligence, School of Computer Science, China)

21:40 Improving End-To-End Object Detection by Enhanced Attention

Muyi Yan (East China Normal University, China); Wang Shaopeng (ECNU, China); Zeyu Lu (East China Normal University, China)

22:00 Adaptive Distance-Aware Attention Models for Routing Problems

Chao Zhang, Jinbiao Xing and Hui Wang (Hikvision Research Institute, China); Kuangzheng Li (University of Science and Technology of China, China); Weihao Jiang and Shiliang Pu (Hikvision Research Institute, China)

22:20 MPFormer: Dynamic Traffic Spatial-Temporal Features Forecasting with Multi-Perspective Attentions

Haobo Zhang, Qianqian Ren and Zilong Li (Heilongjiang University, China)

21:00 – 22:40
Virtual: Neural Networks for Natural Language Processing 2
Conference: IJCNN
Room: Zoom 4
Session Chair(s):

21:00 Exploring Chinese Humor Generation: A Study on Two-Part Allegorical Sayings

Rongwu Xu (Tsinghua University, China)

21:20 Local-Fusion Attention and Semantic-Augmentation Attention for Named Entity Recognition

Zhouyang Liu, Liang Zhu, Xin Song and Huiting Yuan (Hebei University, China)

21:40 Knowledge-Enhanced Multi-Granularity Interaction Network for Political Perspective Detection

Xinming Chen, Xu Liu and Yuanxing Xu (Beijing University of Posts and Telecommunications, China); Bin Wu (Beijing University of Post and Telecommunications, China); Yangfu Zhu (Beijing University of Posts and Telecommunications, China)

22:00 APT: Adaptive Prefix-Tuning on Pretrained Models for Code Intelligence

Yue Wu, Yaoxiang Yu and Zhengming Yuan (Wuhan University, China); Siwei Huang (WuHan University, China); Bo Cai (Wuhan University, China)

22:20 Topic Partition of User-Generated Texts for User Identity Linkage Across Social Networks

Xiaoyu Guo, Yan Liu and Fenlin Liu (Henan Key Laboratory of Cyberspace Situation Awareness, China)

21:00 Algorithm Topological Structure Search Based on Optimization of Mathematical Operation-Level Continuous Differentiable Search Framework

Ludi Wang, Qinghai Gong, Zhaolei Wang, Jiarun Liu and Ping Lin (Beijing Aerospace Automatic Control Institute, China)

21:20 Advanced Image Analysis in Offshore Drilling Surveillance via Edge-Cloud Framework Leveraging Deep Reinforcement Learning

Xiaofeng Ji, Faming Gong, Nuanlai Wang, Chengze Du and Kaiwen Zheng (China University of Petroleum, China)

21:40 CMBE: Curiosity-Driven Model-Based Exploration for Multi-Agent Reinforcement Learning in Sparse Reward Settings

Kai Yang, Zhirui Fang, Xiu Li and Jian Tao (Tsinghua University, China)

22:00 Dynamic Environment-Driven Autonomous Drone Path Planning via Deep Reinforcement Learning

Qiuhong Wang and Jingjing Gu (Nanjing University of Aeronautics and Astronautics, China)

22:20 Continuous Attention Mechanism Based SFC Placement in NFV-Enabled Mobile Edge Cloud for IoT Applications

Xi Xu, Yang Yang, Wei Huang, Cheng Zhan and Fei Wang (Southwest University, China); Songtao Guo (Chongqing University, China)

21:00 Introducing Intermediate Domains for Effective Self-Training During Test-Time

Robert A Marsden, Mario Döbler and Bin Yang (University of Stuttgart, Germany)

21:20 Novel Category Discovery Across Domains with Contrastive Learning and Adaptive Classifier

Shengyuan Yu and Yangyang Huang (South China University of Technology, China); Tianwen Yang (South China Unibersity of Technology, China); Jinhao Lin and Ronghua Luo (South China University of Technology, China)

21:40 How to Design or Learn Prompt for Domain Adaptation?

Cheng Jin, Haiting Zheng and Hang Yu (Shanghai University, China)

22:00 Open-Set Semi-Supervised Learning by Distribution Alignment

Qiao Xiao (Eindhoven University of Technology, The Netherlands); Jinjing Zhu (The Hong Kong University of Science and Technology Guangzhou, China); Boqian Wu (University of Twente, The Netherlands); Yu Zhang (Southern University of Science and Technology, China)

22:20 Part-Attention Based Model Make Occluded Person Re-Identification Stronger

Zhihao Chen and Yiyuan Ge (Beijing Information Science & Technology University, China)

21:00 – 22:40
Virtual: Neural Networks for Image Processing 3
Conference: IJCNN
Room: Zoom 7
Session Chair(s):

21:00 Color and Feature Space Classification Methods Solve the Problem of Covariate Semantic Information Deviation in Complex Scene Detection Tasks

Mingle Zhou (Qilu University of Technology & Shandong Computer Science Center, China); Rui Xing (Qilu University of Technology (Shandong Academy of Sciences), China); Min Li and Delong Han (Qilu University of Technology, China); Gang Li (Qilu University of Technology & Shandong Computer Science Center, China)

21:20 SPGNet: A Serial-Parallel Gated Convolutional Network for Image Classification on Small Datasets

Yun Song and Jinxuan Wang (Changsha University of Science and Technology, China); Miaohui Wang (Shenzhen University, China)

21:40 An Improved Remote Sensing Object Detection Model Based on YOLOv8s

Shuilin Gong (China University of Geosciences, Wuhan, China); Xiang Li (China University of Geosciences, China)

22:00 Multimodal Video Highlight Detection with Noise-Robust Learning

Yinhui Jiang, Sihui Luo and Lijun Guo (NingBo University, China); Rong Zhang (Ningbo University, China)

22:20 SE-FewDet: Semantic-Enhanced Feature Generation and Prediction Refinement for Few-Shot Object Detection

Yineng Zhang, Sheng Liu, Yuan Feng, Songqi Pan, Xiaopeng Tian and Jiantao Yang (Zhejiang University of Technology, China)

21:00 – 22:40
Virtual: Neural Networks for Image Processing 4
Conference: IJCNN
Room: Zoom 8
Session Chair(s):

21:00 VRFF: Video Registration and Fusion Framework

Meng Sang, Housheng Xie and Yang Yang (Yunnan Normal University, China)

21:20 Task-Aware Disentanglement for Object Detection

Wang Keyang (ZheJiang Dahua Technology Co., Ltd, China); Ming Shao (Zhejiang Dahua, China)

21:40 Incremental Soft Pruning to Get the Sparse Neural Network During Training

Zhu Kehan, Hu Fuyi, Ding Yuanbin and Dong Yunyun (Yunnan University, China); Ruxin Wang (Alibaba Group, China)

22:00 Dual Prototype Learning for Robust Open Set Recognition

Yini Wang, Xiaodong Yue, Zhikang Xu and Zihao Li (Shanghai University, China)

22:20 MixDehazeNet: Mix Structure Block for Image Dehazing Network

Liping Lu, Qian Xiong, Bingrong Xu and Duanfeng Chu (Wuhan University of Technology, China)

21:00 – 22:40
Virtual: Neural Networks for Medical Data Processing 2
Conference: IJCNN
Room: Zoom 9
Session Chair(s): Xianglu Zhu

21:00 A Deep Learning Framework Based on U-Shaped Networks with Multi-Scale Feature Perception and Attention for Retinal Vessel Segmentation

Zhangyu Gao and Yanmin Niu (Chongqing Normal University, China)

21:20 Unsupervised Tumor-Aware Distillation for Multi-Modal Brain Image Translation

Chuan Huang and Jia Wei (South China University of Technology, China); Rui Li (Rochester Institute of Technology, USA)

21:40 Multi-Attention-Based Global 3D ResNet forAlzheimer's Disease Diagnosis

Yaozu Li, YueHeng Zhang and JinFeng Wu (QuFu Normal University, China); XiaoShuang Zhang, LiLi Han and Xinchun Cui (Qufu Normal University, China)

22:00 PDCU-Net: A Depth Model by Imitating Expert Diagnostic Thinking for Corneal Ulcer Classification on Slit-Lamp Images

Jianxin Liu, Jianwei Zhang and Kangyu Lin (South China University of Technology, China); Shiyou Zhou (Guangdong Provincial Institute for Vision and Eye Research, China)

22:20 Enhancement of Medical Report Generation by Multi-Scale Image Deblurring Strategy

Yuxin Wang, Yongping Du and Shaorou Tang (Beijing University of Technology, China)

21:00 – 22:40
Virtual: Deep Learning for Graphs 3
Conference: IJCNN
Room: Zoom 10
Session Chair(s): Thu Nguyen

21:00 Graph Mining Under Data Scarcity

Appan Rakaraddi and Siew Kei Lam (Nanyang Technological University, Singapore); Mahardikha Pratama (University of South Australia, Australia); Marcus Vinicius Sousa Leite de Carvalho (Nanyang Technological University, Singapore & IC Hub, Brazil)

21:20 FacGNN: Multi-Faceted Fairness Enhancement for GNN Through Adversarial and Contrastive Learning

Hao Liu, Yingguang Yang and Qi Wu (University of Science and Technology of China, China); Buyun He (University of Science and Technology of China, China); Yong Liao and Pengyuan Zhou (University of Science and Technology of China, China)

21:40 Imbalanced Graph Classification with Multi-Scale Oversampling Graph Neural Networks

Rongrong Ma (University of Technology Sydney, Australia); Guansong Pang (Singapore Management University, Singapore); Ling Chen (University of Technology Sydney, Australia)

22:00 Inhomogeneous Interest Modeling via Hypergraph Convolutional Networks for Social Recommendation

Lin Luo, Meng Wang, Jinshuo Liu and Jing Huang (Wuhan University, China)

22:20 Spatial-Temporal Attention Graph Neural Network with Uncertainty Estimation for Remaining Useful Life Prediction

Zhixin Huang, Yujiang He and Chandana Priya Nivarthi (University of Kassel, Germany); Christian Gruhl (Universit of Kassel, Germany); Bernhard Sick (University of Kassel, Germany)

21:00 – 22:40
Virtual: Deep Learning for Graphs 4
Conference: IJCNN
Room: Zoom 11
Session Chair(s): Kamran Aziz

21:00 Advancing Urdu NLP: Aspect-Based Sentiment Analysis with Graph Attention Networks

Kamran Aziz, Donghong Ji, Li Bobo, Fei Li and Jun Zhou (Wuhan University, China)

21:20 AEGAN: A Novel Machine Learning Model to Attribute Network Community Detection

Long Chen and Zhenyu Zhang (Xinjiang University, China); Li Xiaoming (Zhejiang Yuexiu Foreign University, China); Guangquan Xu (Tianjin University, China)

21:40 Grouped Graph Neural Networks for Anomaly Detection in Time Series

Ziyu Guo, Weiyang Kong and Yubao Liu (Sun Yat-Sen University, China)

22:00 Hierarchy-Aware Quaternion Embedding for Knowledge Graph Completion

Qiuyu Liang and Weihua Wang (Inner Mongolia University, China); Jie Yu (National University of Defense Technology, China); Feilong Bao (Inner Mongolia University, China)

22:20 Graph Link Prediction via Decay Coefficient Based Proportional Aggregation and Hybrid Concatenation

Jiaxin Zhuang, Yahui Chai, Xiaobin Rui and Zhixiao Wang (China University of Mining and Technology, China)

21:00 – 22:40
Virtual: Deep Learning Architecture 3
Conference: IJCNN
Room: Zoom 12
Session Chair(s): Peng Zhang

21:00 Cross Auto-Encoder for Inscription Character Inpainting

Long Zhao (Qilu University of Technology & Shandong Academy of Sciences, China); Zonglong Yuan and Yuhao Lou (Qilu University of Technology & Shandong Academy of Sciences, China)

21:20 Identity Semantic Correspondence for Cloth-Changing Person Re-Identification

Yongtang Bao, Hao Zheng and Xiaolin Zhang (Shandong University of Science and Technology, China); Kun Zhan (Lanzhou University, China); Peng Zhang (Shandong University of Science and Technology, China)

21:40 Cross-Modal Retrieval Based on Attention Embedded Variational Auto-Encoder

Kaili Zhou and Yiyun Xing (Qilu University of Technology (Shandong Academy of Sciences), China); Yushui Geng and Jing Zhao (Qilu University of Technology(Shandong Academy of Sciences), China)

22:00 DSD-GAN: Double-Scale Discriminators GAN for Enhanced Chinese Brush Baimiao Painting Colorization

Xiaoyang Bi, Yinqian Zhang and Sim Kuan Goh (Xiamen University Malaysia, Malaysia)

22:20 One-Shot Hierarchical Global Pruning via Channel Relation-Aware Attention

Yifan Xue, Wangshu Yao, Siyuan Peng, Siyu Yang and Keyu Zhou (Soochow University, China)

21:00 – 22:40
Virtual: Deep Learning Architecture 4
Conference: IJCNN
Room: Zoom 13
Session Chair(s): Yang Xu

21:00 Triple Discriminator GAN and Continuous Wavelet Transform for Volatility Forecasting
Emmanuel Osei-Brefo (University of Reading, UK (Great Britain))

21:20 Ground-Guided Conditional Pixel Synthesizer for Height-Based Satellite Imagery Super-Resolution
Yang Xu (Tsinghua University, China); Kejie Huang and Chenggang Yan (Hangzhou Dianzi University, China)

21:40 Contemporary Advances in Neural Network Quantization: A Survey
Min Li (Chinese Academy of Sciences, China); Zihao Huang (University of Chinese Academy of Sciences, China); Lin Chen and Junxing Ren (Chinese Academy of Sciences, China); Miao Jiang (University of Chinese Academy of Sciences & Institute of Information Engineering, Chinese Academy of Sciences, China); Li Fengfa (China); Jitao Fu (Institute of Information Engineering, Chinese Academy of Sciences, China); Chenghua Gao (UCAS, China)

22:00 LNPT: Label-Free Network Pruning and Training
Jinying Xiao, Ping Li, Zhe Tang and Jie Nie (Changsha University of Science and Technology, China)

22:20 Optimization for Deep Takagi-Sugeno-Kang Fuzzy Classifier by Self-Adaptive Hybrid Search Evolutionary Algorithm with Competitive Behavior
Xiao Feng and Zhiwen Zheng (University of Electronic Science and Technology of China, China); Yongbin Yu (University of Electronic Science and Technology, China); Xiangxiang Wang, Jingya Wang, Xinyi Han and Ziyue Zhang (University of Electronic Science and Technology of China, China); Jingye Cai (University of Electronic and Scientific Technology of China, China); Shiping Wen (University of Technology Sydney, Australia)

21:00 – 22:40
Virtual: Generative Adversarial Networks 2
Conference: IJCNN
Room: Zoom 14
Session Chair(s):

21:00 DisGAN: Distance-Aware Generative Adversarial Network for Diverse Image Generation
Feng Li and Liwen Shi (Donghua University, China); Kelong Zhang (National Innovation Center of Advanced Dyeing and Finishing Technology, China)

21:20 An Arc Light Elimination Network Using Polarization and Prior Information
Wenhao Yu, Lizhe Qi, Hanwen Liang and Yunquan Sun (Fudan University, China)

21:40 Adversarial Training for Uncertainty Estimation in Cross-Lingual Text Classification
Lina Xia (Xinjiang University, China); Askar Hamdulla (Xinjiang University of China, China); Mijit Ablimit and Sijie Wang (Xinjiang University, China)

22:00 Adversarial Pairwise Multimodal Recommendation
Mario Mallea (Universidad Federico Santa María, Chile); Ricardo Ñanculef (Universidad Técnica Federico Santa María, Chile); Denis Parra (Universidad Católica de Chile, Chile)

21:00 – 22:40
Virtual: Feature Extraction 2
Conference: IJCNN
Room: Zoom 15
Session Chair(s):

21:00 Separating Spectral and Spatial Feature Aggregation for Demosaicking
Xuanchen Li (Jilin University, China); Bo Zhao (JiLin University, China); Yan Niu (Jilin University, China); Li Cheng (15809, 89 Ave. NW & University of Alberta, Canada); Haoyuan Shi and Zitong An (Jilin University, China)

21:20 Representation Learning Using Machine Attribute Information for Anomalous Sound Detection in Real Scenarios
Shuxian Wang, Qing Wang and Jun Du (University of Science and Technology of China, China); Lei Wang, Fan Chu and Yuxuan Zhou (National Intelligent Voice Innovation Center, China); Mingqi Cai and Xin Fang (iFLYTEK, China)

21:40 Imbalanced Label Enhancement Based on Variational Information Bottleneck
Anning Song, Chao Tan, Jiaxi Zhang and Zilong Xu (Nanjing Normal University, China)

22:00 Exploiting Visual Relation and Multi-Grained Knowledge for Multimodal Relation Extraction
Qianru Shen (University of Chinese Academy of Sciences & Institute of Information Engineering, Chinese Academy of Sciences, China); Hailun Lin (Chinese Academy of Sciences, China); Huan Liu and Zheng Lin (Institute of Information Engineering Chinese Academy of Sciences, China); Weiping Wang (Chinese Academy of Sciences, China)

22:20 Leveraging Domain-Specific Word Embedding and Hate Concepts in Hate Speech Detection
Xiaodong Wu, Pei He and Hao Wu (Guangzhou University, China)

21:00 – 22:40
Virtual: Computational Intelligence Techniques for Observable Smart Grid and Sustainable Energy Systems
Conference: IJCNN
Room: Zoom 16
Session Chair(s):

21:00 Ultra-Short-Term Prediction Method of Photovoltaic Power Generation Based on Improved GRNN-LSTM Combination Model
Yun Wu, Tianyang Li and Jieming Yang (Northeast Electric Power University, China); Dan Feng (Chaoyang City Ecological and Environmental Affairs Service Center, China)

21:20 Dimensional Reduction for Solar Irradiance Forecasting Problem Using Principal Components Analysis and Turk-Pentland Strategy
Felipe P Marinho and Paulo A C Rocha (Federal University of Ceara, Brazil); Ajalmar R R Neto (Federal Institute of Ceara, Brazil); Victor O Santos (Guelph University, Canada)

21:40 RestoreCUFormer: Transformers to Make Strong Encoders via Two-Stage Knowledge Learning for Multiple Adverse Weather Removal
Jianping Li, Zhihao Wang, Jincheng Wan, Huaiwei Si, Xiang Wang and Guozhen Tan (Dalian University of Technology, China)

22:00 An End-To-End Algorithm for Predicting Missing Load Data Based on waveGAIN
Jiang Zhang, Gang Zhou, Yuwei Feng, Sen Yang, Wanlin Wang and Jiaqing Mo (Xinjiang University, China)

22:20 Fine-Grained Agricultural Facility Power Forecasting Based on Empirical Mode Decomposition
Erlei Zhang, Yu Zhang, Xiangsen Liu and Wenxuan Yuan (Northwest A&F University,Yangling,Shaanxi,China); Zheng Jiangbin (Northwestern Polytechnical University, China); Mingchen Feng (Northwest A&F University,Yangling,Shaanxi,China)

21:00 – 22:40
Virtual: Learning from Small Data: Techniques and Applications 2
Conference: IJCNN
Room: Zoom 17
Session Chair(s):

21:00 Multi-Granularity Dual-Aware Contrastive Learning for Few-Shot Named Entity Recognition

Boxiang Ma (Shanxi University, China); Changzheng Wang (Shanxi Tongfang Knowledge Network Digital Pubishing Technology Co Ltd, China); Shaoru Guo, Xuefeng Su, Zhichao Yan, Yue Zhang and Wenyuan Shao (Shanxi University, China); Zezheng Zhang (Taiyuan Normal University, China); Ru Li (Shanxi University, China)

21:20 MoNet: A Mixture of Experts Solution for Multilingual and Low-Resource ASR Challenges

Yongchao Li, Lixu Sun, Yineng Cai and Nurmemet Yolwas (Xinjiang University, China)

21:40 BERT-FKGC: Text-Enhanced Few-Shot Representation Learning for Knowledge Graphs

Jinlin Li, Zikang Wang, Linjing Li and Daniel Dajun Zeng (The State Key Laboratory of Multimodal Artificial Intelligence Systems，Institute of Automation, Beijing, China)

22:00 The Optimal Sampling Strategy for Few-Shot Named Entity Recognition Based with Prototypical Network

Junqi Chen, Zhaoyun Ding, Guang Jin and Guoli Yang (National University of Defense Technology, China)

22:20 LACNER: Enhancing Few-Shot Named Entity Recognition with Label Words and Contrastive Learning

Yuhui Xiao, Qun Yang, Jianjian Zou and Sichi Zhou (Nanjing University of Aeronautics and Astronautics, China)

21:00 – 22:40
Virtual: Neural Network Applications 3
Conference: IJCNN
Room: Zoom 18
Session Chair(s):

21:00 Semi-Supervised Contrastive Learning for Few-Shot Indoor Positioning via 5G NR

Wenqi Zheng, Linying Yang, Wei Li, Xiangxu Meng, Jianing Chen and Zhihong Wang (Harbin Engineering University, China)

21:20 Prog-TAPAS: Enabling Table and Program Representation Consistency for Fact Verification
Siqi Wang (University of Chinese Academy of Sciences, China); Zhang Chuang (Institute of Information Engineering Chinese Academy of Sciences, China); Tingwen Liu (Chinese Academy of Sciences, China)

21:40 Intuitive UAV Operation: A Novel Dataset and Benchmark for Multi-Distance Gesture Recognition
Zhenpeng Xu, Pan Sun and Yu Lu (Shenzhen Technology University, China); Huilin Ge (Jiangsu University Science and Technology, China); Meng Li and Yingjian Qi (Shenzhen Technology University, China)

22:00 ByteZip: Efficient Lossless Compression for Structured Byte Streams Using DNNs
Parvathy Ramakrishnan P and Satyajit Das (Indian Institute of Technology Palakkad, India)

22:20 Importance-Guided Sequential Training for Physics-Informed Neural Networks
Xin Zhang (Computer Network Information Center & Chinese Academy of Sciences, University of Chinese Academy of Sciences, China); NanXi Chen, Jiyan Qiu and Pengcheng Shi (University of Chinese Academy of Sciences, China); Xuesong Wu and Wu Yuan (Chinese Academy of Sciences, China)

21:00 – 22:40
Virtual: Neural Network Applications 4
Conference: IJCNN
Room: Zoom 19
Session Chair(s): Haoran Zhao

21:00 An Improved Potential Function Based on Target Position for Underwater Vehicles Collision Avoidance
Qihe Shan, Haoran Zhao and Shuo Li (Dalian Maritime University, China); Tieshan Li (University of Electronic Science and Technology of China, USA); Yi Zuo (Dalian Maritime University, China)

21:20 Cross-Document Fact Verification Based on Evidential Graph Attention Network
Xiaoman Xu, Zhong Qian, ChengWei Liu, Zhu Xiaoxu and Peifeng Li (Soochow University, China)

21:40 GPNet: Infrared Small Target Detection via Global Information Enhancement and Position Attention Guidance
Yuye Zhang, Xiuhong Li, Ying Zheng, Boyuan Li, Kangwei Liu, Jian Ma and Dangxuan Wu (Xinjiang University, China)

22:00 Cascading Failure Prediction in Power Grid Using Node and Edge Attributed Graph Neural Networks
Karuna Bhaila and Xintao Wu (University of Arkansas, USA)

22:20 Periodic Stacked Transformer-Based Framework for Travel Time Prediction
Hui-Ting Lin (National Chiao Tung University, Taiwan); Hao Dai and Vincent S. Tseng (National Yang Ming Chiao Tung University, Taiwan)

21:00 – 22:40
Virtual: Representation Learning for Multi-Modal Data 2
Conference: IJCNN
Room: Zoom 20
Session Chair(s):

21:00 CSD3D: Cross-Scale Distillation via Dual-Consistency Learning for Semi-Supervised 3D Object Detection
Sikai Wu, Fukun Yin, Hancheng Ye and Tao Chen (Fudan University, China)

21:20 Improving End-To-End Speech Recognition Through Conditional Cross-Modal Knowledge Distillation with Language Model
Yuan Li, Yonghe Wang and Feilong Bao (Inner Mongolia University, China); Zhenjie Gao (Inner Mogolian University, China); Guanglai Gao (Inner Mongolia University, China); Wenjun Zhang (Inner Mongolia Personnel and Talent Public Service Center, China)

21:40 Semantic Information Reasoning and Multi-Step Cross-Modal Interaction Network for Image-Text Retrieval
Xishan Ma (Qilu University of Technology (ShanDong Academy of Sciences), China); Yushui Geng and Jing Zhao (Qilu University of Technology(Shandong Academy of Sciences), China); Huanxiao Zhou (Qilu University of Technology (ShanDong Academy of Sciences), China)

22:00 A Lightweight and Effective Multi-View Knowledge Distillation Framework for Text-Image Retrieval
Yuxiang Song (East China Normal University, China); Yuxuan Zheng (China Jiangxi Radio and TV Station, China); Shangqing Zhao, Shu Liu and Xinlin Zhuang (East China Normal University, China); Zhaoguang Long (East China Normal University, Japan); Changzhi Sun, Aimin Zhou and Man Lan (East China Normal University, China)

22:20 Music-Driven Character Dance Video Generation Based on Pre-Trained Diffusion Model
Jiayu Xu, Changhong Liu, Juan Cai, Ji Ye, Zhenchun Lei and Aiwen Jiang (Jiangxi Normal University, China)

21:00 – 22:40
Virtual: Federated Learning 2
Conference: IJCNN
Room: Zoom 21
Session Chair(s):

21:00 Fusion of Current and Historical Knowledge for Personalized Federated Learning
Pengju Wang, Bochao Liu, Weijia Guo, Yong Li and Shiming Ge (Institute of Information Engineering, CAS & School of Cyber Security, UCAS)

21:20 Trustworthy Personalized Bayesian Federated Learning via Posterior Fine-Tune
Chi Xu, Mengen Luo and Ercan Kuruoglu (Tsinghua University, China)

21:40 MetaClusterFL: Personalized Federated Learning on Non-IID Data with Meta-Learning and Clustering
Hui Zeng and Shiyu Xiong (Institute of Computing Technology Chinese Academy of Sciences, China); Hongzhou Shi (Institute of Computing Technology, Chinese Academy of Sciences, China)

21:00 – 22:40
Virtual: Neural Networks for Question Answering 2
Conference: IJCNN
Room: Zoom 22
Session Chair(s):

21:00 Subgraph-Based Attention Network for Multi-Hop Question Answering
Chuanyang Gong, Zhihua Wei, Xinpeng Wang, Rui Wang, Yu Li and Ping Zhu (Tongji University, China)

21:20 LLaVA-PlantDiag: Integrating Large-Scale Vision-Language Abilities for Conversational Plant Pathology Diagnosis
Karun Sharma, Vidushee Vats, Abhinendra Singh, Rahul Sahani and Deepak Rai (Bennett University, India); Ashok Sharma (University of Jammu, India)

21:40 A Multimodal Contrastive Network with Unbiased Distillation for Knowledge-Based VQA
Zihan Hu (Guangdong University of Technology, China); Ruoyao Ding (Guangdong University of Foreign Studies); Haoran Xie (Lingnan University, Hong Kong); Zhenguo Yang (Guangdong University of Technology, China)

22:00 HKFNet: Fine-Grained External Knowledge Fusion for Fact-Based Visual Question Answering
Bojin Li, Yan Sun, Xue Chen and Luo Xiangfeng (Shanghai University, China)

21:00 – 22:40
Virtual: Efficiency, Security, and Generalization of Foundation Models 2
Conference: IJCNN
Room: Zoom 23
Session Chair(s):

21:00 Multi-Attribute Semantic Adversarial Attack Based on Cross-Layer Interpolation for Face Recognition
Ruizhong Du (HeBei University, China); Yidan Li and Mingyue Li (Hebei University, China); Jinjia Peng and Yuting Zhu (School of Cyber Security and Computer of Hebei University of Hebei of China, China); Caixia Ma (Nankai University of TianJin of China, China)

21:20 EfficientASR: Speech Recognition Network Compression via Attention Redundancy and Chunk-Level FFN Optimization
Jianzong Wang (Pingan, China); Ziqi Liang (University of Science and Technology of China, China); Xulong Zhang (Shangfeng Road NO. 1288 & Ping An Technology (Shenzhen) Co., Ltd., China); Ning Cheng (Pingan, China); Jing Xiao (Ping An Insurance Company of China,   Ltd., China)

21:40 Unveiling Robustness of Spiking Neural Networks Against Data Poisoning Attacks
Srishti Yadav and Anshul Pundhir (Indian Institute of Technology Roorkee, India); Balasubramanian Raman (Indian Institute of Technology (IIT) Roorkee, India); Sanjeev Kumar (IIT Roorkee, India)

22:00 Resilient Word-Embedding Alignment for BERT with Character-Based Layer in Noisy Environments
Korn Sooksatra, Alejandro Rodriguez Perez and Pablo Rivas (Baylor University, USA)

21:00 – 22:40
Virtual: Algorithms 2
Conference: CEC
Room: Zoom 24
Session Chair(s): Sara Pérez Carabaza

21:00 Ant Colony Based Dynamic Voronoi Method for the Multi-Depot Multiple TSP
Sara Pérez Carabaza and Akemi Gálvez (University of Cantabria, Spain); Andres Iglesias (University of Cantabria, Spain & Toho University, Japan)

21:20 Dynamic Multi-Objective Optimization Time Series Ensemble Prediction Framework Based on Correlation Type Detection
Lele Xie, Xiaoming Zhang, Ran Hu and Shun Zhang (Anhui University, China)

21:40 Enhanced Multi-Scale Quantum Harmonic Oscillator Algorithm with Opposition-based Learning
Xinggui Ye (University of Electronic Science and Technology of China, China); Jian Li (UESTC Chngedu, China); Peng Wang (Southwest Minzu University, China)

22:00 Improving Inference of Biochemical Composition in Marine Biomass via Genetic Algorithm-based Feature Selection on Raman Spectroscopic Data
Kaan Demir and Bach Hoai Nguyen (Victoria University of Wellington, New Zealand); Jeremy S. Rooney (University of Otago, New Zealand); Bing Xue (Victoria University of Wellington, New Zealand); Mengjie Zhang (VUW, New Zealand); Kirill Lagutin and Andrew MacKenzie (Callaghan Innovation, New Zealand); Keith C. Gordon (University of Otago, New Zealand); Daniel P. Killeen (The New Zealand Institute for Plant and Food Research Limited, New Zealand)

22:20 Ingredient Planning for Copper Industry: A Deep Reinforcement Learning-Based ε-Constrained Multi-Objective Optimization Framework
Xuerui Zhang (Dalian University of Technology, China); Zhongyang Han (School of Control Science and Engineering, Dalian University of Technology, China); Zhiyuan Wang, J. Zhao and W. Wang (Dalian University of Technology, China)

21:00 – 22:40
Virtual: Foundations
Conference: FUZZ-IEEE
Room: Zoom 25
Session Chair(s): Watchanan Chantapakul

21:00 A Fuzzy Logic-based Approach to Semantic Query Answering with Missing Values
Fernando Bobillo, Carlos Bobed and Eduardo Mena (University of Zaragoza, Spain); Umberto Straccia (Italian National Research Council, Italy)

21:20 Automatic Context Selection in Explainable Support Vector Machine Classification
Marcelo Loor and Guy De Tré (Ghent University, Belgium)

21:40 A Fuzzy Signature-Based Approach for Recommendation Systems
Luca Aliberti, Giuseppe D'Aniello, Matteo Gaeta and Alice Marzolo (University of Salerno, Italy)

22:00 An Interval Creation Approach to Construct Interval Type-2 Fuzzy Sets
Prodipta Sen Amartya, Shaily Kabir, Sagar Chandra Karmaker Babu and Mosarrat Jahan (University of Dhaka, Bangladesh)

23:00 – 24:40
Virtual: Large Language Models 3
Conference: IJCNN
Room: Zoom 1
Session Chair(s):

23:00 An Industrial Short Text Classification Method Based on Large Language Model and Knowledge Base
Haoran Yin (Shanghai University of Engineering Science, China)

23:20 Manufacturing Domain QA with Integrated Term Enhanced RAG
Yijun Bei (China); Zhibin Fang and Shengyu Mao (Zhejiang University, China); Shuyi Yu (Zhejiang University, Singapore); Yan Jiang (Zhejiang University, China); Yining Tong and Weimin Cai (Zhe Jiang Jiyun Education Technology Co Ltd, China)

23:40 5W1H Extraction with Large Language Models
Yang Cao, Yangsong Lan, Feiyan Zhai and Piji Li (Nanjing University of Aeronautics and Astronautics, China)

24:00 Beyond Binary Classification: Customizable Text Watermark on Large Language Models
Zhenyu Xu, Ruoyu Xu and Victor S. Sheng (Texas Tech University, USA)

24:20 LightBertR: A Simplified Bert Filter Denoising Model for Sequence Recommendation
Nan Wang and Yunyang Xie (Heilongjiang University, China); Xin Xu (University of Heilongjiang, China)

23:00 – 24:40
Virtual: Large Language Models 6
Conference: IJCNN
Room: Zoom 2
Session Chair(s):

23:00 TELLMe: Teaching and Exploiting Large Language Models for Model Selection in Text Retrieval

Zhenzi Li, Jun Bai, Zhuofan Chen, Chen Li, Yuanxin Ouyang and Wenge Rong (Beihang University, China)

23:20 CMMQC: Cascaded Multi-Model Quality Control for Unsupervised Data-To-Text Generation

Weitian Zhang (Pazhou Lab); Xu Sun and YangXing Luo (Pazhou Lab, China); Wei Gao and Yanchun Zhu (Chinaunicom Digital Intelligence Medical Technology Co. LTD, China)

23:40 LLM-Driven "Coach-Athlete" Pretraining Framework for Complex Text-To-Motion Generation

Jiajun Fu, Yuxing Long, Xiaojie Wang and Jianqin Yin (Beijing University of Posts and Telecommunications, China)

23:00 – 24:40
Virtual: Transformers 3
Conference: IJCNN
Room: Zoom 3
Session Chair(s):

23:00 Deep Attention Knowledge Tracking Incorporating Multiple Features and TCN-Transformer

Ting Lv and Luqiang Xu (Southwest University of Science and Technology, China)

23:20 A Novel Visuo-Tactile Object Recognition Pipeline Using Transformers with Feature Level Fusion

John Doherty (Ulster University, UK (Great Britain)); Bryan Gardiner (University of Ulster, UK (Great Britain)); Emmett Kerr (Atlantic Technological University, UK (Great Britain)); Nazmul Haq Siddique (Ulster University, UK (Great Britain))

23:40 DCF-Net: A Dual-Coding Fusion Network Based on CNN and Transformer for Biomedical Image Segmentation

Fuyun He, Haixing Song, Guanglian Li and Junyu Zhang (Guangxi Normal University, China)

24:00 DINO-ViT Enhanced Diffusion for Multi-Exemplar-Based Image Translation
Xiaolin Xu (Ningbo University & Chinese Academy of Sciences, China); Jiangjian Xiao, Xiaolu Zhang, Xiaofeng Jin, Xiaojing Gu and Gen Xu (Chinese Academy of Sciences, China)

24:20 SEVEN: Pruning Transformer Model by Reserving Sentinels
Jinying Xiao, Ping Li, Jie Nie and Zhe Tang (Changsha University of Science and Technology, China)

23:00 – 24:40
Virtual: Neural Networks for Natural Language Processing 3
Conference: IJCNN
Room: Zoom 4
Session Chair(s):

23:00 SAMNER: Image Screening and Cross-Modal Alignment Networks for Multimodal Named Entity Recognition
Luyi Yang (Xinjiang University, China)

23:20 One Against Many: Exploring Multi-Task Learning Generalization in Source-Code Tasks
Otávio Parraga, Lucas Kupssinskü and Christian Mattjie (PUCRS, Brazil); Rodrigo C Barros (PUCRS, Brazil & Teia Labs, Brazil)

23:40 Enhancing Abstractive Dialogue Summarization with Internal Knowledge
Shaolei Wang, Hanhan Ma, Yunxiang Zhang and Jing Ma (Xinjiang University, China); Liang He (Tsinghua University, China)

24:00 Privacy-Preserving Unsupervised Spherical Text Embeddings
Huixin Zhan (Cedars-Sinai Medical Center, USA); Liyuan Gao and Victor S. Sheng (Texas Tech University, USA)

24:20 MSGIM: A Multi-Grained Syntactic Graph Interaction Model for Multi-Intent Spoken Language Understanding
YiKai Zheng, Bi Zeng, Pengfei Wei and Yujun Zhu (Guangdong University of Technology, China)

23:00 – 24:40
Virtual: Reinforcement Learning 3
Conference: IJCNN
Room: Zoom 5
Session Chair(s):

23:00 Joint Dynamic Role Switching Scheme and Cooperative Task Offloading Optimization for UAV Swarm-Enabled Edge Computing
Kun Lu (Dalian University of Technology & Software School, China); Tao Xu (Dalian University of Technology, China); Mingchu Li (School of Software, Dalian University of Technology, China); Zhihua Wang (Dalian University of Technology, China)

23:20 Delayed MDPs with Feature Mapping
Jialin Dong (University of California Los Angeles, USA); Jiayi Wang (University of Utah, USA); Lin Yang (UCLA, USA)

23:40 SGCD: Subgroup Contribution Decomposition for Multi-Agent Reinforcement Learning
Hao Chen, Bin Zhang and GuoLiang Fan (Chinese Academy of Sciences, China)

24:00 A Method of Path Planning and Intelligent Exploration for Robot Based on Deep Reinforcement Learning
Xianglin Lyu, Zhaoxiang Zang and Sibo Li (China Three Gorges University, China)

24:20 Multi-Agent Exploration with Sub-State Entropy Estimation
Jian Tao (Tsinghua University, China); Yangkun Chen (Tsinghua University Graduate School at Shengzhen, China); Yang Zhang, Kai Yang and Xiu Li (Tsinghua University, China)

23:00 – 24:40
Virtual: Domain Adaptation 3
Conference: IJCNN
Room: Zoom 6
Session Chair(s): Zhao Kang

23:00 TPN: Transferable Proto-Learning Network Towards Few-Shot Document-Level Relation Extraction
Yu Zhang and Zhao Kang (University of Electronic Science and Technology of China, China)

23:20 Zero-Shot Out-Of-Distribution Detection with Outlier Label Exposure
Choubo Ding (University of Adelaide, USA); Guansong Pang (Singapore Management University, Singapore)

23:40 FSAD: Few-Shot Object Detection via Aggregation and Disentanglement

Yunfeng Kou, Kunming Wu and Chenghao Huang (Sichuan University, China); Hu Chen (National Key Laboratory of Fundamental Science on Synthetic Vision, China); Wenchao Du and Hong Liu (Sichuan University, China)

24:00 Rapid User-Adaptive Wearable Activity Recognition via Difference Decomposition

Xin Zhong, Wang Jiahao and Hainan Feng (University of Electronic Science and Technology of China, China); Rong Tan (Sichuan Culture Industry Vocational College, China)

24:20 DCTF: Data Complementary Training Framework for Unsupervised Domain Adaptive Person Re-Identification

Zhen Zhang, Wei Wang and Guoliang Kang (Beihang University, China)

23:00 – 24:40
Virtual: Neural Networks for Image Processing 5
Conference: IJCNN
Room: Zoom 7
Session Chair(s):

23:00 HarD-CASDE: Segmentation and Lineage Tracking of HeLa Cells

Fuyun He, Shengwen Chen, Huiling Feng and Guanglian Li (Guangxi Normal University, China)

23:20 Sufficient Sampling Method of Ranking Loss for Acne Detection

Junyou Wang (SiChuan University, China); Lei Zhang (Sichuan University, China); Jianwei Zhang (Chengdu University, China); Xin Wei (Sichuan University, China); Wenjie Liu (SiChuan University, China); Jiaqi Li and Xian Jiang (West China Hospital of Sichuan University, China)

23:40 DFFNet: Dual-Channel Feature Fusion Network for End-To-End 6D Pose Estimation

Yinning Lu and Songwei Pei (Beijing University of Posts and Telecommunications, China)

24:00 Improved YOLOv5 Object Detection Method for Cervical Fluid Cell Pathological Image Detection

Qingyan Ding (Shandong Academy of Sciences, China); XueCheng Dong (Qilu University of Technology, China); Na Li (Shandong Computer Science Center, China); Yu Pan and Wan Zheng (Qilu University of Technology, China)

23:00 – 24:40
Virtual: Neural Networks for Image Processing 6
Conference: IJCNN
Room: Zoom 8
Session Chair(s):

23:00 MSCNet: Multi-Scale Connected Network for Image Denoising
Lijun Gao, Xiao Jin, Youzhi Zhang, Suran Wang and Zeyang Sun (Shenyang Aerospace University, China)

23:20 Enhanced Anomaly Detection in Dashcam Videos: Dual GAN Approach with Swin-Unet for Optical Flow and Region of Interest Analysis
Haodong Ru and Menghao Zhang (Beijing University of Posts and Telecommunications, China); Cheng Zhou (China Mobile Research Institute, China); Pengfei Ren, Haifeng Sun, Qi Qi, Lejian Zhang and Jingyu Wang (Beijing University of Posts and Telecommunications, China)

23:40 A Feature Extraction Framework for 3D Scientific Voxel Object Using SVD and Neural Network
Zhichen Feng (Computer Network Information Center, Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Yaqian Gao (Computer Network Information Center, Chinese Academy of Sciences & University of Chinese Academy of Sciences); Huang Ye (Computer Network Information Center, Chinese Academy of Science); Jian Zhang (Computer Network Information Center, Chinese Academy of Sciences, China)

24:00 SAMS: One-Shot Learning for the Segment Anything Model Using Similar Images
Fan Yin, Jun Li and Yifei Wei (Beijing University of Posts and Telecommunications, China); Wei Zhang (China Datang Corporation Science and Technology General Research Institute Ltd., China); Chaoyi Xu (Beijing University of Posts and Telecommunications, China)

24:20 MAGC-YOLO: Small Object Detection in Remote Sensing Images Based on Multi-Scale Attention and Graph Convolution
Jianquan Ouyang (xiangtan University, China); Lingtao Zeng (Xiangtan University, China)

23:00 – 24:40
Virtual: Neural Networks for Medical Data Processing 3
Conference: IJCNN
Room: Zoom 9
Session Chair(s):

23:00 TSO-DETR: A Network for Small Object Detection of Cervical Cells in TCT Smear
Xin Chen (Chongqing University, China); Lin Yi (Chongqing University Cancer Hospital, China); Li Liu (Third Military Medical University, China); Di Lv, Ziheng Liu and Ran Liu (Chongqing University, China)

23:20 Malaria Parasite Detection in Microscopic Blood Smear Images Using Deep Learning Techniques
Rosmaël Zidane Lekeufack Foulefack (African Institute for Mathematical Science, (AIMS), Cameroon); Andronicus Ayobami Akinyelu (University of the Free State, South Africa); Dinna Ranirina (African Institute for Mathematical Sciences (AIMS), South Africa); Berthine Nyunga Mpinda (African Institut of Mathematical Sciences, Cameroon)

23:40 Overcoming Data Limitations and Cross-Modal Interaction Challenges in Medical Visual Question Answering
Yurun Bi, Xingang Wang, Qingao Wang and Jinxiao Yang (Qilu University of Technology, China)

24:00 Detection of High-Low Risk Lung Tumors Using Semi-Supervised and Selective Labeling Techniques
Jinping Lao (South China Normal University, China); Hongwei Lin and Haiyu Zhou (Guangdong Medical University, China); Chengchuang Lin, Zhaoliang Zheng, Zhao Gansen and Hua Tang (South China Normal University, China)

24:20 A Multi-Target Multi-Task Approach Based on Correlated Multiple Cognitive Scores for AD Progression Prediction
Xuanhan Fan (Yunnan University & Shool of Software, China); Menghui Zhou (Yunnan University, China); Jun Qi (Xi'an Jiaotong-Liverpool University, China); Yun Yang (Yunnan University, China); Po Yang (University of Sheffield, UK (Great Britain))

23:00 – 24:40
Virtual: Deep Learning for Graphs 5
Conference: IJCNN
Room: Zoom 10
Session Chair(s):

23:00 TFD-GCL: Telecommunications Fraud Detection Based on Graph Contrastive Learning with Adaptive Augmentation
Jingkang Cao and Xiaohui Cui (Wuhan University, China); Chengliang Zheng (WuHan University, China)

23:20 MI-GNN: Multi-Interaction GNN for Various Weak Information Learning on Graphs
Bowen Qiang (Shanghai University, China); Yun Zhou (Shanghai KingLong Internet of Things Co., China); Huahu Xu (Shanghai University, China); JianGang Shi (Shanghai University Hairun Information System Co., China); James Lin and Yiqin Gao (Shanghai Jiao Tong University, China)

23:40 Molecular Classification Using Hyperdimensional Graph Classification
Pere Vergés (University of California Irvine & Barcelona Supercomputing Center, USA); Igor Nunes (University of California Irvine, USA); Mike Heddes, Tony Givargis and Alex Nicolau (University of California, Irvine, USA)

24:00 SlowFast Adaptive Graph Convolutional Network with Multi-Modal Feature Aggregation for Skeleton-Based Action Recognition: Case Study of Human Ladder Climbing
Wenrui Zhu, Donghui Shi, Tao Hu and Bo Wu (Anhui Jianzhu University, China)

24:20 Deeper Graph Contrastive Learning with Attention Mechanism for Recommendation
Zhuohan Tao, Lipeng Huang, Jiayu Bao, Yicheng Di and Yuan Liu (Jiangnan University, China)

23:00 – 24:40
Virtual: Deep Learning for Graphs 6
Conference: IJCNN
Room: Zoom 11
Session Chair(s):

23:00 Knowledge Graph Information Bottleneck for Drug-Drug Interaction Prediction
Shun Liu, Gaoqi He and Kai Zhang (East China Normal University, China); Honglin Li (East China University of Science and Technology, China)

23:20 Causal Graph Representation Learning for Outcome-Oriented Link Prediction
Jin Langjunqing and Feng Zhao (Huazhong University of Science and Technology, China); Cheng Yan and Xiangyu Gui (Huazhong University of Science and Technolgoy, China)

23:40 Pre-Training Molecular Graph Representations with Motif-Enhanced Message Passing
Yangyi Lu, Jing Peng, Yifeng Zhu and Zhuang Chen (Wuhan University of Technology, China)

24:00 TGAT-DGL: Triple Graph Attention Networks on Dual-Granularity Level for Multi-Party Dialogue Reading Comprehension
Xiaoqian Gao, Xiabing Zhou, Rui Cao and Min Zhang (Soochow University, China)

24:20 Community-Aware Graph Debiased Contrastive Representation Learning
Peng Wu, Hong Zhang and Miao Wang (Hebei University, China); Liqiang Wang (University of Central Florida, USA); Meng Wang and Mingyang Lv (Hebei University, China)

23:00 – 24:40
Virtual: Deep Learning Architecture 5
Conference: IJCNN
Room: Zoom 12
Session Chair(s):

23:00 Visual Transformer for Resilience to Adversarial Attacks in OCT Retinal Images
Yawar Abbas, Donghong Ji and Hassan Jalil Hadi (Wuhan University, China); Sheetal Harris (Wuhan Univsersity, China)

23:20 A Complementary Action Recognition Network Based on Conv-Transformer
Liu Linfu, Lin Qi and Yun Tie (Zhengzhou University, China); Liang Chengwu (Henan University of Urban Construction, China)

23:40 ChatLogic: Integrating Logic Programming with Large Language Models for Multi-Step Reasoning
Zhongsheng Wang (University of Auckland, New Zealand); Jiamou Liu (The University of Auckland, New Zealand); Qiming Bao, Hongfei Rong and Jingfeng Zhang (University of Auckland, New Zealand)

24:00 Epic-Level Text Generation with LLM Through Auto-Prompted Reinforcement Learning
Qianqian Qi, Lin Ni, Zhongsheng Wang and Libo Zhang (University of Auckland, New Zealand); Jiamou Liu (The University of Auckland, New Zealand); Michael Witbrock (University of Auckland, New Zealand)

24:20 An Approach Using BRKGA for Optimizing Convolutional Neural Network Architectures
Andersson Alves Silva (Universidade Federal de Pernambuco (UFPE), Recife, Brazil); Ricardo Martins (UFPE, Brazil)

23:00 – 24:40
Virtual: Deep Learning Architecture 6
Conference: IJCNN
Room: Zoom 13
Session Chair(s):

23:00 Improving Named Entity Recognition with Multi-Feature Word-To-Word Relationship Classification
Liang Jiang (Hunan, China); WenJie Xu (Xiangtan University, China)

23:20 OFA³: Automatic Selection of the Best Non-Dominated Sub-Networks for Ensembles
Rafael Claro Ito (University of Campinas & Recod.ai - LBiC, Brazil); Emely P Silva (University of Campinas (Unicamp) & State University of Maringá (UEM), Brazil); Fernando J Von Zuben (State University of Campinas & School of Electrical and Computer Engineering, Brazil)

23:40 Soft Pruning and Latent Space Dimensionality Reduction
Richard Menzies and Paul Siebert (University of Glasgow, UK (Great Britain))

24:00 Addressing Predicate Overlap in Scene Graph Generation with Semantics-Prototype Learning
Nanhao Liang, Yong Liu, Fan Wang and Yingwei Xia (Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China)

24:20 Pruning Neural Networks by Synchronously Changing Weight Information
Zhe Tang, Ping Li, Jinying Xiao and Jie Nie (Changsha University of Science and Technology, China)

23:00 – 24:40
Virtual: Generative Adversarial Networks 3
Conference: IJCNN
Room: Zoom 14
Session Chair(s):

23:00 Text-Driven Editing of Real Images Using Diffusion Models with Error Corrector
Zhou Liu (South-Central Minzu University & EC, China); Yican Zhang (University of Science and Technology of China, China)

23:20 Dy-Sigma: A Generalized Accelerated Convergence Strategy for Diffusion Models
Zhou Liu (South-Central Minzu University & EC, China); Zheng Ye, Jing Liu and Jun Qin (South-Central Minzu University, China)

23:40 Generative Adversarial Network-Based Spectral–Spatial Feature Learning for Hyperspectral Image Classification

Jiaxin Bai, Erlei Zhang, Lei Yang, Xinyu Li and Shuyin Zhang (Northwest A&F University,Yangling,Shaanxi,China)

24:00 Enhancing Data-Free Model Stealing Attack on Robust Models

JianPing He, Haichang Gao and YunYi Zhou (Xidian University, China)

23:00 – 24:40
Virtual: Generative Adversarial Networks 4
Conference: IJCNN
Room: Zoom 15
Session Chair(s): Sayantani Ghosh

23:00 Computational Creativity by Generative Adversial Network with Leaked Information

Sayantani Ghosh and Amit Konar (Jadavpur University, Kolkata, India); Atulya K Nagar (Liverpool Hope University, UK (Great Britain))

23:20 An Imperceptible and Robust Audio Watermarking Algorithm Based on SNGAN

Weili Zhou (Xiamen University); Jiabei Zhou and Shuangyuan Yang (Xiamen University, China)

23:40 CLCT-GAN: Strong-Weak Contrastive Learning for Reconstructing CT Images from Radiographs

Shuangqin Cheng, Yumao Hong and Qingliang Chen (Jinan University, China); Jinshun Guo (Guangdong Second People Hospital, China); Ming Li and Qiyi Zhang (Jinan University, China)

24:00 SWGP: Semi-Supervised Clustering via Wasserstein Generative Adversarial Network with Gradient Penalty for Uncovering Brain Disease Heterogeneity from Medical Images

Shaopeng Wei (University of Science and Technology of China, China); Canhong Wen (USTC, China); Haizhu Tan and Chiyu Wei (Shantou University, China)

23:00 – 24:40
Virtual: Event Detection
Conference: IJCNN
Room: Zoom 16
Session Chair(s): Bingqing Liu

23:00 Cumulative Hazard Function Based Efficient Multivariate Temporal Point Process Learning

Bingqing Liu (University of Chinese Academy of Science, China)

23:20 Prompt-Enhanced Prototype Framework for Few-Shot Event Detection
Xu Liu and Xinming Chen (Beijing University of Posts and Telecommunications, China); Bin Wu (Beijing University of Post and Telecommunications, China); Yangfu Zhu (Beijing University of Posts and Telecommunications, China)

23:40 What Comes Next and Why? A Staged Encoder-Decoder Architecture for Script Event Prediction
Shuaihu Han (University of Chinese Academy of Sciences, China); Guohua Yang and Dawei Zhang (Qiyuan Lab, China); Jianhua Tao (Tsinghua University, China)

24:00 Separate and Integrate Different Level Reasoning for Event Causality Identification
Yuchang Deng (Xinjiang University, China); Wenti Huang (Hunan University of Science and Technology, China); Tingxuan Chen and Jun Long (Central South University, China)

23:00 – 24:40
Virtual: Neural Network Applications 5
Conference: IJCNN
Room: Zoom 18
Session Chair(s): Jianzong Wang

23:00 PRENet: A Plane-Fit Redundancy Encoding Point Cloud Sequence Network for Real-Time 3D Action Recognition
Shenglin He (Huazhong University of Science and Technology, China); Xiaoyang Qu (Ping An Technology (Shenzhen) Co., Ltd, China); Jiguang Wan, Guokuan Li and Changsheng Xie (Huazhong University of Science and Technology, China); Jianzong Wang (Pingan, China)

23:20 Fusion of Attention-Based Cascaded CNN and Label Dependency-Based GCN for Multi-Label Scene Classification of Mining Land
Xianju Li (China University of Geosciences, Wuhan, China); Cong Cheng (China University of Geosciences (Wuhan), China); Wenxi He (Wuhan Centre of China Geological Survey, China); Weitao Chen (China University of Geosciences, Wuhan, China)

23:40 Multi-Channel Convolutional Distilled Transformer for Automatic Modulation Classification
Zhenhua Chen, Xinze Zhang and Kun He (Huazhong University of Science and Technology, China)

24:00 LeGalFormer: A Graph Representation Learning and Transformer-Based Approach for Legal Similar Case Retrieval
Shang Gao and Yanling Li (Inner Mongolia Normal University, China); Fengpei Ge (Beijing University of Posts and Telecommunications, China); Min Lin (Inner Mongolia Electronic Information Vocational Technical College, China); Haiqing Yu, Sukun Wang and Zhongyi Miao (Inner Mongolia Normal University, China)

23:00 – 24:40
Virtual: Neural Network Applications 6
Conference: IJCNN
Room: Zoom 19
Session Chair(s):

23:00 Homophilic and Heterophilic-Aware Sparse Graph Transformer for Financial Fraud Detection
Xin Wang, Luo Xiangfeng, Xinzhi Wang and Hang Yu (Shanghai University, China)

23:20 Interpretability in Mapping Weeds and Crops from Drone Images
Sonia Farhana Nimmy (University of New South Wales, Australia); Md Sarwar Kamal (University of Technology Sydney, Australia); Omar Hussain (University of New South Wales, Canberra, Australia); Ripon Chakrabortty (UNSW Canberra, Australia)

23:40 UCSC-CGEC: A Unified Approach for Chinese Spelling Check and Grammatical Error Correction
Jindian Su, Yunhao Xie and Yueqi Mou (South China University of Technology, China)

24:00 TurboLog: A Turbocharged Lossless Compression Method for System Logs via Transformer
Baoming Chang (University of Chinese Academy of Sciences, China); Zhaoyang Wang (Institute of Information Engineering Chinese Academy of Sciences, China); Shuai Li (Institute of Information Engineering, China); Fengxi Zhou (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, USA); Yu Wen (Chinese Academy of Sciences, China); Boyang Zhang (Institute of Information Engineering Chinese Academy of Sciences, China)

24:20 SLI-YOLO: A Lightweight Unauthorized Login Detection Model Based on Multiscale Convolutional Attention
Fangfang Wang (School of Cyberspace Security , Zhengzhou University); Hui Shu, Hao Zhao and Fei Kang (Key Laboratory of Cyberspace Security，Ministry of Education of the People's Republic of China)

23:00 – 24:40
Virtual: Harnessing the Power of Offline Reinforcement learning for Attention-based Intelligent Agents
Conference: IJCNN
Room: Zoom 20
Session Chair(s): Youming Liu

23:00 Applying Logical Rules to Reinforcement Learning for Interpretable Knowledge Graph Reasoning
Youming Liu and Yujing Lai (Sun Yat-Sen University, China); Chuan Chen (School of Data and Computer Science, Sun Yat-sen University, China)

23:20 Task-Agnostic Decision Transformer for Multi-Type Agent Control with Federated Split Training
Zhiyuan Wang and Bokui Chen (Tsinghua University, China); Xiaoyang Qu and Zhenhou Hong (Ping An Technology (Shenzhen) Co., Ltd, China); Jing Xiao (Ping An Insurance Company of China，Ltd., China); Jianzong Wang (Pingan, China)

23:40 Work Together to Keep Fresh: Hierarchical Learning for UAVs-Assisted Data Time-Sensitive IoT
Songyang Li, Dezhi Chen, Qianlong Fu, Qi Qi, Jingyu Wang and Jianxin Liao (Beijing University of Posts and Telecommunications, China)

24:00 A Real-World Quadrupedal Locomotion Benchmark for Offline Reinforcement Learning
Hongyin Zhang (Westlake University & Zhejiang University, China); Shuyu Yang (University of Michigan Flint, USA); Donglin Wang (Westlake University, China)

23:00 – 24:40
Virtual: Federated Learning 3
Conference: IJCNN
Room: Zoom 21
Session Chair(s):

23:00 Aggregation-Assisted Proxyless Distillation: A Novel Approach for Handling System Heterogeneity in Federated Learning
Nirbhay Sharma and Mayank Raj (Indian Institute of Technology Jodhpur, India); Deepak Mishra (IIT Jodhpur, India)

23:20 Exploiting Class Feature Alignment for Personalized Federated Learning in Mixed Skew Scenarios
WenTao Yin (YunNan University, China); Zhang Yuhang (Central South University & Business School, China)

23:40 FedTAIL: A Federated Learning Approach with Trans-Architecture Intermediate Links
Dian Jiao and Jie Liu (Harbin Institute of Technology, China)

20:20 Federated Transformer Hawkes Processes for Distributed Event Sequence Prediction
Xinyu Wang (Guangzhou University, China & Shenzhen Weiyan Technology, China); Feng Qiang and Li Ma (Shenzhen Weiyan Technology, China); Peng Zhang (Guangzhou University, China); Hong Yang (GuangZhou University, China); Zhao Li (Zhejiang Lab, China); Ji Zhang (University of Southern Queensland, Australia)

23:00 – 24:40
Virtual: Neural Networks for Question Answering 3
Conference: IJCNN
Room: Zoom 22
Session Chair(s): Sirui Li

23:00 Enhancing Question Answering Through Effective Candidate Answer Selection and Mitigation of Incomplete Knowledge Graphs and Over-Smoothing in Graph Convolutional Networks
Sirui Li and Kok-Wai Wong (Murdoch University, Australia); Dengya Zhu (Curtin University, Australia); Chun Che Fung (Murdoch University, Australia)

23:20 Adapting Contrastive Learning with Feature Fusion for Complex Question Answering
Yongqing Diao (Southwest Petroleum University, China); Yicheng Zhou (Sichuan Changhong Electric Co., Ltd., China); Honglian He and Xin Wang (Southwest Petroleum University, China); Huayi Zhan (CHanghong AI Research & Sichuan Changhong Electric Co., Ltd., China); Junjie Lin (University of Electronic Science and Technology, China); Yuxi Huang (Southwest Petroleum University, China)

23:40 FaCTQA: Detecting and Localizing Factual Errors in Generated Summaries Through Question and Answering from Heterogeneous Models
Trina Dutta and Xiuwen Liu (Florida State University, USA)

24:00 Alleviating Semantic Drift in Multi-Hop Question Answering on Knowledge Graphs with Bidirectional Semantics
Mingcai Yuan (China University of Petroleum, Beijing, China); Qiang Lu (China University of Petroleum, China); Xianhao Zeng (China University of Petroleum, Beijing, China); Luo Jake (University of Wisconsin Milwaukee, USA); Dawei Li (Research Institute of Petroleum Exploration and Development, China)

23:00 – 24:40
Virtual: Efficiency, Security, and Generalization of Foundation Models 3
Conference: IJCNN
Room: Zoom 23
Session Chair(s):

23:00 MGSER-SAM: Memory-Guided Soft Experience Replay with Sharpness-Aware Optimization for Enhanced Continual Learning
Xingyu Li (Tulane University, USA); Bo Tang (WPI, USA)

23:20 DSDRNet: Disentangling Representation and Reconstruct Network for Domain Generalization
Juncheng Yang and Qiwei Li (Wuhan University, China); Shuai Xie (JD Explore Academy, China); Wei Yu and Shijun Li (Wuhan University, China)

23:40 Mitigating Spurious Correlations in Named Entity Recognition Models Through Counterfactual Data Augmentation
Jiawei Liu, Min Huang and Qinghai Miao (University of Chinese Academy of Sciences, China)

24:00 CRDA: Content Risk Drift Assessment of Large Language Models Through Adversarial Multi-Agent Interaction
Zongzhen Liu (University of Chinese Academy of Sciences, China); Guoyi Li (Institute of Information Engineering, China); Bingkang Shi (University of Chinese Academy of Sciences, China); Xiaodan Zhang (Institute of Information Engineering, Chinese Academy of Sciences, China); Jingguo Ge (Chinese Academy of Sciences, China); Yulei Wu (University of Bristol, UK (Great Britain)); Honglei Lyu (Chinese Academy of Sciences, China)

23:00 – 24:40
Virtual: Machine Learning
Conference: CEC
Room: Zoom 24
Session Chair(s): Saleh Almohaimeed

19:00 Research on the Classification Model of Thangka Subjects Based on Efficient PatchEmbed
Qin Yang, Jin Yang, Shengqiao Ni, Jing Zhang, Hang Ren and Nuo Qun (Tibet University, China)

19:20 Active GAN-Based Minority Oversampling for Imbalanced Data
Ping Gu (ChongQing University, China); Yong Lu (Chongqing University, China)

19:40 Estimating Individual Causal Treatment Effect by Variable Decomposition
Hongyang Jiang, Yonghe Zhao, Qiang Huang, Yangkun Cao, Huiyan Sun and Yi Chang (Jilin University, China)

20:00 Multi-Target NeuralLss Regression with Learned Confidence Space
Yuchen Lu (Shanghai Jiao Tong University & Learnable.Ai, China); Yuanqi He (Shanghai Jiao Tong University & Learnable Inc., China); Chunlong Fang (Learnable Inc., China); Ziyao Sun (Cary Academy, USA); Guan Wang (Shanghai Jiao Tong University & Learnable, Inc, China)

July 1, 2024

8:20 – 9:40 **IJCNN S4_1 Special Session:** Machine Learning and Deep Learning Methods Applied to Vision and Robotics (MLDLMVR) 3 **Conference:** IJCNN **Room:** 211+212 **Session Chair(s):** Connor Gäde

8:20 Continual Learning for Robust Gate Detection Under Dynamic Lighting in Autonomous Drone Racing

Zhongzheng Qiao (Nanyang Technological University, Singapore); Xuan Huy Pham (Aarhus University, Denmark); Savitha Ramasamy (Institute for Infocomm Research & Agency for Science, Research and Technology, Singapore); Xudong Jiang (Nanyang Technological University, Singapore); Erdal Kayacan (Paderborn University, Germany); Andriy Sarabakha (Aarhus University, Denmark)

8:40 Federated Learning Methodology for Indoor Location Systems in Multi-Layer Architecture

José Luis López Ruiz, Sr. (University of Jaén, Spain); Angeles Verdejo and Macarena Espinilla Estevez (University of Jaen, Spain)

9:00 Domain Adaption as Auxiliary Task for Sim-To-Real Transfer in Vision-Based Neuro-Robotic Control

Connor Gäde, Jan-Gerrit Habekost and Stefan Wermter (University of Hamburg, Germany)

9:20 RadarLCD: Learnable Radar-Based Loop Closure Detection Pipeline

Mirko Usuelli, Matteo Frosi, Paolo Cudrano, Simone Mentasti and Matteo Matteucci (Politecnico di Milano, Italy)

8:20 – 9:40 CEC Competition Session1 **Conference:** CEC **Room:** 213

8:20 – 9:40
IJCNN S4_3 Special Session: Trustworthy and Responsible AI: Theory, Applications, and Challenges
Conference: IJCNN
Room: 311+312
Session Chair(s): Xavier Tan

8:20 Query-Based External Information Leakage Attacks on Face Recognition Models
Edita Grolman, Amit Giloni and Ryuta Kremer (Ben-Gurion University of the Negev, Israel); Hiroo Saito, Tomoyuki Shibata, Tsukasa Omino and Misaki Komatsu (Toshiba Corporation, Japan); Yoshikazu Hanatani (Toshiba, Japan); Asaf Shabtai (Ben-Gurion University of the Negev, Israel); Yuval Elovici (Ben-Gurion University, Israel)

8:40 A Fair Incentive Mechanism for Federated Auctioning Networks
Yansong Zhao, Siyao Zhou, Yulan Gao and Han Yu (Nanyang Technological University, Singapore)

9:00 Gradient Rotation Unit for Non-I.I.D. Federated Learning
Jiachen Li and Yuchao Zhang (Beijing University of Posts and Telecommunications, China); Yiping Li (University of Illinois Urbana-Champaign, USA); Gong Xiangyang (Beijing University of Posts and Telecommunications P.R. China, China); Wendong Wang (Beijing University of Posts and Telecommunications, China)

9:20 Hire When You Need to: Gradual Participant Recruitment for Auction-Based Federated Learning
Xavier Tan (Nanyang Technological University & Alibaba-NTU Joint Research Institute, Singapore); Han Yu (Nanyang Technological University, Singapore)

8:20 – 9:40
IJCNN S4_4 Special Session: Intelligent Vehicles and Transportation Systems (IVTS) 1
Conference: IJCNN
Room: 313 + 314
Session Chair(s): Thiago Oliveira-Santos

8:20 Design of Driver Stress Prediction Model with CNN-LSTM: Exploration of Feature Space Using Genetic Programming
Tingting Yang (Queen Mary University of London, UK (Great Britain)); Chenhao Xue (University of Oxford, UK (Great Britain)); Jun Chen (Queen Mary University of London, UK (Great Britain))

8:40 Depth Estimation Fusing Image and Radar Measurements with Uncertain Directions
Masaya Kotani, Takeru Oba and Norimichi Ukita (Toyota Technological Institute, Japan)

9:00 A Mobile Application for Speed Bump Sign Detection Using Neural Networks
Matheus M Schreiber (Universidade Federal do Espírito Santo, Brazil); Alberto F De Souza (Universidade Federal do Espírito Santo & Instituto de Inteligência Computacional Aplicada - I2CA, Brazil); Claudine Badue (Universidade Federal do Espírito Santo, Brazil); Thiago Oliveira-Santos (Universidade Federal Do Espirito Santo, Brazil)

9:20 Enhancing House Inspections: UAVs Integrated with LLMs for Efficient AI-Powered Surveillance
Vu Trung Nguyen (Victoria University, Australia); Jingwen Zhou and Chengzu Dong (Deakin University, Australia); Guangming Cui (Nanjing University of Information Science and Technology, China); Qi An (Deakin University, Australia); Sunny Vinnakota (Academies Australasia Polytechnic, Australia)

8:20 – 9:40
IJCNN S4_10 Special Session: Reservoir Computing: Progress in Methods, Applications, and Implementations
Conference: IJCNN
Room: 315
Session Chair(s):

8:20 Predictive Modeling in the Reservoir Kernel Motif Space
Peter Tino (University of Birmingham, UK (Great Britain)); Robert Simon Fong (University of Birmingham & Huawei Technologies Co., Ltd., UK (Great Britain)); Roberto Fabio Leonarduzzi (Huawei Technologies Co. Ltd., Hong Kong)

8:40 Multi-Task Wavelength-Multiplexed Reservoir Computing Using a Silicon Microring Resonator
Bernard Jonathan Giron Castro (Danmarks Tekniske Universitet, Denmark); Christophe Peucheret (University of Rennes 1, France); Darko Zibar (Denmark Technical University, Denmark); Francesco Da Ros (Technical University of Denmark, Denmark)

9:00 Chaotic Time Series Prediction in Biological Neural Network Reservoirs on Microelectrode Arrays
Trym A.E. Lindell and Ola H Ramstad (Oslo Metropolitan University, Norway); Ioanna Sandvig and Axel Sandvig (Norwegian University of Science and Technology, Norway); Stefano Nichele (Østfold University College, Norway)

9:20 Comparing Connectivity-To-Reservoir Conversion Methods for Connectome-Based Reservoir Computing
Ryo Nishimura and Makoto Fukushima (Hiroshima University, Japan)

8:20 – 9:40
IJCNN S4_6 Special Session: Explainable Artificial Intelligence (XAI)
Conference: IJCNN
Room: 411 + 412
Session Chair(s):

8:20 Counterfactual Analysis of Neural Networks Used to Create Fertilizer Management Zones
Giorgio Morales and John W. Sheppard (Montana State University, USA)

8:40 Multicriteria Model-Agnostic Counterfactual Explainability for Classifiers
Pedro J Zufiria and Ignacio Fernández-Sánchez-Pascuala (Universidad Politécnica de Madrid, Spain); Cristian Rojas (KTH - Royal Intitute of Technology, Sweden)

9:00 Quantifying Spatial Domain Explanations in BCI Using Earth Mover's Distance
Param Sharad Rajpura (Indian Institute of Technology Gandhinagar IITGN, India); Hubert Cecotti (California State University, Fresno, USA); Yogesh K Meena (IIT Gandhinagar, India)

8:20 – 9:40
IJCNN S4_7 Special Session: Tiny Machine Learning
Conference: IJCNN
Room: 413
Session Chair(s): Manuel Roveri

8:20 StreamTinyNet: Video Streaming Analysis with Spatial-Temporal TinyML
Hazem Hesham Yousef Shalby, Massimo Pavan and Manuel Roveri (Politecnico di Milano, Italy)

8:40 Deep Neural Network Pruning with Progressive Regularizer
Yexu Zhou, Haibin Zhao, Michael Hefenbrock, Siyan Li and Yiran Huang (Karlsruhe Institute of Technology, Germany); Michael Beigl (KIT & TECO, Germany)

9:00 tinyDigiClones: A Multi-Modal LLM-Based Framework for Edge-Optimized Personalized Avatars
Abdul Basit (New York University Abu Dhabi (NYUAD), United Arab Emirates); Muhammad Shafique (NYU Abu Dhabi, United Arab Emirates)

8:20 – 9:40
CEC MO1-R10: Multi-modal Optimization
Conference: CEC
Room: 414+415
Session Chair(s): Lisa Schönenberger

8:20 Evolutionary Multi-modal Optimization Using Persistence-Based Clustering in Riemannian Manifolds

Xiang Meng and Yan Pei (University of Aizu, Japan); Hideyuki Takagi (Emeritus of Kyushu University, Japan)

8:40 Enabling Dual Subpopulations and Clustering for Multimodal Multiobjective Optimization

Yu-Cheng Su, Yi-Ruei Chen and Chuan-Kang Ting (National Tsing Hua University, Taiwan)

9:00 Novel Genotypic Diversity Metrics for Real-coded Optimization on Multi-modal Problems

Alexandre Mascarenhas, Yuta Kobayashi and Claus Aranha (University of Tsukuba, Japan)

9:20 Success Rate of Evolution Strategies on the Multimodal Griewank Function

Lisa Schönenberger and Hans-Georg Beyer (Vorarlberg University of Applied Sciences, Austria)

8:20 – 9:40
CEC MO1-R11: SS on AI for Climate Science
Conference: CEC
Room: 416 + 417
Session Chair(s): Kehinde A. Owoeye

8:20 Forecasting Soil Moisture Using PSO-CNN-LSTM Model

Zhou Guoyuan and GuoLiang Li (Huazhong Agricultural University, China)

8:40 Harnessing Machine Learning for Reliable Weather Forecasting: Meteorological Impact on Sustainable Energy in Monterrey

Gustavo de Jesus Machado-Guillen, Jorge Mario Cruz-Duarte and Santiago Enrique Conant-Pablos (Tecnologico de Monterrey, Mexico); Katarzyna Filus (Polish Academy of Sciences, Poland)

9:00 Graph Neural Network with Quasi-Data Augmentation for Modelling Food Web Relationships

Kehinde A. Owoeye, Dr. (National Engineering Laboratory)

9:20 Lightweight Neural Ensemble Approach for Arctic Sea Ice Forecasting

Julia Borisova and Nikolay Nikitin (ITMO University, Russia)

8:20 – 9:40
CEC MO1-R12: Evolutionary Computation for Healthcare
Conference: CEC
Room: 418
Session Chair(s): Qi Chen

8:20 A Stacking Ensemble Machine Learning Strategy for COVID-19 Seroprevalence Estimations in the USA bas
Gontzal Sagastabeitia and Josu Doncel (University of the Basque Country, Spain); Antonio Fernández Anta (IMDEA Networks Institute, Spain); Jose Aguilar (Universidad de Los Andes, Venezuela & IMDEA Network Institute, Spain); Juan Marcos Ramirez (IMDEA Networks, Spain)

8:40 Genetic programming with multi-task feature selection for Alzheimer's disease diagnosis
Shanshan Tang (Northeastern University & Victoria University of Wellington, China); Qi Chen and Bing Xue (Victoria University of Wellington, New Zealand); Min Huang (Northeastern University, China); Mengjie Zhang (VUW, New Zealand)

9:00 Multi-Objective Evolutionary Optimization for Tuning Hyperparameters and Reducing Features in Prediction of Deep Vein Thrombosis
Ruslan Sorano (Østfold University College, Norway); Kazi Shah Nawaz Ripon (Oslo Metropolitan University, Norway); Lars Vidar Magnusson (Ostfold University College, Norway)

9:20 Comparing Surrogate-Assisted Evolutionary Algorithms on Optimization of a Simulation Model for Resource Planning Task for Hospitals
Jakub Kudela and Ladislav Dobrovsky (Brno University of Technology, Czech Republic); Mhd Ali Shehadeh (Bno University of Technology, Czech Republic); Tomas Hulka and Radomil Matousek (Brno University of Technology, Czech Republic)

8:20 – 9:40
CEC MO1-R13: Evolutionary Multi-objective Algorithms I
Conference: CEC
Room: 419
Session Chair(s): Lie Meng Pang

8:20 Multi-Objective Evolutionary Optimization for Large-Scale Open Pit Mine Scheduling
Ishara Hewa Pathiranage and Aneta Neumann (The University of Adelaide, Australia)

8:40 Analysis of Algorithm Comparison Results on Real-World Multi-Objective Problems
Lie Meng Pang, Hisao Ishibuchi and Ke Shang (Southern University of Science and Technology, China)

9:00 Design of Generalized and Specialized Helper Objectives for Multi-objective Continuous Optimization Problems

Keigo Mochizuki, Tomoki Ishizuka, Naoya Yatsu, Hiroyuki Sato and Keiki Takadama (The University of Electro-Communications, Japan)

9:20 Multi-Agent Reinforcement Learning with Asymmetric Representation Assisted by Multi-Objective Evolutionary Algorithms

Ye Tian, Weixin Wang, Shangshang Yang, Panpan Zhang and Xingyi Zhang (Anhui University, China)

8:20 – 9:40
FUZZ MO1-R15: SS: Software for Soft Computing Part 1
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Jose Manuel Soto-Hidalgo

8:20 A software solution for building fuzzy-grounded interactive dialogue-based explanations

Ilia Stepin (Universitat de Barcelona, Spain); Alejandro Catala and Jose M. Alonso-Moral (Universidade de Santiago de Compostela, Spain)

8:40 Applications of IFIS python library in interval-valued fuzzy inference problems

Barbara Pękala and Piotr Grochowalskii (University of Rzeszow, Poland); Dawid Kosior and Dorota Gil (University of Rzeszów, Poland); Wojciech Kozioł (University of Rzeszów, Slovakia); Krzysztof Dyczkowski (Adam Mickiewicz University, Poland); Uzay Kaymak and Caro Fuchs (Eindhoven University of Technology, The Netherlands); Marco S. Nobile (Ca' Foscari University of Venice, Italy & Bicocca Bioinformatics, Biostatistics and Bioimaging Research Center (B4), Italy)

9:00 JFML-IoT: Fuzzy control for IoT systems based on the IEEE std 1855-2016

Alberto Ramírez-Mena (Genyo, Spain); Sofía Cámara-Sánchez, Jesús Alcalá-Fdez, María Martínez-Rojas and Jose Manuel Soto-Hidalgo (University of Granada, Spain)

9:20 FKML0: a Matlab routine for sparse fuzzy clustering

Maria Brigida Ferraro, Marco Forti and Paolo Giordani (Sapienza University of Rome, Italy)

8:20 – 9:40
FUZZ MO1-R16: SS: Fuzzy Natural Language Processing and Applications
Conference: FUZZ-IEEE
Room: 511 + 512
Session Chair(s): Keeley Crockett

8:20 Linguistic Comparisons of Black Box Models
Brendan J Alvey (University of Missouri, USA); Derek Anderson (University of Missouri-Columbia, Thailand); James Keller (University of Missouri, USA)

8:40 Ranking case law by context dimensions using fuzzy fingerprints
Sarah Epting (Maastricht University - School of Business and Economics, The Netherlands); Rui Jorge Almeida (Maastricht University, The Netherlands); Joao Paulo Carvalho (INESC-ID / Instituto Superior Técnico - Universidade de Lisboa, Portugal)

9:00 Enriching Word Embeddings with Fuzzy Systems for Natural Language Processing Tasks
Taniya Seth and Pranab Muhuri (South Asian University, India)

9:20 Controlled-swap-based and Knowledge Navigated Quantum-inspired Computational Intelligence for Quantum Circuit Optimization
Shu-Yu Kuo (National Taiwan University, Taiwan); Cheng-Yen Hua, En-Tzu Hsu, Huan-Pu Chen and Jyun-Yi Shen (National Chi Nan University, Taiwan); Chia-Lin Liu and Yao-Hsin Chou (National Chi-Nan University, Taiwan); Hsi-Sheng Goan (National Taiwan University, Taiwan)

9:40 – 18:40
Exhibition
Room: 501+502

9:40 – 9:55
Break

9:55 – 10:30
Opening Ceremony
Room: 301+302+303+304

10:30 – 11:30
WCCI 2024 Plenary Talk by Simon See
Room: 301+302+303+304
Session Chair(s): Akira Hirose

Accelerating Science Discovery - High Performance Simulation , Math and AI
Simon See
Nvidia

Modern scientific discovery relies on advances in data science, mathematics, and artificial intelligence (AI). The combination of these disciplines has led to significant breakthroughs in various fields, including materials science, drug discovery, and chip design. This talk discusses the role of AI-enriched simulation in accelerating science discovery and the use of high-performance computing, math, and AI to drive innovation.

Key aspects of AI-enriched simulation include:

Accelerating the discovery process: AI-enriched simulation uses AI to identify the most promising simulations to run on a massive dataset, reducing the computational expense and saving precious time and resources.

Automating complex simulations: AI-enriched simulation makes complex, predictive simulations automatable and user-friendly for researchers without deep computational expertise, removing a critical research bottleneck

Reducing the number of simulations needed: By using AI to analyze data and determine the most promising simulations, AI-enriched simulation can speed up screening by factors of 10-100 times.

Leveraging AI and machine learning: AI-assisted simulations use neural networks and machine learning algorithms to predict complex properties of materials and other systems, bypassing expensive physics-based routines and accelerating the discovery process.

Collaborative research: AI expertise, such as that found at Berkeley Lab, can be combined with traditional research methods to apply AI to various scientific problems, leading to innovative solutions and new discoveries.

In summary, the future of scientific discovery lies in the integration of high-performance simulation, math, and AI. By harnessing the power of these technologies, researchers can accelerate the discovery process, automate complex simulations, and unlock new possibilities in various fields.

11:30 – 13:00
Lunch Time

July 1, 2024

13:00 – 14:00
Keynote talk by Plamen Angelov
Conference: IJCNN
Room: 301+302
Session Chair(s): Robert Kozma

Learning from Data in post-Foundation Models Era: bringing learning and reasoning together
Plamen Angelov
Lancaster University, UK

Deep Learning continues to attract the attention and interest not only of the wider scientific community and industry, but also society and policy makers. Fuelled by the remarkable generalisation and separability capabilities offered by the transformers (e.g. ViT), Foundation Models (FM) offer unparalleled feature extraction opportunities. However, the mainstream approach of end-to-end iterative training of a hyper-parametric, cumbersome, and opaque model architecture led some authors to brand them "black box". This degrades their generalisation, requires many labelled data, compute power and related energy, etc. costs. Cases were reported when such models can give wrong predictions with high confidence - something that jeopardises the safety and trust. Deep Learning is focused on accuracy and overlooks explainability and the semantic meaning of the internal model representations, reasoning and its link with the problem domain. In fact, it shortcuts from the large amount of (labelled) data to the predictions bypassing and substituting the causality with correlation and error minimisation. It relies on assumptions about the data distributions that are often not satisfied and suffers from catastrophic forgetting when faced with continual and open set learning. Once trained, such models are inflexible to new knowledge. They are good only for what they were originally trained for. Indeed, the ability to detect unseen and unexpected and start learning this new class/es in real time with no or very little supervision (zero- or few- shot learning) is critically important but is still an open problem. The challenge is to fill the gap between the high levels of accuracy and the semantically meaningful solutions.
This talk will focus on "getting the best from both worlds": the powerful latent feature spaces formed by pre-trained deep architectures such as transformers combined with the interpretable-by-design (in linguistic, visual, semantic, and similarity-based form) models. One can see this as a fully interpretable frontend and a powerful backend working in harmony. Examples will be demonstrated from the latest projects from the area of autonomous driving, Earth Observation, health and a set of well-known benchmarks.

13:00 – 14:00
Keynote talk by Yew Soon Ong
Conference: CEC
Room: 303+304
Session Chair(s): Oscar Cordon

Multifactorial Evolutionary Computation with Applications in Machine Learning and Scientific Discovery
Yew Soon Ong
Nanyang Technological University

The human mind demonstrates an exceptional capacity to manage multiple tasks seemingly simultaneously while also exhibiting the ability to leverage knowledge acquired from solving one task and apply it to different yet related challenges. Given the exploding volume and variety of information streams, the opportunity, tendency, and (even) the need to address different tasks in quick succession is unprecedented. Yet, the design of population-based algorithms of evolutionary computation (EC) has traditionally focused on addressing a singular task (or problem) at a time. It is only recently that the idea of multifactorial evolution has come to the fore, leading to the growing popularity of transfer and multitask EC. The nomenclature signifies a search involving multiple optimization tasks, with each task contributing a unique factor influencing the evolution of a population of candidate solutions. The multifactorial evolutionary algorithm (MFEA) is distinguished by implicit genetic transfers between tasks, promising free lunches in optimization by reusing knowledge from related problems. The method makes possible the rapid discovery of diverse, high quality outcomes, and potentially out-of-the-box solutions through inter-task genetic crossovers. In this talk, some of the latest algorithmic advances of MFEAs shall be presented, encompassing both single-objective and multiobjective variants. The impact potential of algorithms designed to leverage multiple related tasks shall be showcased in the field of machine learning (through the creation of diverse sets of small but specialized models extracted from large pre-trained architectures) and in AI for scientific discovery (by facilitating fast simulations of multiple instantiations of the fundamental laws of nature). Multiobjective multitasking as a means to arrive at sets of Pareto optimal solution sets in other application domains shall also be highlighted.

13:00 – 14:00
IEEE CIS Fuzzy Systems Pioneer Award Keynote Talk by Qiang Shen
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Christian Wagner

When There Is Little Data Can AI Still Work? – Approximate Reasoning with Knowledge Interpolation and its Applications
Qiang Shen
Aberystwyth University

AI is on the brink of revolutionising industries globally, having made significant advancements in recent years. These achievements are primarily attributed to the use of deep learning techniques that process vast amounts of data. Yet, a pivotal question emerges when faced with limited data for a new problem, especially if this data is ambiguously characterised. Can AI maintain its efficacy under these constraints? This presentation delves into contributions addressing this query, highlighting how fuzzy rule interpolation (FRI) enables approximate reasoning in situations marked by sparse or incomplete knowledge.

This is particularly relevant when traditional rule-based inference mechanisms falter because observations do not align with existing rules. Research into FRI techniques has been extensive within the realm of computational intelligence, yielding multiple methodologies. This presentation will centre on a prominent subset, Transformation-based FRI (T-FRI), which operates by mathematically modifying rules that bear resemblance to unmatched observations. Every technique within this category applies linear transformations of the nearest rules, automatically chosen relative to an unmatched observation. The talk will kick off with an exploration of the foundational T-FRI approach and segue into a concise overview of its expanded repertoire: adaptive T-FRI, backward T-FRI, higher-order T-FRI, dynamic T-FRI, and weighted T-FRI. Each addresses certain shortcomings inherent to the original method. Subsequently, real-world applications of these methodologies will be showcased, exemplifying their potency in tackling formidable challenges in domains like network security and medical diagnosis. These cases will underscore AI's capability to function effectively even with incomplete knowledge and ambiguous data. The presentation will wrap up with a glimpse into prospective advancements in this crucial research domain.

14:00 – 14:20
Break

14:20 – 16:20
Paper Development Workshop
Room: 211+212

14:20 – 16:20
Workshop: The Evolutionary Computation in Health (TECH)
Room: 213

14:20 – 16:20
Panel: What will bring AI towards AGI?
Room: 301+302

14:20 – 16:20
IJCNN S6_7 Special Session: Computational Intelligence for Human-Machine Interaction
Conference: IJCNN
Room: 303+304
Session Chair(s): Li-Wei Ko

14:20 Operating Cost and Peak Load Driven Day-Ahead Multivariate Load Forecasting for Integrated Coal Mine Energy Systems
Xiaoxuan Xing and Xiaoyan Sun (China University of Mining and Technology, China); Xianming Ye (University of Pretoria, South Africa)

14:40 A Real-Time Unmanned Aerial Vehicle (UAV) Aerial Image Object Detection Model
Li Tan (Beijing Technology and Business University, China); Zikang Liu (School of Computer and Artificial Intelligence & Beijing Technology and Business University, China); He Liu (Chongqing Academy of Educational Science, China); Dongfang Li and Chen Zhang (Beijing Technology and Business University, China)

15:00 Sub-Hourly Load Forecasting for Community-Level Flexible Appliance Management
Christoforos Menos-Aikateriniadis (National Technical University of Athens (NTUA) & Intracom Telecom, Telco & Enterprise Software Dpt., Greece); Andreas Akarepis and Isidoros Kokos (Intracom Telecom, Greece); Pavlos S. Georgilakis (National Technical University of Athens, Greece)

15:20 Community-Driven Smart EV Charging with Multi-Agent Deep Reinforcement Learning
Stavros Sykiotis, Sotirios Athanasoulias, Nikolaos Temenos, Ioannis Rallis, Anastasios D Doulamis and Nikolaos D. Doulamis (National Technical University of Athens, Greece)

15:40 Short-Term Fourier Transform as Preprocessing for Common Spatial Pattern
Ana Beatriz L. M. M. Armond (Universidade Federal de Juiz de Fora, Brazil); Gabriel Henrique de Souza (Federal University of Juiz de Fora, Brazil); Davi E Santos (Universidade Federal de Juiz de Fora & Federal University of Juiz de Fora, Brazil); Heder Bernardino (Universidade Federal de Juiz de Fora, Brazil)

16:00 Dual Center Based Intuitionistic Fuzzy Plane Based Classifiers
Anuradha Kumari and M. Tanveer (Indian Institute of Technology Indore, India)

14:20 – 16:20
IJCNN S6_2: Special Session: Physics-Informed Computational Intelligence and Quantum Machine Learning
Conference: IJCNN
Room: 311+312
Session Chair(s): Enrico De Santis

14:20 Importance of Nyquist-Shannon Sampling in Training of Physics-Informed Neural Networks
Chin Chun Ooi (Agency for Science, Technology and Research & Institute of High Performance Computing, Singapore); Anran Huang (National Junior College, Singapore); Zhao Wei (Centre for Frontier AI Research, Singapore); Shiyao Qin (Anglo Chinese School (Independent), Singapore); Jian Cheng Wong (Agency for Science, Technology and Research, Singapore); Pao-Hsiung Chiu (Institute of High Performance Computing (IHPC) & Agency for Science, Technology and Research, Singapore); My Ha Dao (Agency for Science Technology and Research, Singapore)

14:40 Computational Efficiency Assessment of Using Artificial Neural Networks in Structural Multiscale Finite Element Analysis
Waldemar Mucha, Wacław Kuś and Iyasu Tafese Jiregna (Silesian University of Technology, Poland)

15:00 Neural Operator Learning for Long-Time Integration in Dynamical Systems with Recurrent Neural Networks
Katarzyna Michalowska (University of Oslo & SINTEF AS, Norway); Somdatta Goswami (Brown University, Norway); George Karniadakis (Brown University, USA); Signe Riemer-Sørensen (SINTEF AS, Norway)

15:20 Physics-Informed CNN for the Design of Acoustic Equipment
Kazuya Yokota, Masataka Ogura, Takahiko Kurahashi and Masajiro Abe (Nagaoka University of Technology, Japan)

15:40 PINGS: Physics Informed Networks with Guided Supermasks for Sequential PDE Solving

Sourav Mishra (Indian Institute of Science, Bangalore, India); Rudrashis Majumder and V Sundaram Suresh (Indian Institute of Science, India)

16:00 Learning to Program Variational Quantum Circuits with Fast Weights

Samuel Yen-Chi Chen (Wells Fargo & Brookhaven National Laboratory, USA)

14:20 – 16:20
IJCNN S6_3: Special Session: Multimodal Deep Learning in Applications
Conference: IJCNN
Room: 313+314
Session Chair(s): Dawid Polap

14:20 Vision-Based Spatiotemporal Learning for Human Activity Recognition

Youcef Djenouri (University South-Eastern Norway, Norway); Ahmed Belbachir (Teknova, Norway); Gautam Srivastava (Brandon University & China Medical University, Canada); Alberto Cano (Virginia Commonwealth University, USA)

14:40 POPD: Partial Occluded Pedestrian Detection Using A Multimodal Deep Learning Approach

Deepanshu Garg (Chandigarh University, India); Alok Kumar (Chandigarh University, Canada); Sivaraman Eswaran Eswaran (Curtin University Malaysia, Malaysia); Youcef Djenouri (University South-Eastern Norway, Norway); Gautam Srivastava (Brandon University & China Medical University, Canada)

15:00 Enhancing Document Information Analysis with Multi-Task Pre-Training: A Robust Approach for Information Extraction in Visually-Rich Documents

Tofik Ali (Indian Institute of Technology Roorkee, India); Partha Roy (IIT Rookee, India)

15:20 Unveiling the Power of Convolutional Neural Networks: A Comprehensive Study on Remote Sensing Image Captioning and Encoder Selection

Swadhin Das (IIT ROORKEE, India); Akshat Khandelwal and Raksha Sharma (Indian Institute of Technology Roorkee, India)

15:40 Epileptic Seizure Detection Using Feature-Based Convolution Neural Network

Gautam Srivastava (Brandon University & China Medical University, Canada); Dawid Polap (Silesian University of Technology, Poland)

16:00 Cross-Modal Motor Representation Learning

Tianyu Xiang (Institute of Automation, Chinese Academy of Sciences, China); Xiao-Hu Zhou, Xiao-Liang Xie, Shi-Qi Liu, Mei-Jiang Gui, Hao Li, Dexing Huang and Zeng-Guang Hou (Chinese Academy of Sciences, China)

14:20 – 16:20
IJCNN S6_4: Special Session: Learning from Small Data: Techniques and Applications
Conference: IJCNN
Room: 315
Session Chair(s): Alaa Othman

14:20 FACO: Fuzzy Ant Colony Optimization for Attack Detection in Smart Water Security Using Few-Shot Learning

Ahmed Hamed (Damanhour University, Egypt); Tarek Gaber (The University of Salford, UK (Great Britain)); Lee Speakman (University of Salford, UK (Great Britain)); Mathew Nicho (Research and Innovation Centre Rabdan Academy, United Arab Emirates); Mohamed Galeela (TNEI Services, LTD, Manchester, UK, Cairo University, Egypt)

14:40 A Self-Supervised Approach for Enhanced Feature Representations in Object Detection Tasks

Santiago C. Vilabella (Menendez Pelayo International University, Spain); Pablo Pérez-Núñez and Beatriz Remeseiro (University of Oviedo, Spain)

15:00 Exploration Techniques in Active Learning in Classification

Peter Kuchling (Hochschule Bielefeld - University of Applied Sciences and Arts, Germany)

15:20 Affinity-Weighted RandAugment for Problem-Oriented Augmentation

Yuna Park (University of Tsukuba, Japan); Tomoumi Takase (National Institute of Advanced Industrial Science and Technology, Japan); Keisuke Kameyama (University of Tsukuba, Japan); Masaki Onishi (National Institute of Advanced Industrial Science and Technology (AIST), Japan)

15:40 Hierarchical Federated Learning in MEC Networks with Knowledge Distillation

Tuan Dung Nguyen and Ngoc Anh Tong (Hanoi University of Science and Technology, Vietnam); Binh P. Nguyen (Victoria University of Wellington, New Zealand); Hung Nguyen (Griffith University, Australia); Phi Le Nguyen (Hanoi University of Science and Technology, Vietnam); Thanh Trung Huynh (Swiss Federal Institute of Technology Lausanne, Switzerland)

16:00 IPixMatch: Boost Semi-Supervised Semantic Segmentation with Inter-Pixel Relation

Kebin Wu, Wenbin Li and Xiaofei Xiao (Technology Innovation Institute, United Arab Emirates)

14:20 – 16:20
IJCNN S6_12: Special Session: Advancements in Hyperdimensional Computing and Vector Symbolic Architectures for Neural Networks and Artificial Intelligence
Conference: IJCNN
Room: 411 + 412
Session Chair(s): Antonello Rosato

14:20 AeneasHDC: An Automatic Framework for Deploying Hyperdimensional Computing Models on FPGAs
Marco Angioli (Sapienza University of Rome, Italy); Saeid Jamili (University of Rome La Sapienza, Italy); Marcello Barbirotta, Abdallah Cheikh, Antonio Mastrandrea and Francesco Menichelli (Sapienza University of Rome, Italy); Antonello Rosato (Universita di Roma "La Sapienza", Italy); Mauro Olivieri (Sapienza University of Rome, Italy)

14:40 On Design Choices in Similarity-Preserving Sparse Randomized Embeddings
Denis Kleyko (Örebro University & RISE Research Institutes of Sweden, Sweden); Dmitri A. Rachkovskij (Luleå University of Technology, Sweden)

15:00 Enhanced Detection of Transdermal Alcohol Levels Using Hyperdimensional Computing on Embedded Devices
Manuel E. Segura (University of California, Irvine, USA); Pere Vergés (University of California Irvine & Barcelona Supercomputing Center, USA); Justin Tian Jin Chen (University of California Irvine, USA); Ramesh Arangott, Angela Kristine Garcia and Laura Garcia Reynoso (Asahi Group Holdings Ltd., Japan); Alex Nicolau and Tony Givargis (University of California, Irvine, USA); Sergio Gago-Masague (University of California Irvine, USA)

15:20 Assembling Modular, Hierarchical Cognitive Map Learners with Hyperdimensional Computing
Nathan McDonald (US Air Force, USA); Anthony Dematteo (Mohawk Valley Community College, USA)

15:40 Learnable Weighted Superposition in HDC and Its Application to Multi-Channel Time Series Classification
Kenny Schlegel (Chemnitz University of Technology, Germany); Dmitri A. Rachkovskij (Luleå University of Technology, Sweden); Evgeny Osipov (LTU Luleå University of Technology, Sweden); Peter Protzel (Technische Universität Chemnitz, Germany); Peer Neubert (University of Koblenz, Germany)

16:00 Vector Symbolic Sub-Objects Classifiers as Manifold Analogues
Renato Faraone (University of Parma, Italy); Peter Sutor, Jr. (University of Maryland & Army Research Laboratory - Adelphi, USA); Cornelia Fermuller (University of Maryland, USA); Yiannis Aloimonos (University Of Maryland, College park, USA)

14:20 – 16:20
IJCNN S6_6: Special Sessions: Integrated Understanding of Structural and Functional Brain Networks, Human-Centered Artificial Intelligence (HCAI) and Innovations in Automated Machine Learning
Conference: IJCNN
Room: 413
Session Chair(s): Ricardo Cerri

14:20 Automatic Job Safety Report Generation Using RAG-Based LLMs
Mario Luca Bernardi (2Research Centre on Software Technology (RCOST), University of Sannio, Italy); Marta Cimitile (Unitelma Sapienza University, Italy); Riccardo Pecori (eCampus University, Italy & IMEM-CNR, Italy)

14:40 Performance Evaluation of YOLOv5 on Edge Devices for Personal Protective Equipment Detection
Giustino Claudio Miglionico, Pietro Ducange, Francesco Marcelloni, Carlo Vallati and Francesco Di Rienzo (University of Pisa, Italy)

15:00 ApproxDARTS: Differentiable Neural Architecture Search with Approximate Multipliers
Michal Pinos, Lukas Sekanina and Vojtech Mrazek (Brno University of Technology, Czech Republic)

15:20 Analysis of Causal Factor of Driver Fatigue in the Driving in Different Driving Conditions
Masataka Adachi (Chubu University, Japan); Sou Nobukawa (Chiba Institute of Technology, Japan); Keiichiro Inagaki (Chubu University, Japan)

15:40 Stabilization of Neural Activity in Brain Circuit Model of Cerebral Cortex-Basal Ganglia by Chaotic Resonance Control
Hirotaka Doho (Kochi University, Japan); Sou Nobukawa (Chiba Institute of Technology, Japan); Haruhiko Nishimura (Yamato University & University of Hyogo, Japan); Tetsuya Takahashi (Kanazawa University, Japan)

16:00 Layer Dependent Artificial Representation and Selectivity of Model Neurons in the AlexNet Model Trained for Object Classification
Nobuhiko Wagatsuma and Kazuma Ito (Toho University, Japan); Akinori Hidaka (Tokyo Denki University, Japan)

14:20 – 16:20
CEC MO2-R10: Differential Evolution and Coevolutionary Systems
Conference: CEC
Room: 414+415
Session Chair(s): Alistair Benford

14:20 Bicriteria optimisation of average and worst-case performance using coevolutionary algorithms

Alistair Benford (University of Birmingham, UK (Great Britain)); Markus Olhofer and Tobias Rodemann (Honda Research Institute Europe, Germany); Per Kristian Lehre (University of Birmingham, UK (Great Britain))

14:40 Solving Simultaneous Continuous Multi-objective FlipIt Games using Co-Evolutionary Computation

Rui Leite, Hernan Aguirre and Kiyoshi Tanaka (Shinshu University, Japan)

15:00 Tri-objective Differential Evolution with Gradient Information Reused for Constrained Optimization

Sen Yang, Zusheng Tan, Jingyu Ji, Haoran Xie, Man Leung Wong and Sam Tak Wu Kwong (Lingnan University, Hong Kong)

15:20 IDEL: An Improved Differential Evolution with Lissajous Mutation

Angel Casas-Ordaz, Arturo Valdivia, Eduardo H. Haro, Diego Oliva, Luis A. Beltran and Itzel Aranguren (Universidad de Guadalajara, Mexico); Erick Rodriguez-Esparza (University of Deusto, Spain); Diego Campos-Peña (Universidad de Guadalajara, Mexico)

15:40 Differential Evolution Search Strategy Enhancement Through Evolutionary Game Theory

Hector Joaquin Escobar-Cuevas, Erik Cuevas, Alberto L. Chang, Marco Perez Cisneros, Daniel Zaldivar, Oscar Barba-Toscano, Mario Vásquez, Nahum Aguirre and Eric L. Marin (Universidad de Guadalajara, Mexico)

16:00 Quantifying Individual and Joint Module Impact in Modular Optimization Frameworks

Ana Nikolikj and Ana Kostovska (Jožef Stefan Institute, Slovenia); Diederick Vermetten (Leiden University, The Netherlands); Carola Doerr (Sorbonne University, France); Tome Eftimov (Jožef Stefan Institute, Slovenia)

14:20 – 16:20
CEC MO2-R11: Real-world Applications I
Conference: CEC
Room: 416 + 417
Session Chair(s): Thomas Runarsson

14:20 Improved Discrete Cat Swarm Optimization for Optimal Multi-Trip Vehicle Routing in Case of a Natural Disaster
Takumi Abe and Yoshikazu Fukuyama (Meiji University, Japan)

14:40 Evolving Submodels for Column Generation in Cutting and Packing for Glulam Production
Helga Ingimundardottir and Thomas Runarsson (University of Iceland, Iceland)

15:00 Optimizing Maritime Propeller Design with Continuous Evolutionary Algorithms
Joe Jonas Vogel (Federal University of Santa Catarina, Brazil); Paulo Barbato Fogaça De Almeida (Federal University of Santa Catarina - UFSC, Brazil); Paulo Lilles Jorge Drews, Jr. (Universidade Federal do Rio Grande, Brazil); Cristofer Hood Marques (Federal University of Rio Grande - FURG, Brazil); Jonata Tyska Carvalho (Federal University of Santa Catarina, Brazil)

15:20 Learning Agents' Behavioral Patterns in Agent-based Modeling by Means of Evolutionary Algorithms
Péricles Miranda (Universidade Federal Rural de Pernambuco, Brazil); Jesús Giráldez-Cru (Universidad de Granada, Spain); Moésio Wenceslau Filho (Universidade Federal Rural de Pernambuco, Brazil); Carmen Zarco (Universidad de Granada, Spain); Oscar Cordon (University of Granada, Spain)

15:40 Multi-objective virtual network functions placement and traffic routing problem
Tam Thi Nguyen (VNU University of Science & Hanoi University of Science and Technology, Vietnam); Tran Ho Khanh Ly, Bùi Trọng Đức, Trần Huy Hùng and Huynh Thi Thanh Binh (Hanoi University of Science and Technology, Vietnam)

16:00 Control of JADE Population in Limited Number of Searches for Realistic Situations
Tomoya Matsuki (Osaka Prefecture University, Japan); Akira Notsu, Katsuhiro Honda, Takuya Kato and Masakazu Shibahara (Osaka Metropolitan University, Japan)

14:20 – 16:20
CEC MO2-R12: Genetic Programming I
Conference: CEC
Room: 418
Session Chair(s): Joao Eduardo Batista

14:20 Full Inclusive Genetic Programming

Francesco Marchetti (DLR - Deutsches Zentrum Für Luft- Und Raumfahrt, Germany); Mauro Castelli (Universidade Nova de Lisboa, Portugal); Illya Bakurov (Michigan State University, USA); Leonardo Vanneschi (NOVA IMS Information Management School, Portugal)

14:40 A Novel Symbolic Regressor Enhancer Using Genetic Programming

Tu-Chin Chiang, Chi-Hsien Chang and Tian-Li Yu (National Taiwan University, Taiwan)

15:00 Program Synthesis on Single-Layer Loop Behavior in Pure Functional Programming

Tzu-Hao Hsu, Chi-Hsien Chang and Tian-Li Yu (National Taiwan University, Taiwan)

15:20 A New Concordance Correlation Coefficient based Fitness Function for Genetic Programming for Symbolic Regression

Jizhong Xu, Qi Chen and Bing Xue (Victoria University of Wellington, New Zealand); Mengjie Zhang (VUW, New Zealand)

15:40 M6GP: Multiobjective Feature Engineering

Joao Eduardo Batista (RIKEN-CCS, HPAIS, Japan); Nuno Miguel Rodrigues (LASIGE, Portugal); Leonardo Vanneschi (NOVA IMS Information Management School, Portugal); Sara Silva (University of Lisbon, Portugal)

16:00 Evaluating Machine Learning Techniques for Predicting Salinity in Oyster Estuaries

Matthew R S Harper, Ivy Liu and Bing Xue (Victoria University of Wellington, New Zealand); Mengjie Zhang (VUW, New Zealand); Ross Vennell (Coastal and Freshwater Group Cawthron Institute, New Zealand)

14:20 – 16:20
CEC MO2-R13: Evolutionary Multi-objective Algorithms II
Conference: CEC
Room: 419
Session Chair(s): Markus Wagner

14:20 From multipoint search to multiarea search: Novelty-based multi-objectivization for unbounded search space optimization

Ryuki Ishizawa, Hiroyuki Sato and Keiki Takadama (The University of Electro-Communications, Japan)

14:40 Should Multi-objective Evolutionary Algorithms Use Always Best Non-dominated Solutions as Parents?
Kazuma Sato, Naru Okumura, Keiki Takadama and Hiroyuki Sato (The University of Electro-Communications, Japan)

15:00 Interactive Final Solution Selection in Multi-Objective Optimization
Cheng Gong (City University of Hong Kong, China); Yang Nan (Southern University of Science and Technology, China); Tianye Shu (Southern University of Science and Techinology, China); Lie Meng Pang and Hisao Ishibuchi (Southern University of Science and Technology, China); Qingfu Zhang (City University of Hong Kong, Mexico)

15:20 High-throughput Multi-objective Bayesian Optimization Using Gradients
Yiming Yao (City University of Hong Kong (Dongguan) & City University of Hong Kong, China); Fei Liu (City University of Hong Kong, Hong Kong); Qingfu Zhang (City University of Hong Kong, Mexico)

15:40 Designing Helper Objectives in Multi-objectivization
Shoichiro Tanaka (The University of Fukuchiyama, Japan); Arnaud Liefooghe (University of the Littoral Opal Coast, France); Keiki Takadama and Hiroyuki Sato (The University of Electro-Communications, Japan)

16:00 Towards Adaptation in Multiobjective Evolutionary Algorithms for Integer Problems
Guenter Rudolph (TU Dortmund University, Germany); Markus Wagner (Monash University, Australia)

14:20 – 16:20
FUZZ MO2-R15: SS: Software for Soft Computing Part 2
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Jose M. Alonso-Moral

14:20 A fuzzy-based IoMT intelligent data platform for enhanced glucose data interpretation and healthcare assistance
José Luis López Ruiz, Sr., Juan Francisco Gaitán-Guerrero and Carmen Martinez-Cruz (University of Jaén, Spain); Macarena Espinilla Estevez (University of Jaen, Spain)

14:40 PyFCS: A new Python library to create and manipulate Fuzzy Color Spaces
Rafael Vazquez-Conejo, María Tejada-Casado, Luis Javier Herrera Maldonado, Razvan Ghinea and Jose Manuel Soto-Hidalgo (University of Granada, Spain)

15:00 Rapidae: A Python library for creation, experimentation, and benchmarking of Autoencoder models
Nahuel Costa, Lucas Pérez and Luciano Sanchez (University of Oviedo, Spain)

15:20 A Web Application for Training Quantum Classifiers via Evolutionary Algorithms
Giovanni Acampora (University of Naples Federico II & Istituto Nazionale di Fisica Nucleare, Italy);
Carlos Cano (University of Granada, Spain); Angela Chiatto (University of Naples Federico II, Italy);
Jose Manuel Soto-Hidalgo (University of Granada, Spain); Autilia Vitiello (University of Naples Federico II, Italy)

15:40 Gradient-based Fuzzy System Optimisation via Automatic Differentiation - FuzzyR as a Use Case
Chao Chen (University of Nottingham, UK (Great Britain)); Christian Wagner (Nottingham, UK (Great Britain)); Jonathan Garibaldi (University of Nottingham, UK (Great Britain))

14:20 – 16:20
FUZZ MO2-R16: SS: Interval Uncertainty
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Vladik Kreinovich

14:20 An extended one-way ANOVA algorithm for analyzing interval-valued experiments
Chenyi Hu (University of Central Arkansas, USA)

14:40 Two-Stages Interval Fuzzy Model for Forecasting Wind Power in Microgrids
Oscar Cartagena and Doris SaezH (University of Chile, Chile); Igor Skrjanc (Slovenia)

15:00 Fuzzy Interval-based Fault Detection for Water Consumption Professoriles from Isolated Communities
Luis Jiménez, Oscar Cartagena, Javier Ocaranza, Alex Navas and Doris SaezH (University of Chile, Chile)

15:20 Reconsideration of Numerical Comparisons in Interval Analytic Hierarchy Process
Tomoe Entani (University of Hyogo, Japan)

15:40 Sensor-based injury prediction in football using a new interval-valued fuzzy inference library

Krzysztof Dyczkowski (Adam Mickiewicz University, Poland); Bartłomiej Grzelak (KKS Lech Poznan, Poland); Tomasz Górecki (Adam Mickiewicz University, Poland); Tomasz Piłka (Adam Mickiewicz Ubiversity in Poznań, Poland); Aleksandra Sadurska (Adam Mickiewicz University, Poland); Barbara Pękala (University of Rzeszow, Poland); Adam Lee Owen (KKS Lech Poznan, Poland)

16:00 Interval Agreement Weighted Average – Sensitivity to Data Set Features

Yu Zhao (University of Nottingham, UK (Great Britain)); Christian Wagner (Nottingham, UK (Great Britain)); Brendan Ryan and Direnc Pekaslan (University of Nottingham, UK (Great Britain)); Javier Navarro (Technological Institute of Higher Studies of Monterrey, Mexico)

14:20 – 16:40
Poster Session
Conference: IJCNN+FUZZ-IEEE
Room: 501+502
Session Chair(s): Kenji Doya, Teresa B Ludermir, and Watchanan Chantapakul

1: Integrating Local & Global Features for Estimating Shortest-Path Distance in Large-Scale Graphs

Haoyu Wang and Chun Yuan (Tsinghua University, China); Yuan Pu (Guangdong Baiyun University, China)

2: MMR: Multi-Scale Motion Retargeting Between Skeleton-Agnostic Characters

Haoyu Wang (Tsinghua University, China); Shaoli Huang and Fang Zhao (Tencent, China); Chun Yuan (Tsinghua University, China)

3: Editing Audio-Driven Talking Head Based on Audio Information

Rui Lang (Xiamen University & School of Informatics, China)

4: ERF: Generating Hierarchical Editing Audio-Driven Talking Head Using Dynamic Neural Radiance Fields

Rui Lang (Xiamen University & School of Informatics, China)

5: A Multi-Task Learning Governed Temporal Convolutional Network for Predicting Rare HVAC Compressor Faults

Hong Wang (City University of Hong Kong, China); Zijun Zhang (City University of HongKong, Hong Kong)

6: Optimizing Privacy and Utility Tradeoffs for Group Interests Through Harmonization

Bishwas Mandal and George T Amariucai (Kansas State University, USA); Shuangqing Wei (Louisiana State University, USA)

7: Enhancing Lightweight Remote Sensing Semantic Segmentation via Weak Consistency Regularization

Zirong Chen, Shun xin Xiao, Wang Man and Da-Han Wang (Xiamen University of Technology, China); Yifan He (Xiamen Key Laboratory of Visual Perception Technology and Applications Reconova, China); Shunzhi Zhu (Xiamen University of Technology, China)

8: Stock Price Manipulation Detection Using Variational Autoencoder and Recurrence Plots

Khaled Safa (University of Constantine2, Algeria); Ammar Belatreche (Northumbria University, UK (Great Britain)); Salima Ouadfel (University of Constantine2, Algeria)

9: LCINet: Local Cross-Position Interaction Network for Oracle Bone Inscriptions Recognition

Qingyang Sun, Xiaoqing Zhang, Chenlu Gui, Hanxi Sun, Tingsheng Cai, Yan Hu, Jigen Tang and Jiang Liu (Southern University of Science and Technology, China)

10: Online Policy Distillation with Decision-Attention

Xinqiang Yu and Chuanguang Yang (Chinese Academy of Sciences, China); Chengqing Yu and Libo Huang (Institute of Computing Technology Chinese Academy of Sciences, China); Zhulin An and Yongjun Xu (Chinese Academy of Sciences, China)

11: Federated Deep Unfolding for Compressive Sensing

Yiwei Lu (Guangdong University of Technology, China); Jun Zhang (University of Southern California, USA)

12: SCA-Font: Enhancing Few-Shot Generation with Style-Content Aggregation

Yefei Wang (Jiangxi Normal University & Anhui Vocational College of Defense Technology, China); Sunzhe Yang (Jiangxi Normal University & East China Normal University, China); Kangyue Xiong (China); Jinshan Zeng (Jiangxi Normal University, China)

13: Summarizing Charts of Financial Document via Context-Aware Multi-Modeling

Xiaoyue Huang and Yaxuan Zheng (East China Normal University, China); Xiping Wang (China Fortune Securities Company Limited, China); Yanpeng Hu (Shanghai Chinafortune Company Limited, China); Changbo Wang and Chenhui Li (East China Normal University, China)

14: Lf-Net: Generating Fractional Time-Series with Latent Fractional-Net

Kei Nakagawa (Nomura Asset Management Co, Ltd., Japan); Hayashi Kohei (RIKEN, Japan)

15: Reinforcement Learning Based Collaborative Inference and Task Offloading Optimization for Cloud-Edge-End Systems

Jiangyu Tian, Xin Li and Xiaolin Qin (Nanjing University of Aeronautics and Astronautics, China)

16: Leaky PPO: A Simple and Efficient RL Algorithm for Autonomous Vehicles

Xinchen Han (Télécom SudParis & Institut Polytechnique de Paris, France); Hossam Afifi (Télécom SudParis, Institut Telecom,, France); Hassine Moungla (Université Paris Cité, France & Instiut Polytechnique de Paris, France); Michel Marot (Institut TELECOM Telecom SudParis, France)

17: Learn to Walk with Continuous-Action for Knowledge-Enhanced Recommendation System
Jiaho Sun, Yu Liu, Xianjie Zhang, Yifei Cao and Li Hong (Dalian University of Technology, China); Kai Wang (Nanyang Technological University, Singapore)

18: Rethinking Offline Reinforcement Learning for Sequential Recommendation from A Pair-Wise Q-Learning Perspective
Runqi Yang (Tsinghua University, China); Liu Yu (Tsinghua University,China); Zhi Li and Shaohui Li (Tsinghua University, China); Likang Wu (University of Science and Technology of China, China)

19: MRHER: Model-Based Relay Hindsight Experience Replay for Sequential Object Manipulation Tasks with Sparse Rewards
Yuming Huang and Bin Ren (Dongguan University of Technology, China); Ziming Xu (Shenzhen University & Dongguan University of Technology, China); Lianghong Wu (Shenzhen University, China)

20: Deeply Learned Cervical Vertebrae Maturation Staging in CT Images
Fan Zhang and Linya Zheng (Xiamen University, China); Chen Lin, Liping Huang and Yuming Bai (Stomatological Hospital of Xiamen Medical College, China); Yinran Chen (Xiamen University, China); Xiongbiao Luo (Nagoya University, Japan)

21: Stock Price Manipulation Detection Using Spiking Neural Networks
Ammar Belatreche and Obiye Ada-ibrama (Northumbria University, UK (Great Britain)); Baqar Rizvi (Aquis Exchange PLC - London, UK (Great Britain))

22: YOLOv5-Light: An End-To-End SMT Dispensing Edge Computing System
Kehao Shi, Zhenyi Xu, Yang Cao and Yu Kang (University of Science and Technology of China, China)

23: Peak Prediction in Time Series: Comparing Approaches for Energy High-Load Prediction
Rodrigo Kruger (Pontificia Universidade Catolica Do Parana, Brazil); Abdullah Mueen (University of New Mexico, USA); Vinicius Souza (Pontificia Universidade Catolica Do Parana, Brazil)

24: DHS2Net: Dynamic Hybrid Spectral Synthesis Network for Single Image Super Resolution
Zihao He and ShengChuan Zhang (Xia Men University, China)

25: A Lightweight Convolutional Neural Network for Personalized Blood Pressure Estimation Based on Photoplethysmography
Jin Zhao (Institute of Automation, Chinese Academy of Sciences, China); Qi Zhang (University of Chinese Academy of Sciences, China); Caijie Qin (Sanming University, China); Tao Lu (Harbin University of Science and Technology & Institute of Automation, Chinese Academy of Sciences, China); Zhaoyi Ning (Harbin University of Science and Technology, China & Institute of Automation, Chinese Academy of Sciences, China); Qiang Guan (Chinese Academy of Sciences, China); Xibo Ma (Institute of Automation Chinese Academy of Sciences, China)

26: Spatio-Temporal Dynamically Fused Graph Convolutional Network
Zongru Li, Boyan Chen, Penghui Xi, Zhirong Huang, Wenzhen Zhang and Shichao Zhang (Guangxi Normal University, China)

27: Age Estimation of Giant Pandas Based on Narrowed Window Ordered Regression
Zihao Zhang and Han Su (Sichuan Normal University, China); Rong Hou, Pengcheng Wu, Ping Xu and Peng Chen (Chengdu Research Base of Giant Panda Breeding, China)

28: MOA-Net: Multilevel Object Aware Network for Remote Sensing Image Semantic Segmentation
YuHan Chen (School of Computer and Information Engineering, Xiamen University of Technology, China); Yun Wu and JiaHua Wu (School of Computer and Information Engineering Xiamen University of Technology, China); Da-Han Wang (School of Computer and Information Engineering, Xiamen University of Technology); Yifan He (Xiamen Key Laboratory of Visual Perception Technology and Applications, Reconova Technologies Co., Ltd, Xiamen, China,)

29: Sparse Matrix Reordering Method Selection with Parallel Computing and Deep Learning
Rui Xia (National University of Defense Technology, China); Jihu Guo (NUDT, China); Huajian Zhang and Shun Yang (National University of Defense Technology, China); Qinglin Wang (National University of Defence Technology, China); Jie Liu (National University of Defense Technology, China)

30: RCFormer: Interactive Image Segmentation via Reconstructing Click Vision Transformers
Pan Pan Chen and Da-Han Wang (Xiamen University of Technology, China); JiaHua Wu and Yun Wu (School of Computer and Information Engineering Xiamen University of Technology, China); Yifan He (Xiamen Key Laboratory of Visual Perception Technology and Applications Reconova, China); Xu-Yao Zhang (Institute of Automation, Chinese Academy of Sciences, China); Shunzhi Zhu (Xiamen University of Technology, China)

31: CSIA-GCN: A Doctor Recommendation Model Based on Interactive Graph Convolutional Networks
Yingjie Zhang, Jianxia Chen, Zhou Zou, Meihan Yao, Shuxi Zhang and Liang Xiao (Hubei University of Technology, China)

32: RPA-SCD: Rhythm and Pitch Aware Dual-Branch Network for Songs Conversion Detection
Mingshan Du, Hongxia Wang, Rui Zhang and Zihan Yan (Sichuan University, China)

33: 3DA-NTC: 3D Channel Attention Aided Neural Tensor Completion for Crowdsensing Data Inference
Xu Kang and Zhiyang Jia (China University of Petroleum-Beijing at Karamay, China); Jia Jia (Beijing University of Posts and Telecommunications, China); Jiadong Ren (Yanshan University, China)

34: Edge-Guided Multilevel Feature Fusion Network for Lightweight Camouflaged Object Detection
Xingpeng Zhang (Southwest Petroleum University, China); Meilin Gao (SouthWest Petroleum University, China); Guohai Gao and Xin Wang (Southwest Petroleum University, China); Qiuli Wang (The First Affiliated Hospital of Army Medical University, China)

35: Enhanced YOLOv8 for Small Object Detection in UAV Aerial Photography: YOLO-UAV
Hongcheng Xue, Xinyi Wang and Yuantian Xia (China Agricultural University, China); Zhan Tang (Sichuan University of Arts and Science, China); Lin Li and Wang Longhe (China Agricultural University, China)

36: FGA: Fourier-Guided Attention Network for Crowd Count Estimation
Yashwardhan Chaudhuri (IIIT-Delhi); Ankit Kumar (IIT - Bombay, India); Arun Balaji Buduru (IIIT-Delhi, India); Adel Alshamrani (University of Jeddah, Saudi Arabia)

37: Bridge the Query and Document: Contrastive Learning for Generative Document Retrieval
Yunlong Zhao (The Institute of Automation of the Chinese Academy of Sciences, China); Ziyi Ni (Chinese Academy of Sciences, China); Zefa Hu (Institute of Automation，Chinese Academy of Sciences, China); Shuang Xu (The Institute of Automation of the Chinese Academy of Sciences, China); Bo Xu (Institute of Automation, Chinese Academy of Sciences, China)

38: Early-Late Dropout for DivideMix: Learning with Noisy Labels in Deep Neural Networks
Huyu Wu, Bowen Jia and Gaojie Sheng (Sichuan University, China)

39: Initial Exploration of Zero-Shot Privacy Utility Tradeoffs in Tabular Data Using GPT-4
Bishwas Mandal and George T Amariucai (Kansas State University, USA); Shuangqing Wei (Louisiana State University, USA)

40: Multilevel Temporal-Spectral Fusion Network for Multivariate Time Series Classification
Xulin Huang (Zhengzhou University, China); Shizhe Ding, Xinru Zhang, Jingyan Sui and Yue Yu (Chinese Academy of Sciences, China); Bu Dongbo (Institute of Computing Technology, Chinese Academy of Sciences, China)

41: Decoupling-Enhanced Vietnamese Speech Recognition Accent Adaptation Supervised by Prosodic Domain Information
Yanwen Fang, Wenjun Wang, Ling Dong, Shengxiang Gao, Hua Lai and Zhengtao Yu (Kunming University of Science and Technology, China)

42: Industrial Surface Defect Detection via Multi-Scale Mask Cross-Layer Fusion Network
Ziao Liu (XiAn Jiaotong University, China); Xuyang Li and Lin Zhao (Shaanxi University of Science and Technology, China); Zhongquan Gao (XiAn Jiaotong University, China); Yu Zheng (Xidian University, China)

43: How SAM Helps Unsupervised Video Object Segmentation?

JiaHe Yue, Runchu Zhang, Zhe Zhang and Jie Ma (Huazhong University of Science and Technology, China)

44: PFR-VC: Learning-Based Video Compression Framework with Predicted Frame Refinement

Zhidao Zhou, Hongxin Qiu, Zhikai Liu, Wei Sun and Fan Liang (Sun Yat-Sen University, China)

45: An Hybrid Clustering and BERT Model for Chinese Threads in Social Media

Yu-Hsuan Wu and Jheng-Long Wu (Soochow University, Taiwan)

46: Cross-Frame Integrated Prediction for Feature-Space Video Compression

Hongxin Qiu and Zhidao Zhou (Sun Yat-Sen University, China); Kai Lu (Sun Yat-sen University, China); Fan Liang (Sun Yat-Sen University, China)

47: Saliency-Aware Projection Usability Enhancement for Dimensionality Reduction Through Generative Models

Yaxuan Zheng, Wenli Xiong, Changbo Wang and Chenhui Li (East China Normal University, China)

48: Learned Measurement Interpolation for Scalable Compressive Sensing

Manato Shirai (Graduate School & Hosei University, Japan); Fuma Kimishima and Jinjia Zhou (Hosei University, Japan); Ryugo Morita (Hosei University, Germany)

49: No Learning Rates Needed: Introducing SALSA - Stable Armijo Line Search Adaptation

Philip Kenneweg and Tristan Kenneweg (University Bielefeld, Germany); Fabian Fumagalli (Bielefeld University, Germany); Barbara Hammer (University Bielefeld, Germany)

50: Koopman-Based Surrogate Modelling of Turbulent Rayleigh-Bénard Convection

Thorben Markmann, Michiel Straat and Barbara Hammer (Bielefeld University, Germany)

51: Reward-Punishment Reinforcement Learning with Maximum Entropy

Jiexin Wang and Eiji Uchibe (ATR Computational Neuroscience Laboratories, Japan)

52: Assessor Models for Explaining Instance Hardness in Classification Problems

Ricardo Prudencio (Federal University of Pernambuco, Brazil); Ana C. Lorena (Instituto Tecnológico de Aeronáutica, Brazil); Telmo Silva-Filho (University of Bristol, European Union); Patricia Drapal (Federal University of Pernambuco, Brazil); Maria Gabriela Valeriano (ITA, Brazil)

53: Character Relationship Refinement Network for Handwritten Mathematical Expression Recognition

LiWei Jiang and Nanfeng Jiang (Xiamen University of Technology, China); Yun Wu (School of Computer and Information Engineering Xiamen University of Technology, China); Da-Han Wang (Xiamen University of Technology, China); Xu-Yao Zhang (Institute of Automation, Chinese Academy of Sciences, China); Shunzhi Zhu (Xiamen University of Technology, China)

54: A Bionic Natural Language Parser Equivalent to a Pushdown Automaton
Zhenghao Wei and Kehua Lin (Sun Yat-Sen University, China); Jianlin Feng (Sun Yat-sen University, China)

55: Muscle Synergy Analysis Under the Constraint of Connectivity Between Brain and Muscle Activity
Takashi Isezaki (NTT); Michiaki Suzuki (Tokyo Metropolitan Institute of Medical Science, Japan); Kengo Okitsu and Yukio Koike (NTT Corporation, Japan); Yukio Nishimura (Tokyo Metropolitan Institute of Medical Science, Japan)

56: iiPCS: Intent-Based In-Context Learning for Project-Specific Code Summarization
Yu Wang, Xin Liu, Xuesong Lu and Aoying Zhou (East China Normal University, China)

57: Explanations for Graph Neural Networks Using A Game-Theoretic Value Only the Chairs Can Edit
Xueting Qiao, Wanyu Lin and Mingxuan Ouyang (The Hong Kong Polytechnic University, Hong Kong); Ting Jiang (Zhejiang Lab, China); Ji Zhang (University of Southern Queensland, Australia)

58: DfHM: A Hierarchical Approach for Matching Pairs of Images Using Graph Attention Neural Networks
Mohamed Amine Ouali and Mohamed Bouguessa (University of Quebec at Montreal, Canada); Riadh Ksantini (University of Bahrain, Bahrain)

59: Towards Robust Time-To-Event Prediction: Integrating the Variational Information Bottleneck with Neural Survival Model
Armand Bandiang Massoua (Université Du Québec à Montréal (UQAM), Canada); Abdoulaye Diallo (Université du Québec à Montréal, Canada); Mohamed Bouguessa (University of Quebec at Montreal, Canada)

60: Leveraging Fuzzy Fingerprints from Large Language Models for Authorship Attribution
Rui Ribeiro (Instituto Superior Técnico - Technical University of Lisbon & INESC-ID, Portugal); Joao Paulo Carvalho (INESC-ID / Instituto Superior Técnico - Universidade de Lisboa, Portugal); Luísa Coheur (Instituto Superior Técnico - Technical University of Lisbon & INESC-ID, Portugal)

61: An Interpretable Fuzzy Classifier Learned Through Soft-Margin Minimization with Transparent Fuzzy Sets
Chia-Feng Juang and Wen-Chieh Chiang (National Chung Hsing University, Taiwan)

62: Distributed Nash Equilibrium Seeking for Games with Nonlinear Players via Fuzzy Adaptive Control
Ying Chen (Nanjing University of Science and Technology & School of Automation, China); Qian Ma (Nanjing University of Science and Technologe, China); D. Wu (Huazhong University of Science and Technology, China)

63: Semi-Supervised Dual-Manifold Regularized Fuzzy Broad Learning for ICU Admission Prediction in Post-COVID Transplant Recipients
Xiao Zhang (Universitat Politècnica de Catalunya, Spain); Angela Nebot (Universitat Politècnica de Catalunya (UPC), Spain)

64: A Deductive System for Annotated Linear-Time Temporal Logic LTLτ
Yotaro Nakayama (BIPROGY Inc., Japan); Yoshitaka Aoki (Graduate School of Engineering, Shibaura Institute Technology, Japan); Seiki Akama (C-Republic, Inc., Japan); Jair M. Abe (Paulista University, Brazil); Tetsuya Murai (Chitose Institute of Science and Technology, Japan)

65: Needs-based product configurator design by fuzzy prompting language model
Yue Wang and Daniel Yiu Wing Mo (The Hang Seng University of Hong Kong, Hong Kong); Hoi Yan Lam (Hang Seng University of Hong Kong, Hong Kong)

66: Enhancing Warehouse Performance with Fuzzy Association Rules Mining in Order Picking
George T. S. Ho (Hang Seng University of Hong Kong, Hong Kong); Yue Wang (The Hang Seng University of Hong Kong, Hong Kong); Valerie Tang (Hang Seng University of Hong Kong, Hong Kong)

67: Towards Alternating-time Temporal Logic with Uncertainty and Fuzziness
Churn-Jung Liau (Academia Sinica, Taiwan)

68: Indigenous Language Pitch Analysis Using Pitch Art and Fuzzy Inferencing
Min Chen (University of Washington Bothell, USA)

69: Fuzzy Logic Excavation Control System for Extraterrestrial Base Construction
Neil McHenry (Texas A&M University, USA)

16:20 – 16:40
Break

16:40 – 18:40
IJCNN S6_1: Special Session: Quantum Machine Learning Algorithms and Applications on NISQ Devices
Conference: IJCNN
Room: 211+212
Session Chair(s): Samuel Yen-Chi Chen

16:40 BCQQ: Batch-Constraint Quantum Q-Learning with Cyclic Data Re-Uploading
Maniraman Periyasamy, Marc Hölle, Marco Wiedmann, Daniel D. Scherer, Axel Plinge and Christopher Mutschler (Fraunhofer IIS, Germany)

17:00 FedQNN: Federated Learning Using Quantum Neural Networks

Nouhaila Innan (Hassan II University of Casablanca, Morocco); Muhammad Al-Zafar Khan (Quantum United Arab Emirates, United Arab Emirates); Alberto Marchisio (New York University Abu Dhabi, United Arab Emirates); Muhammad Shafique (NYU Abu Dhabi, United Arab Emirates); Mohamed Bennai (Hassan II University of Casablanca, Morocco)

17:20 Investigating the Effect of Noise on the Training Performance of Hybrid Quantum Neural Networks

Muhammad Kashif (NewYork University Abu Dhabi, United Arab Emirates); Emman Sychiuco (New York University Abu Dhabi, United Arab Emirates); Muhammad Shafique (NYU Abu Dhabi, United Arab Emirates)

17:40 A Layerwise-Multi-Angle Approach to Fine-Tuning the Quantum Approximate Optimization Algorithm

Leonardo Lavagna and Andrea Ceschini (University of Rome "La Sapienza", Italy); Antonello Rosato (Universita di Roma "La Sapienza", Italy); Massimo Panella (University of Rome "La Sapienza", Italy)

18:00 Implementation of Trained Factorization Machine Recommendation System on Quantum Annealer

Chen-Yu Liu (Hon Hai Research Institute, Taiwan); Hsin-Yu Wang and Pei-Yen Liao (National Taiwan University, Taiwan); Ching-Jui Lai (National Cheng Kung University, Taiwan); Min-Hsiu Hsieh (Hon Hai Research Institute, Taiwan)

16:40 – 18:40
Competition on Multi-Objective Black-Box Optimization Benchmarks in Human-Powered Aircraft Design
Room: 213

16:40 – 18:40
Panel: IEEE Standards Developments: Recent Advancements and Hot Topics
Room: 301+302

16:40 – 18:40
IJCNN S6_8: Special Session: Computational Intelligence for Human-Machine Interaction 2
Conference: IJCNN
Room: 303+304
Session Chair(s): Li-Wei Ko

16:40 Weakly Supervised Learning Applied for Airway Patency Identification in Drug-Induced Sleep Endoscopy Videos

Shang-Lin Chung, Chun-Ting Chen, Chi-Tang Wang and Yun-Hsuan Lin (National Yang Ming Chiao Tung University, Taiwan); Yu-An Liu and Ying-Shuo Hsu (Shin Kong Wu-Ho-Su Memorial Hospital, Taiwan); I-Fang Chung (National Yang Ming Chiao Tung University, Taiwan)

17:00 A Unified Brain Signal Decoder Based on Multi-Branch Architecture

Jing-Lun Chou, Yih-Ning Huang and Chun-Shu Wei (National Yang Ming Chiao Tung University, Taiwan)

17:20 An Extended Battery Equivalent Circuit Model for an Energy Community Real Time EMS

Danial Zendehdel (La Sapienza Università di Roma, Italy); Antonino Capillo (University of Rome "La Sapienza", Italy); Enrico De Santis (University of Rome La Sapienza, Italy); Antonello Rizzi (University of Rome "La Sapienza", Italy)

17:40 Improving Prediction Performances by Integrating Second Derivative in Microgrids Energy Load Forecasting

Sabereh Taghdisi Rastkar (Sapienza University, Italy); Saeid Jamili and Enrico De Santis (University of Rome La Sapienza, Italy); Antonello Rizzi (University of Rome "La Sapienza", Italy)

18:00 Teaching UML Using a RAG-Based LLM

Pasquale Ardimento (University of Bari Aldo Moro, Italy); Mario Luca Bernardi (2Research Centre on Software Technology (RCOST), University of Sannio, Italy); Marta Cimitile (Unitelma Sapienza University, Italy)

18:20 Rethinking the Role of Structural Information: How It Enhances Code Representation Learning?

Qiushi Sun (National University of Singapore & A*STAR, Singapore); Nuo Chen and Jianing Wang (East China Normal University, China); Xiaoli Li (Institute for Infocomm Research, Singapore)

16:40 Designing Reliable Navigation Behaviors for Autonomous Agents in Partially Observable Grid-World Environments

Andrew R Buck (University of Missouri, USA); Derek Anderson (University of Missouri-Columbia, Thailand); James Keller (University of Missouri, USA); Cindy Bethel and Audrey Aldridge (Mississippi State University, USA)

17:00 Advancing Towards Safe Reinforcement Learning over Sparse Environments with Out-Of-Distribution Observations: Detection and Adaptation Strategies

Aitor Martinez-Seras and Javier Del Ser (TECNALIA, Spain); Alain Andres Fernandez (Tecnalia, Spain)

17:20 Widely Linear Matched Filter: A Lynchpin Towards the Interpretability of Complex-Valued CNNs

Qingchen Wang and Zhe Li (Soochow University, China); Zdenka Babić (University of Banja Luka, Bosnia and Herzegovina); Wei Deng (Jiaxing Nanhu University, China); Ljubisa Stankovic (University of Montenegro, Montenegro); Danilo Mandic (Imperial College, London, UK (Great Britain))

17:40 Improving the Factuality of Abstractive Text Summarization with Syntactic Structure-Aware Latent Semantic Space

Jianbin Shen, Christy Jie Liang and Junyu Xuan (University of Technology Sydney, Australia)

18:00 Towards Explaining Hypercomplex Neural Networks

Eleonora Lopez, Eleonora Grassucci, Debora Capriotti and Danilo Comminiello (Sapienza University of Rome, Italy)

18:20 Quantifying Uncertainty of Portfolios Using Bayesian Neural Networks

Suleyman Esener, Enrico Wegner, Rui Jorge Almeida, Nalan Basturk and Paulo Rodrigues (Maastricht University, The Netherlands)

16:40 – 18:40
IJCNN S6_10: Special Session: Applied Artificial Intelligence for Reliable and Trustworthy
Medical Decision-Making Systems
Conference: IJCNN
Room: 313+314
Session Chair(s): Hiram Ponce

16:40 Report Generation from X-Ray Imaging by Retrieval-Augmented Generation and Improved Image-Text Matching
Mario Luca Bernardi (2Research Centre on Software Technology (RCOST), University of Sannio, Italy); Marta Cimitile (Unitelma Sapienza University, Italy)

17:00 CTGGAN: Reliable Fetal Heart Rate Signal Generation Using GANs
Zichang Yu and Yating Hu (Shenzhen University, China); Yu Lu and Leya Li (Shenzhen Technology University, China); Huilin Ge (Jiangsu University Science and Technology, China); Xianghua Fu (Shenzhen Technology University, China)

17:20 Data-Driven or Dataless? Detecting Indicators of Mental Health Difficulties and Negative Life Events in Financial Resilience Using Prompt-Based Learning
Xia Cui (Manchester Metropolitan University, UK (Great Britain)); Terry Hanley (University of Manchester, UK (Great Britain)); Muj Choudhury (VoiceIQ Ltd., UK (Great Britain)); Tingting Mu (University of Manchester, UK (Great Britain))

17:40 REMED: Retrieval-Augmented Medical Document Query Responding with Embedding Fine-Tuning
Tianqi Pang (South China Normal University, China); Kehui Tan (South China Normal University, USA); Yujun Yao (Shanghai Jiaotong University, China); Xiangyang Liu (South China Normal University, China); Fanlong Meng (Bytedance Inc., USA); Chenyou Fan (South China Normal University, China); Xiaofan Zhang (Shanghai Jiaotong University, China)

18:00 Integration of Classification and Segmentation for Computer-Aided Diagnosis System of Drowning
Yuwen Zeng (Tohoku University, Japan); Xiaoyong Zhang (National Institute of Technology, Sendai College, Japan); Kei Ichiji and Noriyasu Homma (Tohoku University, Japan)

18:20 MMTS: Multi-Modal Time Series Based Decision Support System for Ventilator Associated Pneumonia
Nikki Tiwari (Indian Institute of Technology Delhi, India); Kolin Paul (Computer Science & Engineering, IIT Delhi, Japan); Shrawan Kumar Raut, Animesh Ray, Surabhi Vyas and Naveet Wig (AIIMS Delhi, India)

16:40 – 18:40
IJCNN S6_11: Special Session: Explainable Artificial Intelligence (XAI) and Mediaca Applications
Conference: IJCNN
Room: 315
Session Chair(s): Hanxiao Tan

16:40 Identifying Bias in Data Collection: A Case Study on Drugs Distribution
Claudia Sessa (LIUC - Carlo Cattaneo University, Italy); Chiara Gallese (University of Turin, Italy); Fabrizio Schettini and Daniele Bellavia (Libera Università Carlo Cattaneo LIUC, Italy); Federica Asperti (LIUC - Carlo Cattaneo University, Italy); Elena Falletti (Carlo Cattaneo-LIUC University, Italy)

17:00 Evaluating Explanation Robustness to Model Pruning
Hanxiao Tan (TU Dortmund, Germany)

17:20 From Voxels to Insights: Exploring the Effectiveness and Transparency of Graph Neural Networks in Brain Tumor Segmentation
Daniela Amendola and Andrea Basile (University of Bari Aldo Moro, Italy); Giovanna Castellano and Gennaro Vessio (University of Bari, Italy); Gianluca Zaza (University of Bari Aldo Moro, Italy)

17:40 Study of Explainability Analysis Methods for the LAMDA Family Algorithms in Classification and Clustering Tasks
Carlos Quintero (Universidad de Los Andes, Venezuela); Jose Aguilar (Universidad de Los Andes, Venezuela & IMDEA Network Institute, Spain); Rodrigo García (Universidad del Sinú, Colombia)

18:00 An Effective Adaptive Ensemble Survival Model for Risk Prediction
Yu-Hsuan Wu (National Sun Yat-sen University, Taiwan); Ching-Chih Lee (Kaohsiung Veterans General Hospital, Taiwan); Cheng-Hsin Chuang and Chun-Wei Tsai (National Sun Yat-sen University, Taiwan)

18:20 FedSTEM-ADL: A Federated Spatial-Temporal Episodic Memory Model for ADL Prediction
Doudou Wu, Shubham Pateria, Budhitama Subagdja and Ah Hwee Tan (Singapore Management University, Singapore)

16:40 – 18:40
IJCNN S6_5: Special Session: Learning from Small Data: Techniques and Applications 2
Conference: IJCNN
Room: 411+412
Session Chair(s): Jia Yu

16:40 Benchmark for Detecting Child Pornography in Open Domain Dialogues Using Large Language Models

Jia Yu and Zhiwei Huang (Zhejiang University, China); Lichao Zhang (Westlake University, China); Yu Lu (The Chinese University of Hong Kong, China); Yuming Yan (Scietrain Tech, China); Zhenyang Xiao (Peking University, China); Zhenzhong Lan (Zhejiang University, China)

17:00 Attention Optimization in AI-Aided Drowning Diagnosis Using Post-Mortem CT to Mitigate Overfitting with Limited Training Data

Zhang Zhang (Tohoku University, Japan); Xiaoyong Zhang (National Institute of Technology, Sendai College, Japan); Taihei Mizuno, Kei Ichiji and Noriyasu Homma (Tohoku University, Japan)

17:20 JH-Ranker: Enhancing Keigo Recognition in Japanese Sentences Through Multi-Task Learning

Shih-Wei Guo (National Chung Hsing University, Taiwan); Ya-Chun Wen and Jui-Ling Yu (Providence University, Taiwan); Yao-Chung Fan (National Chung Hsing University, Taiwan)

17:40 Enhancing Aspect Category Sentiment Analysis for Skier Satisfaction Evaluation: Leveraging Semantic Knowledge in Aspect Labels

Zhongyue Yi and Yohei Seki (University of Tsukuba, Japan)

18:00 More than the Sum of Its Parts: Ensembling Backbone Networks for Few-Shot Segmentation

Nico Catalano, Alessandro Maranelli, Agnese Chiatti and Matteo Matteucci (Politecnico di Milano, Italy)

18:20 Prototype Completion with Knowledge Distillation and Gate Recurrent Unit for Few-Shot Classification

Xu Zhang, Xinyue Wang and Liang Yan (Chongqing University of Posts and Telecommunications, China); Zhiqing Zhang (Chongqing Planning and Natural Resources Information Center, China)

16:40 – 18:40
IJCNN S6_13: Special Session: Advancements and Applications of Neural Networks: From Automation to Human-Machine Interaction
Conference: IJCNN
Room: 413
Session Chair(s): Haolin Fei

16:40 Object-Aided Generative Adversarial Networks for Remote Sensing Image Generation
Xingzhe Su, Daixi Jia, Fengge Wu and Junsuo Zhao (Chinese Academy of Sciences, China); Changwen Zheng (Institute of Software Chinese Academy of Sciences, China)

17:00 GS-SQL: Modeling Spatial Semantics in Spatial Text-To-SQL
Xu Zhang, Feiyang Xiao and Liang Yan (Chongqing University of Posts and Telecommunications, China); Zhiqing Zhang (Chongqing Planning and Natural Resources Information Center, China)

17:20 An AI-Driven Bionic Whisker System Assisting for Clinical Gastrointestinal Disease Screening
Zeyu Wang (Imperial College London, UK (Great Britain)); Frank Po Wen Lo (Imperial College London & ICL, UK (Great Britain)); Junhong Chen and James Raphael Faron Calo (Imperial College London, UK (Great Britain)); Benny Lo (Imperial College, UK (Great Britain)); Alexander Thompson and Eric Yeatman (Imperial College London, UK (Great Britain))

17:40 Masked EEG Modeling for Driving Intention Prediction
Jinzhao Zhou, Justin Sia, Yiqun Duan and Yu-Cheng Chang (University of Technology Sydney, Australia); YuKai Wang (Australian Artificial Intelligence Institute, Australia); Chin-Teng Lin (University of Technology Sydney, Australia)

18:00 Design and Simulation of a Novel Leader-Follower UAV Cluster and Formation Control Network
Jack Devey, Palvir Singh Gill and George Allen (Birmingham City University, UK (Great Britain)); Essa Shahra (Birmingham City University Birmingham, UK, UK (Great Britain)); Wanming Hao (University of Surrey, UK (Great Britain)); De Mi and Adel Aneiba (Birmingham City University, UK (Great Britain)); Moad Idrissi (Birmingham City Univerity, UK (Great Britain))

18:20 Seamless Robot Teleoperation: Intuitive Control Through Hand Gestures and Neural Network Decoding
Shijie Lee (Huazhong University of Science and Technology, China)

16:40 – 18:40
CEC MO3-R10: Discrete and Combinatorial Optimization
Conference: CEC
Room: 414+415
Session Chair(s): Hendrik Richter

16:40 A Q-Learning Hybrid BRKGA Applied to the Knapsack Problem with Forfeits
Gabriel Souto (Federal University of Rio de Janeiro, Brazil); Masayoshi Aritsugi and Israel Mendonca (Kumamoto University, Japan); Pedro Henrique González and Luidi Simonetti (Federal University of Rio de Janeiro, Brazil)

17:00 Synchronous parallel heuristics for solving the joint order batching and picker routing problem
Son Thai Tran and Rui Jorge Almeida (Maastricht University, The Netherlands); Christof Defryn (University of Antwerp, Belgium); Inneke Van Nieuwenhuyse (Hasselt University, Belgium)

17:20 Information flow and Laplacian dynamics on local optima networks
Hendrik Richter (HTWK Leipzig University of Applied Sciences, Germany); Sarah L Thomson (Edinburgh Napier University, UK (Great Britain))

17:40 The Multi-Objective Vehicle Routing Problems with Parcel Lockers for Simultaneous Pick-up and Delivery
Weimin Chen, Yuxin Liu and Jin Liu (Shanghai Maritime University, China)

18:00 Structural Fusion of Bayesian Networks with Limited Treewidth using Genetic Algorithms
Pablo Torrijos (Universidad de Castilla-La Mancha, Spain); Jose Gamez and José Puerta (University of Castilla-La Mancha, Spain)

16:40 – 18:40
CEC MO3-R11: Real-world Applications II
Conference: CEC
Room: 416+417
Session Chair(s): Eric O Scott

16:40 Realistic Tax Planning with Evolutionary Algorithms
Eric O Scott (MITRE, USA); Anmol Srivastava, Abby Pusateri, Andy Taylor and Karen Jones (The MITRE Corporation, USA); Hahnemann Ortiz (University of Minnesota & Internal Revenue Service, USA)

17:00 An Unsupervised Evolutionary Approach for Indian Regional Language Summarization
Jiten Parmar (IIIT Lucknow, India); Naveen Saini (IIIT Allahabad, India); Dhananjoy Dey (India)

17:20 Free-Form Coverage Path Planning of Quadcopter Swarms for Search and Rescue Missions using Multi-Objective Optimization
Lukas Bostelmann-Arp (Otto Von Guericke University Magdeburg, Germany); Christoph Steup (Otto-Von-Guericke University of Magdeburg, Germany); Sanaz Mostaghim (Otto von Guericke University Magdeburg, Germany)

17:40 A Hybrid Approach with BRKGA and Data Mining for the Early/Tardy Scheduling Problem
Israel Mendonca (Kumamoto University, Japan); Tirana Noor Fatyanosa (Brawijaya University, Indonesia); Masayoshi Aritsugi (Kumamoto University, Japan); Pedro Henrique González (Federal University of Rio de Janeiro, Brazil)

18:00 A quality diversity study in EvoDevo processes for engineering design
Edgar Buchanan and Simon Hickinbotham (University of York, UK (Great Britain)); Rahul Dubey (Missouri State University, USA); Imelda Friel (Queens University Belfast, UK (Great Britain)); Andrew Robert Colligan and Mark Price (Queen's University Belfast, UK (Great Britain)); Andy Tyrrell (University of York, UK (Great Britain))

16:40 – 18:40
CEC MO3-R12: Genetic Programming II
Conference: CEC
Room: 418
Session Chair(s): Oscar Cordon

16:40 A Hierarchical Cooperative Genetic Programming for Complex Piecewise Symbolic Regression

Xinan Chen (Xi'an Jiaotong-Liverpool University, China); Wenjie Yi (Shenzhen University, China); Ruibin Bai (University of Nottingham Ningbo, China); Rong Qu (University of Nottingham, UK (Great Britain)); Yaochu Jin (Westlake University, China)

17:00 Semi-stable Periodic Orbits of The Deterministic Chaotic Systems Designed by means of Genetic Programming

Radomil Matousek and Tomas Hulka (Brno University of Technology, Czech Republic); René Lozi (University of Nice-Sophia Antipolis, France); Jakub Kudela (Brno University of Technology, Czech Republic)

17:20 Age-at-death Estimation based on Symbolic Regression Ensemble Learning from Multiple Annotations

Enrique Bermejo, Oscar Cordon, Javier Irurita and Inmaculada Alemán (University of Granada, Spain); Ángel Rubio Salvador (Rovira i Virgili University, Spain)

17:40 Searching Search Spaces: Meta-evolving a Geometric Encoding for Neural Networks

Tarek Kunze (University of Toulouse - ISAE-SUPAERO, France); Paul Templier (University of Toulouse & ISAE-SUPAERO, France); Dennis G Wilson (ISAE-Supaero & University of Toulouse, France)

18:00 Enhanced Genetic Programming Models with Multiple Equations for Accurate Semi-Autogenous Grinding Mill Throughput Prediction

Zahra Ghasemi (The University of Adelaide, Australia); Mehdi Neshat (Centre for Artificial Intelligence Research and Optimisation Torrens University, Australia); Chris Aldrich (Curtin University, Australia); John Karageorgos (Manta Controls Pty Ltd, Australia); Max Zanin, Frank Neumann and Lei Chen (The University of Adelaide, Australia)

16:40 – 18:40
CEC MO3-R13: Evolutionary Multi-objective Algorithms III
Conference: CEC
Room: 419
Session Chair(s): Haoran Gu

16:40 A Time Window Sequence-Based Evolutionary Algorithm for Solving Large-Scale Daily Task Planning Problems

Peng Wu (Chinese Academy of Science, China); Shuai Shao (Anhui University, China)

17:00 Test Suites and Performance of Algorithms in Large-Scale Multiobjective Evolutionary Optimization

Haoran Gu, Handing Wang and Jingjing Ma (Xidian University, China)

17:20 An Analysis of the Preferences of Distribution Indicators in Evolutionary Multi-Objective Optimization

Jesús Guillermo Falcón-Cardona (Tecnologico de Monterrey, Mexico); Mahboubeh Nezhadmoghaddam (Tecnológico de Monterrey, Mexico); Emilio Bernal-Zubieta (Tecnologico de Monterrey, Mexico)

17:40 Performance Evaluation of Evolutionary Multi-Objective Algorithms using Real-World Problems with an Additional Total Constraint Violation Objective

Yang Nan and Hisao Ishibuchi (Southern University of Science and Technology, China); Tianye Shu (Southern University of Science and Techinology, China)

18:00 Last-X-Generation Archiving Strategy for Multi-Objective Evolutionary Algorithms

Tianye Shu (Southern University of Science and Techinology, China); Yang Nan, Ke Shang and Hisao Ishibuchi (Southern University of Science and Technology, China)

16:40 – 18:40
FUZZ MO3-R15: SS: Fuzzy Interpolation
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Qiang Shen

16:40 Arbitrary Convergence Time Control for Aerial Manipulator with TSK Estimator
Yanjie Chen (Fuzhou University, UK (Great Britain) & Aberystwyth University, UK (Great Britain)); Xincheng Liu (Fuzhou University, China); Changjing Shang (Aberystwyth University, UK (Great Britain)); Jianhui Chen (Fuzhou University, China); Xiang Chang (Aberystwyth University, UK (Great Britain)); Fei Chao (Xiamen University, China & Aberystwyth University, UK (Great Britain)); Yaonan Wang (Hunan University, China)

17:00 Fuzzy Rule Base Simplification via Conflict Resolution by Aggregating Rule Consequents

Ruilin Xu, Changjing Shang, Jinle Lin and Mou Zhou (Aberystwyth University, UK (Great Britain));
Yanjie Chen (Fuzhou University, UK (Great Britain) & Aberystwyth University, UK (Great Britain));
Qiang Shen (Aberystwyth University, UK (Great Britain))

17:20 Towards A Clustering Guided Rule Interpolation for ANFIS Construction

Jing Yang (Shanxi University, China); Tianhua Chen (University of Huddersfield, UK (Great Britain));
Lu Chen and Jianbin Zhao (Shanxi University, China)

17:40 Mitigating Saturation in Fuzzy-Flip-Flop Neural Networks Trained with Memetic PSO Algorithm

Piotr A. Kowalski (AGH University of Science and Technology, Poland); Tomasz Sloczynski (AGH University of Krakow, Poland)

18:00 Fuzzy Rule Interpolation with A General Representation of Fuzzy Sets

Yanpeng Qu and Jiaxing Wu (Dalian Maritime University, China); Zhanwen Wu and Longzhi Yang (Northumbria University, UK (Great Britain))

16:40 – 18:40
FUZZ MO3-R16: J2C (SS: Interval Uncertainty)/Mathematical and theoretical foundations/Optimization and operations research
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Zahra Alijani

16:40 The Fractional-Fuzzy Extension of Dynamic Diffusion Processes in Human Body
Zahra Alijani (University of Ostrava, Czech Republic); Babak Shiri (Neijiang Normal University, China); Irina Perfilieva (University of Ostrava, Czech Republic); Dumitru Baleanu (Cankaya University, Turkey)

17:00 Mixed Aleatory and Epistemic Uncertainty Propagation using Dempster-Shafer Theory
Yanyan He (University of North Texas, USA); Yousuff Hussaini (Florida State University, USA)

17:20 Enhancing Fuzzy Decision-Making Models with an Extended Interval-Valued Comparison
Elissa Nadia Madi and Azwa Abdul Aziz (Universiti Sultan Zainal Abidin, Malaysia)

17:40 Recoverable Possibilistic Linear Programming
Adam Kasperski and Pawel Zielinski (Wroclaw University of Science and Technology, Poland)

18:00 A Two-Stage Plan-and-Allocate Algorithm for Operation Room Scheduling Problem with Uncertainties
Huayan Zhang (University of Nottingham Ningbo China, China); Ruibin Bai (University of Nottingham Ningbo, China); Jiawei Li and Chenwei Jin (University of Nottingham Ningbo China, China)

18:20 The Extension Principle for Angular Domains and its Application to Spatial Relations
Brendan M. Young (University of Missouri, USA); Derek Anderson (University of Missouri-Columbia, Thailand); James Keller (University of Missouri, USA); Fred Petry and Chris Michael (United States Naval Research Lab, USA)

18:50 – 20:30
Virtual: Neural Networks for Recommendations 1
Conference: IJCNN
Room: Zoom 1
Session Chair(s):

18:50 PRDG: Personalized Recommendation with Diversity Based on Graph Neural Networks
Fengying Li, Hong Li and Rongsheng Dong (Guilin University of Electronic Technology)

19:10 Sequential Patterns Unveiled: A Novel Hypergraph Convolution Approach for Dynamic User Preference Analysis
Zekai Wen, Xiubo Liang and Hongzhi Wang (Zhejiang University, China); Mengjian Li (Zhejiang Lab, China); Zhimeng Zhang (Zhejiang University, China)

19:30 Is Encoded Popularity Always Harmful? Explicit Debiasing with Augmentation for Contrastive Collaborative Filtering
Guanming Chen (Beihang University, China); Wenwen Qiang (Institute of Software Chinese Academy of Sciences, China); Yuanxin Ouyang, Chuantao Yin and Zhang Xiong (Beihang University, China)

19:50 Attribute-Enhanced Hypergraph Neural Networks for Session-Based Recommendation
Xiaobing Li, Yan Tang, Caijie Guo and Peihao Ding (Southwest University, China)

20:10 Graph Self-Attention Residual Connection Neural Network for Session-Based Recommendation
Senpeng Chen and Wenhong Wei (Dongguan University of Technology, China)

18:50 – 20:30
Virtual: Neural Networks for Recommendations 2
Conference: IJCNN
Room: Zoom 2
Session Chair(s):

18:50 Time-Aware Self-Attention Meets Logic Reasoning in Recommender Systems
Zhijian Luo, Zihan Huang, Jiahui Tang, Yueen Hou and Yanzeng Gao (Jiaying University, China)

19:10 Enhanced Self-Supervised Graph Learning Algorithm for Social Recommendation
Zhongshan Liu and Li Zhang (Soochow University, China)

19:30 Long and Short-Term User Intent Learning for Sequence Recommendation
Zhiwei Zhang, Fuzhen Sun, Pengcheng Li, Wenxuan Zhang and Shaoqing Wang (Shandong University of Technology, China); Tianhui Wu (Beijing Earthquake Agency, China)

19:50 Dependency-Aware Method Naming Framework with Generative Adversarial Sampling
Chenjie Shen (Chinese Academy of Sciences, China); Jie Zhu, Lei Yu and Li Yang (Institute of Software Chinese Academy of Sciences, China); Chun Zuo (Sinosoft Company Limited, China)

20:10 Analyzing the Impact of Domain Similarity: A New Perspective in Cross-Domain Recommendation
Ajay Krishna Vajjala, Arun Krishna Vajjala, Ziwei Zhu and David S. Rosenblum (George Mason University, USA)

18:50 – 20:30
Virtual: Transformers 4
Conference: IJCNN
Room: Zoom 3
Session Chair(s):

18:50 Substructure-Augmented Graph Transformer for Network Representation Learning
Hu Zhang, Shanshan Yang, Guangjun Zhang and Kunrui Li (Shanxi University, China)

19:10 ShapeFormer: Shape Prior Visible-To-Amodal Transformer-Based Amodal Instance Segmentation
Minh Tran, Winston Bounsavy and Khoa Vo (University of Arkansas, USA); Anh Nguyen (University of Liverpool, UK (Great Britain)); Tri Nguyen (Cruise, USA); Ngan Le (University of Arkansas, USA)

19:30 DTBNet: Medical Image Segmentation Model Based on Dual Transformer Bridge
Kequan Chen and Yuli Wang (Qilu University of Technology（ShanDong Academy of Sciences）, China); Jinyong Cheng (Qilu University of Technology, China)

19:50 Data Augmentation with Knowledge Graph-To-Text and Virtual Adversary for Specialized-Domain Chinese NER

Siying Hu (China University of Petroleum, Beijing, China); Zhiguang Wang (China University of Petroleum, China); Bingbin Zhang and Tian Wang (China University of Petroleum Beijing, China); Zhiqiang Liu (China University of Petroleum, Beijing, China); Qiang Lu (China University of Petroleum, China)

20:10 Convolution-Enhanced Transformer with Frequency Domain Contrastive Learning for Image Deraining

Cheng Wang and Wei Li (Jiangnan University, China)

18:50 – 20:30
Virtual: Neural Networks for Natural Language Processing 4
Conference: IJCNN
Room: Zoom 4
Session Chair(s):

18:50 Pre-Training Language Model for Mongolian with Agglutinative Linguistic Knowledge Injection

Muhan Na and Rui Liu (Inner Mongolian University, China); Feilong Bao and Guanglai Gao (Inner Mongolia University, China)

19:10 Disentangling Specificity for Abstractive Multi-Document Summarization

Congbo Ma (Macquarie University, Australia); Wei Zhang, Hu Wang and Haojie Zhuang (The University of Adelaide, Australia); Mingyu Guo (University of Adelaide, Australia)

19:30 Dialogue Act Recognition Based on Self-Supervised Act Denoising

Haitao Gui and Zhongqing Wang (Soochow University, China)

19:50 Knowledge-Injected Stepwise Reasoning on Complex KBQA

Xinyu Hu (Sun Yat-Sen University, China); Jian Yang (Xidian University, China); Gang Xiao (National Key Laboratory for Complex Systems Simulation, China)

20:10 Entity and Evidence Guided Attention for Document-Level Relation Extraction

Yi Yu, Dongsheng Zou, YuMing Yang, Xinyi Song and Hao Wang (Chongqing University, China); Bi Zhao (ChongQing University, China)

18:50 – 20:30
Virtual: Reinforcement Learning 4
Conference: IJCNN
Room: Zoom 5
Session Chair(s):

18:50 Safety-Guided Deep Reinforcement Learning for Path Planning of Autonomous Mobile Robots

Zhuoru Yu (Dalian University of Technology & Southeast University, China); Yaqing Hou, Qiang Zhang and Qian Liu (Dalian University of Technology, China)

19:10 Heterogeneous Observation Aggregation Network for Multi-Agent Reinforcement Learning

Tianyi Hu (Chinese Academy of Sciences, China); Xiaolin Ai (Institute of Automation Chinese Academy of Sciences Beijing, China); Zhiqiang Pu (Institute of Automation Chinese Academy of Sciences, China); Tenghai Qiu and Jianqiang Yi (Chinese Academy of Sciences, China)

19:30 TaCoD: Tasks-Commonality-Aware World in Meta Reinforcement Learning

Xuantang Xiong (China); Shuang Xu (The Institute of Automation of the Chinese Academy of Sciences, China); Bo Xu (Institute of Automation, Chinese Academy of Sciences, China)

19:50 APC: Predict Global Representation from Local Observation in Multi-Agent Reinforcement Learning

Xiaoyang Li (University of Science and Technology of China, China); Guohua Yang and Dawei Zhang (Qiyuan Lab, China); Jianhua Tao (Tsinghua University, China)

20:10 Improved Communication and Collision-Avoidance in Dynamic Multi-Agent Path Finding

Jing Xie (National Innovation Institute of Defense Technology, China); Yongjun Zhang (National University of Defense Technology, China); Qianying Ouyang (Intelligent Game and Decision Lab, China); Huanhuan Yang, Fang Dong and Dian-xi Shi (National University of Defense Technology, China); Songchang Jin (Intelligent Game and Decision Lab, China)

18:50 – 20:30
Virtual: Neural Networks for Time Series Data 1
Conference: IJCNN
Room: Zoom 6
Session Chair(s):

18:50 A Place Cell Model for Spatio-Temporal Navigation Learning with LSTM

Thiago Medeiros and Alfredo Weitzenfeld (University of South Florida, USA)

19:10 Multivariate Long Sequence Time Series Forecasting Based on Robust Spatiotemporal Attention

Dandan Zhang, Zhiqiang Zhang and Yun Wang (Southeast University, China)

19:30 A Causal Stacking Hidden Markov Model for Time Series Forecasting

Hui Niu (Tsinghua University, China); Xinheng Li (China University of Geosciences, China); Jian Li (Tsinghua University, China)

19:50 Unlocking the Potential of Convolutional Dynamics: A Novel Approach to Time Series Forecasting

Xin Li, Jun Yu, XiaoDan Wei and Lijun Liu (Dalian MinZu University, China)

20:10 Pioneering Industrial Anomaly Detection with a Hierarchical LSTM-Rola Framework

Dingyu Chen (BUPT, China); Shaohua Liu (Beijing University of Posts and Telecommunications, China); Le Yuan (BUPT, China)

18:50 – 20:30
Virtual: Neural Networks for Image Processing 7
Conference: IJCNN
Room: Zoom 7
Session Chair(s): Elene Firmeza Ohata

18:50 Estimating Anthropometric Measurements Through 2D Images Using Machine Learning with Gender-Based Analysis

João Wellington Mendes de Souza and Elene Firmeza Ohata (Federal University of Ceara, Brazil); Navar M M Nascimento (Instituto Federal Do Ceará, Brazil); Shara Shami A Alves (Universidade Federal Do Ceará, Brazil); Luiz Lannes Loureiro, Victor Z Bittencourt and Valden L. M. Capistrano Junior (Instituto Federal Do Ceará, Brazil); Atslands R. Rocha (Federal University of Ceará, Brazil); Pedro Pedrosa Rebouças Filho (IFCE, Brazil)

19:10 Binocular Disparity Unveils the Mechanisms of Stereo Feature Selectivity: Orientation and Motion

Bin Li and Yuki Todo (Kanazawa University, Japan); Zheng Tang (University of Toyama, Japan); Cheng Tang (Kyushu University, Japan)

19:30 G-YOLOv5: A Face Mask Detector That Balances Effectiveness and Real-Time
Rong Ye (XinJiang University, China); Mayire Ibrayim (Xinjiang University, China); Askar Hamdulla (Xinjiang University of China, China)

19:50 MMFI-Net: Multilevel Multimodal Feature Injection Network for Infrared and Visible Image Fusion
Rundong Du, Jinyong Cheng, Huixuan Zhao and Ying Guo (Qilu University of Technology (Shandong Academy of Sciences), China)

18:50 – 20:30
Virtual: Neural Networks for Image Processing 8
Conference: IJCNN
Room: Zoom 8
Session Chair(s): Tao Hu

18:50 HL-HDR: Multi-Exposure High Dynamic Range Reconstruction with High-Low Frequency Decomposition
Xiang Zhang, Genggeng Chen and Tao Hu (Xi'an University of Architecture and Technology, China); Kangzhen Yang (Northwestern Polytechnical University, China); Fan Zhang (Xi'an University of Architecture and Technology, China); Qingsen Yan (Northwestern Polytechnical University, China)

19:10 SAMPose: Multi-Person Pose Estimation Based on Segment Anything Model
Jiechen Li, Ruoshan Kong and Feng Liu (Wuhan University, China)

19:30 A Brain-Inspired Method for Occluded 3D Object Recognition
Zining Wan (Communication University of China, China); Jiahong Zhang (Chinese Academy of Sciences Institute of Automation, China); Lihong Cao (Communication University of China, China)

19:50 FML-Net: Enhancing Real-Time Defect Detection Network with Data Feature Memory Learning and Attention Asymmetric Large Kernel
Liang Huang and Shen Qiongxia (Huazhong University of Science and Technology, China); Yanlie Zheng (China); Yang You (Huazhong University of Science and Technology, China)

20:10 Comprehensive Criterion-Guided Variable Memory Bank for Semi-Supervised Object Detection
Yaokun Yang, Ziyuan Yang, Peng Wang and Yi Zhang (Sichuan University, China)

18:50 – 20:30
Virtual: Neural Networks for Medical Data Processing 4
Conference: IJCNN
Room: Zoom 9
Session Chair(s):

18:50 WaveFormer: A Wavelet Transformer for Parkinson Disease's Retinal Layer Segmentation in OCT
Yanlin Chen, Xiaoqing Zhang and Tianao Wang (Southern University of Science and Technology, China); Chen Tang (Wenzhou Medical University, China); Haili Ye and Jiang Liu (Southern University of Science and Technology, China)

19:10 SlideMLP: A Pure Multi-Layer Perceptrons Method for Medical Image Segmentation
Chaoqi Han, Bingcai Chen and Chanjuan Liu (Dalian University of Technology, China); Qian Ning (Sichuan University, China); Victor C.M. Leung (Shenzhen University, China & The University of British Columbia, Canada); Shouzhen Jiao and Qing Liu (Dalian University of Technology, China)

19:30 DualPSNet: A Discrepant-Annotations-Driven Framework for Medical Image Segmentation from Dual-Polygon Supervision
Rongjie Tang, Lei Zhang and Lituan Wang (Sichuan University, China)

19:50 EDSNet: A Deep Supervision-Based Classification Framework for Non-Standard Medical Images of Lung Cancer
Ziming Lin (South China Normal University, China); Zekai Huang (Guangdong Medical University, China); Chengchuang Lin, Zhaoliang Zheng and Youqun Wang (South China Normal University, China); Hongwei Lin (Guangdong Medical University, China); Zhao Gansen (South China Normal University, China); Haiyu Zhou (Guangdong Medical University, China)

20:10 A Privacy-Preserving Brainprint Recognition System Based on Feature Homomorphic Encryption
Yiming Zhang, Hangjie Yi and Wanzeng Kong (Hangzhou Dianzi University, China)

18:50 – 20:30
Virtual: Deep Learning for Graphs 7
Conference: IJCNN
Room: Zoom 10
Session Chair(s): Luigi Galluccio

18:50 Enhanced Causal Reasoning and Graph Networks for Multi-Agent Path Finding
Dongming Zhou and Zhengbin Pang (National University of Defense Technology, China); Wei Li (Guangxi University, China)

19:10 Clarified Aggregation and Predictive Modeling (CAPM): High-Interpretability Framework for Inductive Link Prediction
Mengxi Xiao, Ben Liu, Miao Peng, Wenjie Xu and Min Peng (Wuhan University, China)

19:30 Advancing EEG-Based Emotion Recognition: Unleashing the Power of Graph Neural Networks for Dynamic and Topology-Aware Models
Luigi Galluccio (University of Naples Parthenope, Italy); Lorenzo D'Errico (Università degli Studi di Napoli Federico II, Italy); Maurizio Giordano (Istituto di Calcolo e Reti ad Alte Prestazioni - CNR, Italy); Mariacarla Staffa (University of Naples Parthenope, Italy)

19:50 SGCA: Signed Graph Contrastive Learning with Adaptive Augmentation
Yijie Qi (Sun Yat-Sen University & School of Computing, China); Erxin Du and Lin Shu (Sun Yat-Sen University, China); Chuan Chen (School of Data and Computer Science, Sun Yat-sen University, China)

20:10 HGT: Transformer Architecture for Arbitrary Hypergraphs Based on P-Laplacian
Jian Chen, Yibo Wang and Deming Zhang (Peking University, China)

18:50 – 20:30
Virtual: Deep Learning for Graphs 8
Conference: IJCNN
Room: Zoom 11
Session Chair(s): Daniele Castellana

18:50 Lying Graph Convolution: Learning to Lie for Node Classification Tasks
Daniele Castellana (Università degli Studi di Firenze, Italy)

19:10 TRGNN: Text-Rich Graph Neural Network for Few-Shot Document Filtering
Hongzhang Mu and Shuili Zhang (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China); Hongbo Xu (Chinese Academy of Sciences, China)

19:30 Enhancing Multi-Label Text Classification by Incorporating Label Dependency to Handle Imbalanced Data

Lihu Pan and Xiaohua Li (Taiyuan University of Science and Technology, China); Zhengkui Wang (Singapore Institute of Technology, Singapore); Rui Zhang and Nan Yang (Taiyuan University of Science and Technology, China); Shan Wen (Singapore University of Social Sciences, Singapore)

19:50 Multi-View Semi-Supervised Feature Selection with Graph Convolutional Networks

Zihao Xu and Chenglong Zhang (Hangzhou Normal University, China); Zhaolong Ling and Peng Zhou (Anhui University, China); Yan Zhong (Peking University, China); Li Li (Guilin University of Electronic Technology, China); Han Zhang (Northwestern Polytechnical University, China); Weiguo Sheng and Bingbing Jiang (Hangzhou Normal University, China)

20:10 SACL: Siamese Adaptive Contrastive Learning for Recommendation

Shikang Bao, Zhuang Liu, Chen Li, Jianfei Zhang, Guanming Chen, Yuanxin Ouyang and Wenge Rong (Beihang University, China)

18:50 – 20:30
Virtual: Continual Learning 1
Conference: IJCNN
Room: Zoom 12
Session Chair(s):

18:50 ARVP: Adversarial Reprogramming Visual Prompts for Class-Incremental Learning
Shuping Liu and Wei Li (Jiangnan University, China)

19:10 High-Level Attention Meta-Learner for Class Incremental Learning
Yingjian Tian, Hongbo Wang, Xuhong Chen and Yuanhao Li (Beijing University of Posts and Telecommunications, China)

19:30 Few-Shot Class-Incremental Learning with Class Centers and Contrastive Learning for Incremental Vehicle Recognition
Huiyu Yi (Nanjing University, China)

19:50 Online Class-Incremental Continual Learning with Maximum Entropy Memory Update
Guanglu Wang, Xinyue Liu, Wenxin Liang, Linlin Zong and Xianchao Zhang (Dalian University of Technology, China)

20:10 Towards Robustness and Diversity: Continual Learning in Dialog Generation with Text-Mixup and Batch Nuclear-Norm Maximization
Zihan Wang (China Telecom Corporation Ltd., China); Jiayu Xiao (University of Chinese Academy of Sciences, China); Mengxiang Li, Zhongjiang He and Yongxiang Li (China Telecom Corporation Ltd., China); Chao Wang and Shuangyong Song (China Telecom, China)

18:50 – 20:30
Virtual: Neural Networks for Signal Processing 1
Conference: IJCNN
Room: Zoom 13
Session Chair(s): Jingyi Cao

18:50 Cross-Domain Activity Recognition Based on Stacked Transfer Network

Junhuai Li (Xi'an University of Technology, China); Jingyi Cao and Yuxing Zhi (Xian University of Technology, China); Wang Huaijun (Xi'an University of Technology, China); Ting Cao (Xian University of Technology, China); Rong Fei (Xi'an University of Technology, China)

19:10 MLTL: Manifold-Based Long-Term Learning for Indoor Positioning Using WiFi Fingerprinting

Yifan Yang, Mahmood Azimi-Sadjadi, Saideep Tiku and Sudeep Pasricha (Colorado State University, USA)

19:30 Single-Channel EEG Classification of Human Attention with Two-Branch Multiscale CNN and Transformer Model

Xujie Zhao (Technical University of Munich, Germany); Junjie Lu, Jianhui Zhao and Zhiyong Yuan (Wuhan University, China)

19:50 A DAS Signal Events Recognition Method Based on 1DCNNs-gMLP

Wanchang Jiang and Zhenxiao Sun (Northeast Electric Power University, China)

20:10 Integrating Physiological Signals with Dynamical Attention Networks for Personality Trait Analysis

Deepak Kumar, Pradeep Singh, Richa Richa and Kishore Babu Nampalle (Indian Institute of Technology Roorkee, India); Balasubramanian Raman (Indian Institute of Technology (IIT) Roorkee, India)

18:50 – 20:30
Virtual: Neural Network-Based Methods for Human-Centric Perception and Understanding 1
Conference: IJCNN
Room: Zoom 14
Session Chair(s):

18:50 Dual-Dimensional Adversarial Attacks: A Novel Spatial and Temporal Attack Strategy for Multi-Object Tracking
Weilong Zhang, Fang Yang and Zhao Guan (Hebei University, China)

19:10 Infrared and Visible Image Fusion with Dual Decomposition Features
Kaijun Wu, Haowen Wang, Xiaofeng Bai, Yan Cao and Bin Tian (Lanzhou Jiaotong University, China)

19:30 Image Inpainting Network Combining Multi- Granularity Discrimination and U-Transformer
Yun Wei, Lulu Wang, Kaijun Wu and Hongquan Shan (Lanzhou Jiaotong University, China)

19:50 Controllable Style Transfer of Ink Painting Textures via Contrastive Learning
Yan Cao, Yi Zhang, Kaijun Wu and Yingjie Lin (Lanzhou Jiaotong University, China)

20:10 ATCE: Adaptive Temporal Context Exploitation for Weakly-Supervised Temporal Action Localization
Jiantao Yang, Sheng Liu, Yuan Feng, Xiaopeng Tian, Yineng Zhang and Songqi Pan (Zhejiang University of Technology, China)

18:50 – 20:30
Virtual: Machine Learning and Signal Processing for Brain or Behavioral Analysis 1
Conference: IJCNN
Room: Zoom 15
Session Chair(s):

18:50 Adaptive Sparse Learning Based on Flexible Graph Embedding for Parkinson's Disease Diagnosis
Zhongwei Huang, Jianqiang Li, Jiatao Yang and Ran Zhou (Hubei University of Technology, China); Jun Wan (Zhongnan University of Economics and Law, China); Haitao Gan (Hubei University of Technology, China)

19:10 Contrastive Pre-Training of Soft-Clustering GCN for Diagnosing Alzheimer's Disease
Sihui Ge, Zhi Yang, Haitao Gan, Zhongwei Huang, Ran Zhou and Ji Wang (Hubei University of Technology, China)

19:30 Coordinate Attention Based 3D-CNN Using Ghost Multi-Scale for Diagnosing Alzheimer's Disease

Xiaolu Lin and Pinya Lu (Fujian Normal University, China); Jie Pan (Xiamen Jingyi Zhikang Technology Co. Ltd., China)

19:50 Coordinate Attention Based 3D-CNN Using Ghost Multi-Scale for Diagnosing Alzheimer's Disease

Xiaolu Lin and Pinya Lu (Fujian Normal University, China); Jie Pan (Xiamen Jingyi Zhikang Technology Co. Ltd., China); Hongqin Yang and Xuemei Ding (Fujian Normal University, China)

18:50 – 20:30
Virtual: Explainable AI 1
Conference: IJCNN
Room: Zoom 16
Session Chair(s):

18:50 Explaining Random Forests as Single Decision Trees Through Distance Functional Optimization
Zihao Li, Xiao Du, Tieru Wu and Yang Cao (Jilin University, China)

19:10 ESC: Explaining the Predictions of Deep Neural Networks via Concept Similarity
Lijun Gao, Suran Wang, Wenwen Gu, Zeyang Sun, Xiao Jin and Youzhi Zhang (Shenyang Aerospace University, China)

19:30 ISANE: An Interpretable Real-Time News Event Evaluation Stock Prediction Model
Weihong Wang and Zhixiao Yan (Zhejiang University of Technology, China); Zuxin Wang (Universiti Putra Malaysia, Malaysia); Cheng Zhao (Zhejiang University of Technology, China)

19:50 Generating Explanations for Model Incorrect Decisions via Hierarchical Optimization of Conceptual Sensitivity
Lijun Gao, Zeyang Sun, Jiaxin Yan, Suran Wang, Youzhi Zhang and Xiao Jin (Shenyang Aerospace University, China)

20:10 Uncertainty-Aware Explainable Recommendation with Large Language Models
Yi Cui Peng and Hao Chen (Chengdu University of Information Technology, China); Ching Sheng Lin (Tunghai University, Taiwan); Guo Huang (Leshan Normal University, China); Jin Rong Hu (Chengdu University of Information Technology, China); Hui Guo (University at Buffalo, USA); Bin Kong (Meta Platforms, USA); Shu Hu (Purdue University, USA); Xi Wu (Chengdu University of Information Technology, China); Xin Wang (University at Albany SUNY, USA)

18:50 – 20:30
Virtual: Learning from Small Data: Techniques and Applications 3
Conference: IJCNN
Room: Zoom 17
Session Chair(s):

18:50 Empowering Multiclass Classification and Data Augmentation of Arabic News Articles Through Transformer Model

Jahanggir Hossain Setu and Nabarun Halder (Independent University Bangladesh, Bangladesh); Sankar Sikder (University of Louisiana at Lafayette, USA); Ashraful Islam (Independent University Bangladesh & Center for Computational and Data Sciences, Bangladesh); Md Zahangir Alam (Independent University, Bangladesh)

19:10 A Fast Multi-Level Co-Location Pattern Mining Approach Based on Extended Maximal Cliques

JinJia Dai, LiJin Tang, Lizhen Wang, Lihua Zhou and Hongmei Chen (Yunnan University, China)

19:30 Data Augmentation in Class-Conditional Diffusion Model for Semi-Supervised Medical Image Segmentation

Jiaying Zhang, Guibo Luo, Zi'ang Zhang and Yuesheng Zhu (Peking University, China)

19:50 Retrieval-Augmented Meta Learning for Low-Resource Text Classification

Rongsheng Li, Yangning Li, Yinghui Li and Chaiyut Luoyiching (Tsinghua University, China); Nannan Zhou and Hanjing Su (Tencent, China); Haitao Zheng (Tsinghua University, China)

18:50 – 20:30
Virtual: Intelligent Vehicles and Transportation Systems 1
Conference: IJCNN
Room: Zoom 18
Session Chair(s):

18:50 Continuous Geodesic Self-Attention Models with Gated Fusion for Trajectory Prediction
Kexin Ke and Zhengyu Li (East China Normal University, China); Huining Chen (Xi'an Jiaotong-Liverpool University, China); Hao Wang (East China Normal University, China); Xian Wei (Technische Universität München, Germany); Jian Yang (Information Engineering University, China); Xuan Tang (East China Normal University, China)

19:10 A Viewpoint-Aware Channel Selection Method for Vehicle Re-Identification
Yihao Xu (BeiJing JiaoTong University, China); Youfang Lin, Shuai Han and Kai Lv (Beijing Jiaotong University, China)

19:30 Trasnet: A Lightweighting Spatio-Temporal Attention Network for Traffic Flow Prediction
Minghao Li (North China University of Technology BeiJing, China); Xuxiang Ta (Beihang University, China); Chao Chen (School of Software Beihang University, China)

19:50 DSA-SCGC: A Dual Self-Attention Mechanism Based on Space-Channel Grouped Compression for Vehicle Re-Identification
Yuejun Jiao, Song Qiu and Li Sun (East China Normal University, China); Dingding Han (Fudan University, China); Qingli Li and Mingsong Chen (East China Normal University, China)

20:10 DeliverAI: Reinforcement Learning Based Distributed Path-Sharing Network for Food Deliveries
Ashman Mehra (Birla Institute of Technology and Science, Goa, India); Snehanshu Saha (APPCAIR, BITS Pilani K. K. Birla Goa Campus & Center for AstroInformatics, Modeling and Simulation, India); Vaskar Raychoudhury (Miami University, USA); Archana Mathur (Nitte Meenakshi Institute of Technology, India)

18:50 – 20:30
Virtual: Deep Edge Intelligence 1
Conference: IJCNN
Room: Zoom 19
Session Chair(s): Marcus Rüb

18:50 Advancing On-Device Neural Network Training with TinyPropv2: Dynamic, Sparse, and Efficient Backpropagation
Marcus Rüb (Hahn-Schickard, Germany); Axel Sikora (University of Applied Sciences Offenburg, Germany); Daniel Mueller-Gritschneder (Technische Universitaet Muenchen, Germany)

19:10 An Accurate and Lightweight Intrusion Detection Model Deployed on Edge Network Devices
Yu Ao, Jun Tao, Dikai Zou, Weice Sun and Linxiao Yu (Southeast University, China)

19:30 Distributed Machine Learning with Electric Vehicles in Parking Lots
Weijun Bai, Juncheng Jia and Tao Deng (Soochow University, China); Mianxiong Dong (Muroran Institute of Technology, Japan)

19:50 Democratic Learning: A Distributed Machine Learning Framework with Collaborative Voting and Model Pruning for Privacy and Security
Mingyang Lv, Hong Zhang and Miao Wang (Hebei University, China); Liqiang Wang (University of Central Florida, USA); Peng Wu (Hebei University, China)

20:10 Soon Filter: Advancing Tiny Neural Architectures for High Throughput Edge Inference

Alan T. L. Bacellar (Federal University of Rio de Janeiro, Brazil); Zachary Susskind (The University of Texas at Austin, USA); Maurício Breternitz Jr. (Instituto Universitário de Lisboa ISCTE-IUL ISTAR, Portugal); Lizy K John (The University of Texas at Austin, USA); Felipe M. G. França (University of Porto, Portugal); Priscila M. V. Lima (Federal University of Rio de Janeiro, Brazil)

18:50 – 20:30
Virtual: Representation Learning for Multi-Modal Data 3
Conference: IJCNN
Room: Zoom 20
Session Chair(s):

18:50 Exploring Hierachical Neighbor Information Interaction for Few-Shot Knowledge Graph Completion

ZiHao Li, Lin Feng, Lingxiao Xu, Qiuping Shuai and Ling Yue (Sichuan Normal University, China)

19:10 Semantic Reconstruction Guided Missing Cross-Modal Hashing

Yafang Li, Chaoqun Zheng, Ruifan Zuo and Wenpeng Lu (Qilu University of Technology, China)

19:30 A Multimodal Correlation and Interaction-Based Method for Cyberbullying Detection

Lin Zhu, Xiaoyu Sean Lu, Rui Zhang and Bo Huang (Nanjing University of Science and Technology, China)

19:50 Multi-Task Prompt Words Learning for Social Media Content Generation

Haochen Xue (University of Liverpool, China); Chong Zhang (Xi 'an Jiaotong-Liverpool University & University of Liverpool, China); Chengzhi Liu (Xian Jiaotong Liverpool University, China); Fangyu Wu (XJTLU, China); Xiaobo Jin (Xian Jiaotong-Liverpool University, China)

20:10 Multi-Modal Fake News Detection Based on Image Captions

Yadong Gu (Xinjiang University, China)

18:50 – 20:30
Virtual: A Human-Centric Perspective of Explainability, Interpretability and Resilience in Computer Vision 1
Conference: IJCNN
Room: Zoom 21
Session Chair(s):

18:50 Self-Training with Contrastive Learning for Adversarial Domain Adaptation
Shanshan Wang, Minbin Hu and Xingyi Zhang (Anhui University, China)

19:10 Realight-NeRF: Modeling Realistic Lighting and Optimizing Environment Light Capture in Scenes
Kai Li (Wuhan University of Technology, China); Chengming Zou (Wuhan University of Technology Pengcheng National Laboratory, China)

19:30 Lightweight Super-Resolution for Chinese Scene Images Incorporating Textual Semantic Priors
Zhouxin Lu, Ben Wang and Shuifa Sun (Hangzhou Normal University, China); Yongheng Tang (China Three Gorges University, China)

19:50 Attn-VAE-GAN: Text-Driven High-Fidelity Image Generation Model with Deep Fusion of Self-Attention and Variational Autoencoder
Chen Yang (Chongqing Three Gorges College, China)

20:10 Transparent Projection Networks for Interpretable Image Recognition
Zhao Yang, Chao Zhang, Chunlin Chen and Huaxiong Li (Nanjing University, China)

18:50 – 20:30
Virtual: Human-Machine Interaction 1
Conference: IJCNN
Room: Zoom 22
Session Chair(s): Haoxiang Su

18:50 Graph-Based Dynamic Domain Selection for Dialogue State Tracking
Shuangyong Song (China Telecom, China); Jinwei Zhang and Hao Huang (Xinjiang University, China); Hongyan Xie (JD AI Research, China); Haoxiang Su (Xinjiang University, China); Mengxiang Li, Zhongjiang He, Yongxiang Li and Ruiyu Fang (China Telecom Corporation Ltd., China)

19:10 Improving Pointer Network Based Dialogue State Tracking via Dual Hierarchical Selective Augmentation
Shuangyong Song (China Telecom, China); Hongyan Xie (JD AI Research, China); Haoxiang Su and Hao Huang (Xinjiang University, China); Mengxiang Li, Zhongjiang He, Yongxiang Li and Ruiyu Fang (China Telecom Corporation Ltd., China)

19:30 Mitigating Knowledge Conflicts in Data-To-Text Generation via the Internalization of Fact Extraction

Xianjie Mo (Institute of Computing Technology, China); Yang Xiang, Youcheng Pan and Yongshuai Hou (Peng Cheng Laboratory, China); Ping Luo (Institute of Computing Technology, China)

19:50 MMCasN: Macroscopic and Microscopic Properties Fusion for Predicting Information Cascades

Hongyun Cai, Chuan Feng, Ao Zhao and Xun Li (Hebei University, China)

20:10 Privacy-Preserving Deep Reinforcement Learning Based on Differential Privacy

Wenxu Zhao and Yingpeng Sang (Sun Yat-Sen University, China); Neal Xiong (Sul Ross State University, USA); Hui Tian (Griffith University, Australia)

18:50 – 20:30
Virtual: Applied Artificial Intelligence for Reliable and Trustworthy Medical Decision-Making Systems 1
Conference: IJCNN
Room: Zoom 23
Session Chair(s): Adi Suleiman El-Dalahmeh

18:50 ClearKD: Clear Knowledge Distillation for Medical Image Classification

Xinlei Huang and Ning Jiang (Southwest University of Science and Technology, China); Jialiang Tang (School of Computer Science and Engineering, Nanjing University of Science and Technology, China)

19:10 BP-STFNet: A Hybrid Time-Frequency Domain Neural Network for Blood Pressure Estimation from Multi-Channel BCG Signals

Kaige Huai and Zhicheng Zhou (University of Science and Technology of China, China); Hong Sun (Jiaxing University, China); Xianchao Zhang (JiaXing University, China)

19:30 Dynamic Modeling of Patient Vital Signs: Leveraging Markov Chain Principles with Neural Networks for Irregular Time-Series Prediction

Xin Yun Choy and Li Rong Wang (Nanyang Technological University, Singapore); Thomas C. Henderson (University of Utah, USA); Kelvin Li and Yih Yng Ng (Tan Tock Seng Hospital, Singapore); Xiuyi Fan (Nanyang Technological University, Singapore)

19:50 Task-Aware Transformer for Partially Supervised Retinal Fundus Image Segmentation

Hailong Zeng, Jianfeng Liu and Yixiong Liang (Central South University, China)

20:10 A Progressive Method for Hand Hygiene Monitoring Based on Multi-Granularity and Multi-Stage Neural Network

Xinyi Xu, Yang Fan Li, Fengxiao Tang and Ming Zhao (Central South University, China); Sohaib Asif (Central South University, Pakistan)

18:50 – 20:30
Virtual: Multi-objective Optimization
Conference: CEC
Room: Zoom 24
Session Chair(s): Anqi Pan

18:50 Feature-based Coevolution Algorithm for Multimodal Multi-objective Optimization
Shanshan Yang, Anqi Pan and Xue Feng (Donghua University, China)

19:10 A Dual-Model Assisted Evolutionary Algorithm Based on Decomposition for Expensive Multi-Objective Optimization
Yanyan Tan, Zhaomin Zhai and Yukun Zhang (Shandong Normal University, China)

19:30 Two-stage evolutionary algorithm with two population for constrained multi-objective optimization
Lupeng Hao and Junhua Liu (Xi'an Polytechnic University, China); Wei Zhang (Northeastern University, China); Meng Wang (Xi'an Polytechnic University, China); Xiaoli Wang (Xidian University, China); Fengping Wang (Xi an Polytechnic University, China)

19:50 A Two-stage Optimization Framework for Sparse Large-scale Multiobjective Optimization
Huoyuan Wang and Jing Jiang (Anqing Normal University, China)

20:10 A Multi-modal Multi-objective Evolutionary Algorithm Considering Boundary Information
Hongze Wang (University of Chinese Academy of Sciences, China); Jinxin Zhang (Chinese Academy of Sciences, China)

18:50 – 20:30
Virtual: Applications 1
Conference: CEC
Room: Zoom 25
Session Chair(s): Christina Plump

18:50 Finding the perfect MRI sequence for your patient --- Towards an optimisation workflow for MRI-sequences
Christina Plump (DFKI GmbH, Germany); Daniel C. Hoinkiss (Mevis Fraunhofer, Germany); Jörn Huber (Fraunhofer Mevis, Germany); Bernhard J. Berger (Hamburg University of Technology, Germany); Matthias Günther (Fraunhofer Mevis, Bremen, Germany); Christoph Lueth (DFKI, Germany); Rolf Drechsler (University of Bremen/DFKI, Germany)

19:10 Intelligent Blocking and Prevention of SARS-CoV-2 Based on Evolutionary Reinforcement Learning

Chengwei He, Huaping Hong, Lijia Ma and Qingling Zhu (Shenzhen University, China); Yuan Bai (The University of Hong Kong, Hong Kong)

19:30 Inferring Gene Regulatory Networks from Single-Cell RNA-Sequencing Experimental Data using Cartesian Genetic Programming

José Eduardo Henriques da Silva, Sr., Heder Bernardino, Itamar Leite De Oliveira, José Jerônimo Camata and Patrick de Carvalho (Universidade Federal de Juiz de Fora, Brazil)

19:50 EvolBA: Evolutionary Boundary Attack under Hard-label Black Box condition

Ayane Tajima and Satoshi Ono (Kagoshima University, Japan)

20:40 – 21:40
Virtual: Invited Talk I Erik Cambria
Room: Zoom 1
Session Chair(s): Koichiro Yamauchi

Seven Pillars for the Future of AI
Erik Cambria

In recent years, AI research has showcased tremendous potential to impact positively humanity and society. Although AI frequently outperforms humans in tasks related to classification and pattern recognition, it continues to face challenges when dealing with complex tasks such as intuitive decision-making, sense disambiguation, sarcasm detection, and narrative understanding, as these require advanced kinds of reasoning, e.g., commonsense reasoning and causal reasoning, which have not been emulated satisfactorily yet. To address these shortcomings, we propose seven pillars (https://sentic.net/seven-pillars-for-the-future-of-artificial-intelligence.pdf) that we believe represent the key hallmark features for the future of AI, namely: Multidisciplinarity, Task Decomposition, Parallel Analogy, Symbol Grounding, Similarity Measure, Intention Awareness, and Trustworthiness.

21:50 – 22:50
Virtual: Invited Talk II Hussein Abbass
Room: Zoom 1
Session Chair(s): Hisashi Handa

Explaining Explainable Artificial Intelligence
Hussein Abbass
School of Systems and Computing, University of New South Wales

Explainable Artificial Intelligence (XAI) is one of the hottest topics in AI today. Ironically, one would think that a motivation for the importance of XAI is for people to better understand AI and the AI models in use. However, diversity of opinions and perspectives on XAI has created more ambiguities and confusions than helping in any meaningful way. To even explain what an explanation is, some papers in the literature have confused the term, making it close to impossible to newcomers to the field to find coherence or aspire for consistency. The diversity is reaching unhealthy state with orthogonal definitions and taking antonyms and incommensurable concepts making them synonyms. The aim of this presentation is to disambiguate XAI, taking the audience into a trip that will start from the basics, travel through contemporary literature, land on current challenges of XAI and providing food for thoughts along the way. My aim is not to unify XAI or create a universal agreement. My aim is to maximise people understanding of XAI and to have the basis for those who disagree with me to communicate their disagreement in concise statements.

23:00 – 24:40
Virtual: Neural Networks for Recommendations 3
Conference: IJCNN
Room: Zoom 1
Session Chair(s): Junchao Ma

23:00 Deep Target Session Interest Network for Click-Through Rate Prediction
Hongjiang Zhong (Shenzhen Technology University, China & Shenzhen University, China); Junchao Ma (Shenzhen Technology University, China); Xiongbao Duan (Shenzhen Technology University & Shenzhen University, China); Shuting Gu (Shenzhen Technology University, China); Junmei Yao (Shenzhen University, China)

23:20 Dual Frequency-Based Temporal Sequential Recommendation
Shijie Luo, Jianxia Chen and TianCi Yu (Hubei University of Technology, China); Shi Dong (Zhoukou Normal University, China); Gaohang Jiang and Ninglong Ding (Hubei University of Technology, China)

23:40 TKMBR: Temporal Knowledge Graph-Based Multi-Behavior Recommendation
Xiaoman Zhang (Xinjiang University & None, China); Linlin Zhang and Yang Chen (Xinjiang University, China); Xuehua Bi (Xinjiang Medical University, USA); Guanglei Yu (Xinjiang Medical University, China); Ruyi Cao (Xinjiang University, China)

24:00 Causal Feature-Enhanced Collaborative Filtering Algorithm
Chao Dai, Baolin Yi, Xiaoxuan Shen, Huanyu Zhang, Wei Wang and WeiZheng Luo (Central China Normal University, China)

23:00 – 24:40
Virtual: Neural Networks for Recommendations 4
Conference: IJCNN
Room: Zoom 2
Session Chair(s):

23:00 Debiased Causal Inference for Sequential Recommendation
Yupeng Wu (Peking University, China); Wen Zhao (National Engineering Research Center for Software Engineering Peking University China, China)

23:20 Contrastive Learning for Extracting Transferable User Profiles in Cross-Domain Recommendation System
QingQuan Zhao and Qi Wang (Jilin University, China)

23:40 Global Context Enhanced Multi-Granularity Intent Networks for Session-Based Recommendation
Congyuan Wang (Tianjin University, China)

24:00 Disentangling Interest and Conformity Representation to Mitigate Popularity Bias for Sequential Recommendation
Wenyue Hu, Zhenyu Yang, Yan Huang, Zhibo Zhang and Baojie Xu (Qilu University of Technology, China)

23:00 – 24:40
Virtual: Transformers 5
Conference: IJCNN
Room: Zoom 3
Session Chair(s):

23:00 CNN-Transformer Ensemble: Advancing Visual Piano Transcription with Global and Local Features
Yuqing Li, Ying Zhang, Xianke Wang, Ruimin Wu and Wei Xu (Huazhong University of Science and Technology, China)

23:20 Multi-Modal Transformer with Skeleton and Text for Action Recognition

Lijuan Zhou (Zhengzhou University, China); Xuri Jiao (ZhengZhou University, China)

23:40 MMFENet: Multi-Modal Feature Enhancement Network with Transformer for Human-Object Interaction Detection

Peng Wang, Wenhao Yang and Zhicheng Zhao (Beijing University of Posts and Telecommunications, China); Fei Su (Beijing University of posts and telecommunications, China)

24:00 Enhance Fine-Grained Visual Classification with Attention-Guided Region Selection and Contrastive Feature Alignment

Jin Chen and Huan Wang (Nanjing University of Science and Technology, China)

24:20 Explanation Based Bias Decoupling Regularization for Natural Language Inference

Jianxiang Zang (Shanghai University of International Business and Economics, Japan); Hui Liu (Shanghai University of International Business and Economics, China)

23:00 – 24:40
Virtual: Neural Networks for Natural Language Processing 5
Conference: IJCNN
Room: Zoom 4
Session Chair(s):

23:00 Word and Character Semantic Fusion by Pretrained Language Models for Text Classification

Yujia Wu, Sr. (Sanda University, China); Jun Wan (Zhongnan University of Economics and Law, China)

23:20 A Method for Tibetan Offensive Language Detection Based on Prompt Learning and Information Theory

Hang Ren, Jin Yang, Shengqiao Ni, Qin Yang, Jing Zhang and Nuo Qun (Tibet University, China)

23:40 Document-Level Event Argument Extraction with Constrained Pooling and Relevance Evaluation

Guanghui Wang, Dexi Liu, Qizhi Wan, Rong Hu, Xiping Liu and Changxuan Wan (Jiangxi University of Finance and Economics, China); Jiaming Liu (The University of Chicago, China)

24:00 News Topic Sentence Generation Based on Two-Stage Summarization

Jingwen Lin (Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Shunan Zang (Beijing Institute of Computer Technology and Applications, China); Taoyu Su (Chinese Academy of Sciences, China); Zhang Chuang (Institute of Information Engineering Chinese Academy of Sciences, China); Tingwen Liu (Chinese Academy of Sciences, China)

24:20 Document-Level Machine Translation with Effective Batch-Level Context Representation
Kang Zhong, Jie Zhang and Wu Guo (University of Science and Technology of China, China)

23:00 Regularized Artificial Neural Network Based Patent Value Interval Prediction Model
Weidong Liu (Institute of Scientific and Technical Information of China, China); Kaiyang Xiao, Jiamin Zhang and Bo Li (Inner Mongolia University, China)

23:20 Enhancing Offline Reinforcement Learning via Dynamics-Aware Mixup
Chang Tan (Jilin University, China); Yunjie Su (Tsinghua University, China); Jiaao Wang (China)

23:40 Effective State Space Exploration with Phase State Graph Generation and Goal-Based Path Planning
Sinuo Zhang, Jifeng Hu, Xinqi Du, Zhejian Yang, Yang Yu and Hechang Chen (Jilin University, China)

24:00 Transformer-Based Deep Reinforcement Learning for the Min-Max Heterogeneous Pickup and Delivery Problem
Jun Tang and Linjiang Zheng (Chongqing University, China); QiQi Li (Chongqing University of Posts and Telecommunications, China); Xingxing Mao and Weining Liu (Chongqing University, China)

24:20 RASLS: Reinforcement Learning Active SLAM Approach with Layout Semantic
Changhang Tian (South-Central Minzu University,China); Shasha Tian (South-Central MinZu University, China); YiLin Kang (South-Central Minzu University, China); Hong Wang (South-Centrol Minzu University, China); Jun Tie and Shenhao Xu (South-Central Minzu University, China)

23:00 Time Series Forecasting Based on Structured Decomposition and Variational Autoencoder
Zhiyuan Zhang and Xuhui Yao (Civil Aviation University of China, China)

23:20 A Transformer Model Incorporating Dynamic Chunking Strategy for Multivariate Time Series Classification
Yiyang Wang, Shijia Li, Ziyuan Cheng, Zhongheng Sun, Cuiling Jiang and Yongjing Wan (East China University of Science and Technology, China)

23:40 RDLinear: A Novel Time Series Forecasting Model Based on Decomposition with RevIN
Hao Wang and Dongsheng Zou (Chongqing University, China); Bi Zhao (ChongQing University, China); YuMing Yang, Jiyuan Liu, Naiquan Chai and Xinyi Song (Chongqing University, China)

24:00 COFormer: Co-Optimisation Transformer of Multilayer Perceptron and Dilated Causal Convolution for Long Sequence Time Series Forecasting
Jinghong Yang and Qing Yu (Tianjin University of Technology, China)

24:20 Hierarchical Dynamic Graph Convolutional Network for Spatio-Temporal Forecasting
Shuo Li and Baowen Xu (Chinese Academy of Sciences, China); Xuelei Wang (Institute of Automation, China)

23:00 – 24:40
Virtual: Neural Networks for Image Processing 9
Conference: IJCNN
Room: Zoom 7
Session Chair(s):

23:00 DMAC-YOLO: A High-Precision YOLO v5s Object Detection Model with a Novel Optimizer
Chao Meng, Shaohua Liu and Yu Yang (Beijing University of Posts and Telecommunications, China)

23:20 Joint Image and Feature Enhancement for Object Detection Under Adverse Weather Conditions
Mengyu Yin, Mingyang Ling, Kan Chang, Zijian Yuan and Qingpao Qin (Guangxi University, China); Boning Chen (The University of Melbourne, Australia)

23:40 Exploring What to Share for Multimodal Image Synthesis
GuoLiang Qi, Bing Cao and Qinghua Hu (Tianjin University, China)

24:00 SSCD-Net: Semi-Supervised Skin Cancer Diagnostical Network Combined with Curriculum Learning, Disease Relation and Clinical Information
Wei Wang and Yunjian Cao (University of Electronic Science and Technology of China & Yangtze Delta Region Institute (Quzhou), China); Shaozhi Wu (University of Electronic Science and Technology of China, China & Yangtze Delta Region Institute (Quzhou), China); Xingang Liu (University of Electronic Science and Technology of China, China); Han Su (University of Electronic Science and Technology of China & Yangtze Delta Region Institute (Quzhou), China); Dan Tian (University of Electronic Science and Technology of China, China)

23:00 – 24:40
Virtual: Neural Networks for Image Processing 10
Conference: IJCNN
Room: Zoom 8
Session Chair(s): Long Li

23:00 A Multi-Exposure Generation and Fusion Method for Low-Light Image Enhancement
Haiyan Jin (Xi'an University of Technology, China); Long Li (Xi an University of Technology, China); Haonan Su (Xi'an University of Technology, China); Yuanlin Zhang (Xi an University of Technology, China); Zhaolin Xiao (Xi'an University of Technology, China); Bin Wang (Xi an University of Technology, China)

23:20 Dense Pseudo-Labels Based Semi-Supervised Object Detection for Remote Sensing
Yongjie Ma, Shiyong Lan, Wei Ma, Yao Li and Xiaoxiao Yin (Sichuan University, China)

23:40 SGD-YOLOv5: A Small Object Detection Model for Complex Industrial Environments
Bin Jia Pei (Qilu University of Technology & Shandong Computing Center, China); Xiaoming Wu (Shandong University of Science and Technology & Shandong Computer Science Center, China); Xiangzhi Liu (Shandong Computer Science Center(National Supercomputer Center in Jinan), China); Longxiang Gao (Shandong Computer Science Center, China); Shui Yu (University of Technology Sydney, Australia); Xi Zheng (Macquarie University & School of Computing, Australia)

24:00 Enhancing Small Object Detection in Aerial Imagery Based on Strong Feature Extraction and Batch Dimension
Bingnan Cao and Di Wang (Qilu University of Technology (Shandong Academy of Sciences), China); Ying Guo and Hu Zhang (Qilu University of Technology, China)

24:20 FRTANet: Feature Reconstruction and Twofold Attention for Occluded Person Re-Identification
Weixuan Wang and Guoqiang Xiao (Southwest University, China)

23:00 – 24:40
Virtual: Neural Networks for Medical Data Processing 5
Conference: IJCNN
Room: Zoom 9
Session Chair(s):

23:00 NextSeg: Automatic COVID-19 Lung Infection Segmentation from CT Images Based on Next-ViT
Aimei Dong, Ruixin Wang, Xuening Zhang and Jian Liu (Qilu University of Technology, China)

23:20 3D CBAM-EResNet: An Enhanced ResNet Network with 3D Channel and Spatial Attention for Stroke Imaging Lesion Recognition

Junguang Su (Guangdong Province & Guangdong, China)

23:40 Graph Transformer Networks for Predicting Anti-HIV Active Molecules

Zhaoyao Yan (Yan'an University, China); Cangfeng Ding, Lerong Ma and Lu Cao (Yanan University, China)

24:00 ProtoTree-MIL: Interpretable Multiple Instance Learning for Whole Slide Image Classification

Zhifeng Wu (Sun Yat-Sen University, China); Xiao-Hui Li (Huawei Technologies Co., Ltd, China); Luning Wang (Huawei, Hong Kong); Shendi Wang (Huawei Technologies Ltd., China); Yufei Cui (McGill University, Canada); Jiahai Wang (Sun Yat-sen University, China)

24:20 MediSight FusionNet: A General Medical Deep Learning Model for Myopic Maculopathy Classification

Xuhao Pan and Yuan Meng (Shanghai University of International Business and Economics, China); Keying Ding (Wenzhou Medical University, China)

23:00 – 24:40
Virtual: Deep Learning for Graphs 9
Conference: IJCNN
Room: Zoom 10
Session Chair(s): Sayantani Ghosh

23:00 Analyzing the Creative Potential of Subjects Using EEG-Induced Capsule Graph Neural Network

Sayantani Ghosh and Amit Konar (Jadavpur University, Kolkata, India); Atulya K Nagar (Liverpool Hope University, UK (Great Britain))

23:20 Multi-Channel Graph Fusion Representation for Tabular Data Imputation

Na Yu, Ke Xu, Kaixuan Chen and Shunyu Liu (Zhejiang University, China); Tongya Zheng (Hangzhou City University, China); Mingli Song (Zhejiang University, China)

23:40 Addressing Over-Squashing in GNNs with Graph Rewiring and Ordered Neurons

Hao Li, Chen Li, Jianfei Zhang, Yuanxin Ouyang and Wenge Rong (Beihang University, China)

24:00 Recognition of Unsafe Driving Behaviours Using SC-GCN

Jiapei Wang (Chang'an University, China)

24:20 Dynamic Link Prediction for New Nodes in Temporal Graph Networks

Xiaobo Zhu and Yan Wu (Tongji University, China); Qinhu Zhang (Eastern Institute of Technology, China); Zhanheng Chen (Naval Medical University, China); Ying He (Tongji University, China)

23:00 – 24:40
Virtual: Deep Learning for Graphs 10
Conference: IJCNN
Room: Zoom 11
Session Chair(s):

23:00 Span Graph Based on Contrastive Learning for Nested Named Entity Recognition
Lijie Li and Fengming Xu (Harbin Engineering University, China); Akshita Maradapu Vera Venkata Sai (Towson University, USA); Ye Wang (Harbin Engineering University, China)

23:20 Leveraging the Power of Echo State Network for Enhanced Temporal Knowledge Graph Reasoning
Yi Sun, Zhe Wang and Kewen Wang (Griffith University, Australia)

23:40 App Recommendation Model Based on Heterogeneous Graph Collaborative Filtering
Qiuhan Zheng, Dongjin Yu, Dongjing Wang, Wangliang Yan and Yaolin Fu (Hangzhou Dianzi University, China)

24:00 EMKG: Efficient Matchings for Knowledge Graph Integration in Stance Detection
Yuhang Cheng, Kaiwen Li and Zhao Kang (University of Electronic Science and Technology of China, China)

24:20 Multi-Faceted Negative Sample Mining for Grpah Contrastive Learning
Siyu Liu, Ziqi Wang, Jiale Xu, Huan Li, Jiamin Sun and Ya Li (Southwest University, China)

23:00 – 24:40
Virtual: Continual Learning 2
Conference: IJCNN
Room: Zoom 12
Session Chair(s):

23:00 TCL: Trend-Consistent Contrastive Learning for Stock Movement Prediction
Xia Li and Rihu Liao (Guangdong University of Foreign Studies, China)

23:20 Semi-Supervised Online Elastic Stochastic Configuration Network to Deal with Concept Drift and Class Imbalance in Data Streams
Chaofan Chen (Shenzhen University,China); Wenhao Zhong and Kezhong Lu (Shenzhen University, China)

23:40 Expand and Merge: Continual Learning with the Guidance of Fixed Text Embedding Space
Yujun Huang, Wentao Zhang and Ruixuan Wang (Sun Yat-Sen University, China)

24:00 Continual Learning for Temporal-Sensitive Question Answering
Wanqi Yang, Yunqiu Xu and Yanda Li (University of Technology Sydney, Australia); Kunze Wang (University of Sydney, Australia); Binbin Huang (Hangzhou Dianzi University, China); Ling Chen (University of Technology Sydney, Australia)

23:00 – 24:40
Virtual: Neural Networks for Signal Processing 2
Conference: IJCNN
Room: Zoom 13
Session Chair(s):

23:00 MFASleepNet: Multi-View Fusion Attention-Based Deep Neural Network for Automatic Sleep Staging
Zhoujie Hou (South China University of Technology, China); Jiahui Pan (South China Normal University, China); Yuanqing Li (South China University of Technology, China)

23:20 Learning Expressive Disentangled Speech Representations with Soft Speech Units and Adversarial Style Augmentation
Yimin Deng (University of Science and Technology of China, China); Jianzong Wang (Pingan, China); Xulong Zhang (Shangfeng Road NO. 1288 & Ping An Technology (Shenzhen) Co., Ltd., China); Ning Cheng (Pingan, China); Jing Xiao (Ping An Insurance Company of China, Ltd., China)

23:40 PMSQA: Pre-Training Based Multi-Scale Non-Intrusive Speech Quality Assessment
Yi Jiang, Sixing Liu, Shaohan Liu and Qun Yang (Nanjing University of Aeronautics and Astronautics, China)

24:00 Enhancing Anomalous Sound Detection with Multi-Level Memory Bank
Baoping Deng and Jinggang Chen (Huazhong University of Science and Technology, China); Zhenhou Hong and Xiaoyang Qu (Ping An Technology (Shenzhen) Co., Ltd, China); Guokuan Li, Jiguang Wan and Changsheng Xie (Huazhong University of Science and Technology, China); Jianzong Wang (Pingan, China)

24:20 EAD-VC: Enhancing Speech Auto-Disentanglement for Voice Conversion with IFUB Estimator and Joint Text-Guided Consistent Learning
Ziqi Liang (University of Science and Technology of China, China); Jianzong Wang (Pingan, China); Xulong Zhang (Shangfeng Road NO. 1288 & Ping An Technology (Shenzhen) Co., Ltd., China); Yong Zhang (PingAn Technology, China); Ning Cheng (Pingan, China); Jing Xiao (Ping An Insurance Company of China, Ltd., China)

23:00 – 24:40
Virtual: Neural Network-Based Methods for Human-Centric Perception and Understanding 2
Conference: IJCNN
Room: Zoom 14
Session Chair(s):

23:00 Enhancing Decision-Making in Optimization Through LLM-Assisted Inference: A Neural Networks Perspective
Gaurav Singh (Agency for Science Technology and Research, Singapore); Rohitash Chandra (UNSW Sydney, Singapore); Kavitesh Kumar Bali (Centre for Frontier AI Research (CFAR), Agency for Science, Technology and Research (a*star), Singapore)

23:20 G-Former: A Grouping Transformer for Weakly Supervised Point Cloud Segmentation
Zehan Huang (Fudan University, China)

23:40 A Collaborative Framework Using Multimodal Data and Adaptive Noise for Human Behavior Anomaly Detection
Guoqing Yang (Xiamen University & School of Informatics, Xiamen University, China); Jianzhe Gao and Kejia Zhang (Xiamen University, China); Yifan He (Xiamen Key Laboratory of Visual Perception Technology and Applications Reconova, China); Zhiming Luo and Shaozhi Li (Xiamen University, China)

24:00 Decoupled Non-Local Attention for Single Image Super-Resolution
Yigang Zhao, Jiannan Su, Guangyong Chen and Yubin Liu (Fuzhou University, China)

23:00 – 24:40
Virtual: Machine Learning and Signal Processing for Brain or Behavioral Analysis 2
Conference: IJCNN
Room: Zoom 15
Session Chair(s):

23:00 Enhanced Emotion Recognition Through Multimodal Fusion Using TriModal Fusion Graph Convolutional Networks
Maoheng Li (Zhanjiang University of Science and Technology, China)

23:20 MAFNet: Multi-Domain Features Attention-Based Fusion Network for Cross-Subject Motor Imagery Classification
Yu Hong and Xinhua Zeng (Fudan University, China); Feng Wu (Yueyang Hospital of Integrated Traditional Chinese and Western Medicine, China); Jingjing Wang (Shanghai University of Traditional Chinese Medicine, China)

23:40 FHAA-GCN: Feature Homogeneous Adaptive Aggregation Graph Convolutional Network for Alzheimer's Disease Prediction

Zhiwen Wang, Haoqiang Gong and Jinfeng Wang (South China Agricultural University, China)

24:00 Shared and Private Information Learning in Multimodal Sentiment Analysis with Deep Modal Alignment and Self-Supervised Multi-Task Learning

Songning Lai (King Abdullah University of Science and Technology, Saudi Arabia); Jiakang Li (Lanzhou University); Guinan Guo (Sun Yat-Sen University, China); Xifeng Hu (Shandong University, China); Yulong Li (Air Force Medical University, China); Yuan Tan and Zichen Song (Lanzhou University, China); Yutong Liu (National University of Singapore, China); Zhaoxia Ren and Chun Wang (Shandong University, China); Danmin Miao (Air Force Medical University, China); Zhi Liu (Shandong University, China)

23:00 – 24:40
Virtual: Explainable AI 2
Conference: IJCNN
Room: Zoom 16
Session Chair(s): Giuseppe Serra

23:00 An Interpretable Alternative to Neural Representation Learning for Rating Prediction - Transparent Latent Class Modeling of User Reviews

Giuseppe Serra (Goethe University Frankfurt, Germany); Peter Tino (University of Birmingham, UK (Great Britain)); Zhao Xu (NEC Laboratories Europe, Germany); Xin Yao (Southern University of Science and Technology, China)

23:20 FedLRDP: Federated Learning Framework with Local Random Differential Privacy
Runtian Zhou and Anming Dong (Qilu University of Technology, China); Jiguo Yu (Qufu Normal University, China); Qingyan Ding (Shandong Academy of Sciences, China)

23:40 A Lightweight Chinese Multimodal Textual Defense Method Based on Contrastive-Adversarial Training

Xiangge Li (Beijing University of Posts and Telecommunication, China); Hong Luo and Yan Sun (Beijing University of Posts and Telecommunications, China)

24:00 FedRecTID: A General Robust Federated Recommendation Framework Based on Target Items Detection

Hongyun Cai, Fengyu Li and Chuan Feng (Hebei University, China)

24:20 Personalized Federated Learning with Enhanced Implicit Generalization

Heping Liu, Songbai Liu, Junkai Ji, Qiuzhen Lin and Jianyong Chen (Shenzhen University, China); Kay Chen Tan (The Hong Kong Polytechnic University, Hong Kong)

23:00 – 24:40
Virtual: Learning from Small Data: Techniques and Applications 4
Conference: IJCNN
Room: Zoom 17
Session Chair(s):

23:00 EthGAN: Improving Ethereum Account Classification Accuracy via Data Augmentation
Xuehai Tang and Zhongjiang Yao (Chinese Academy of Sciences, China); Huazhen Zhong (University of Chinese Academy of Sciences, China); Guan Wang (IIE, CAS, China); Yuanshu Zhao (IIE, CAS, China); Xiaodan Zhang (Institute of Information Engineering, Chinese Academy of Sciences, China); Jizhong Han (IIE, CAS, China)

23:20 Boosting Semi-Supervised Specific Emitter Identification with Curriculum Triple Consistency Regularization
Qingyun Xu (Institute of Software Chinese Academy of Sciences, China); Lixiang Liu (Chinese Academy of Sciences, China); Xin Zhou (Institute of Software Chinese Academy of Sciences, China)

23:40 Relation Adaptive Representation Learning Based on Factual Information Interaction for One-Shot Knowledge Graph Completion
Jinlin Li, Zikang Wang, Linjing Li and Daniel Dajun Zeng (The State Key Laboratory of Multimodal Artificial Intelligence Systems，Institute of Automation, Beijing, China)

24:00 Single-Step Support Set Mining for Realistic Few-Shot Image Classification
Chao Ye (University of Science and Technology of China, China); Qian Wang (Durham University, USA); Lanfang Dong (University of Science and Technology of China, China)

23:00 – 24:40
Virtual: Intelligent Vehicles and Transportation Systems 2
Conference: IJCNN
Room: Zoom 18
Session Chair(s):

23:00 Enhanced Vehicle Detection Through Multi-Sensor Fusion Utilizing YOLO-NAS and Faster R-CNN
Adi Suleiman El-Dalahmeh, Moawiah El-Dalahmeh and Jie Li (Teesside University, UK (Great Britain))

23:20 Knowledge Graph Enhanced Dynamic Multi-Graph Convolutional Network for Traffic Origin-Destination Forecasting
Jipeng Qian (Institute of Artificial Intelligence, Xiamen University, Xiamen, China); Suchi Li and Xin Fu (School of Management, Xiamen University, Xiamen, China)

23:40 Spatial–Temporal Traffic Prediction Model Based on Adaptive Graphs Fusion and Dual-Graph Collaborative Convolution

Zhen Cheng, Song Qiu and Li Sun (East China Normal University, China); Dingding Han (Fudan University, China); Qingli Li and Mingsong Chen (East China Normal University, China)

24:00 Learning Location Semantics and Dynamics for Traffic Origin-Destination Demand Prediction

Kuan-Hsuan Yung (National Yang Ming Chiao Tung University, Taiwan); Josh Jia-Ching Ying (National Chung Hsing University, Taiwan); Hui-Ting Lin (National Chiao Tung University, Taiwan); Vincent S. Tseng (National Yang Ming Chiao Tung University, Taiwan)

24:20 Spatial-Temporal Retentive Heterogeneous Graph Convolutional Network for Traffic Flow Prediction

Wang Zhu (University of Shanghai for Science and Technology, China); Baichao Long (University of Shanghai for Science and Technonogy, China); Jianli Xiao (University of Shanghai for Science and Technology, China)

23:00 – 24:40
Virtual: Deep Edge Intelligence 2
Conference: IJCNN
Room: Zoom 19
Session Chair(s):

23:00 Offloading DNN Tasks Based on Graph Reinforcement Learning in Client-Edge-Cloud Environment

Mingchu Li (School of Software, Dalian University of Technology, China); Junhao Huang and Zhihua Wang (Dalian University of Technology, China)

23:20 Adaptively Compressed Swarm Learning for Distributed Traffic Prediction over IoV-Web3.0

Xin Song, Lixing Chen, Junhua Tang, Jianhua Li and Yang Bai (Shanghai Jiao Tong University, China); Wu Yang (Harbin Engineering University, China)

23:40 Clustering-Based Evaluation Framework of Feature Extraction Approaches for ECG Biometric Authentication

Bonan Zhang (RMIT, Australia); Chao Chen (RMIT University, Australia); Ickjai Lee and Kyungmi Lee (James Cook University, Australia); Kok-Leong Ong (RMIT University, Australia)

24:00 ProDiffAD: Progressively Distilled Diffusion Models for Multivariate Time Series Anomaly Detection in JointCloud Environment

Fuqiang Tian, Xiaochuan Shi, Linjiang Zhou, Lanlan Chen, Weiping Zhu and Chao Ma (School of Cyber Science and Engineering, Wuhan University, China)

24:20 STARNet: Sensor Trustworthiness and Anomaly Recognition via Lightweight Likelihood Regret for Robust Edge Autonomy

Nastaran Darabi, Sina Tayebati, Sureshkumar Senthilkumar, Dinithi Jayasuriya, Sathya Ravi and Theja Tulabandhula (University of Illinois Chicago, USA); Amit Ranjan Trivedi (University of Illinois at Chicago, USA)

23:00 – 24:40
Virtual: Representation Learning for Multi-Modal Data 4
Conference: IJCNN
Room: Zoom 20
Session Chair(s):

23:00 Adaptable Weighted Voting Fusion for Multi-Modality-Based Action Recognition
Lijuan Zhou, Xiang Meng, Chenglong Zhang and Changyong Niu (Zhengzhou University, China)

23:20 Integrating Subjective and Objective Features for Image Aesthetics Assessment
HaiYong Tang, Yihua Chen, Hanyun Zhang, Lv Chen, Ronghai Sun and Zhenjun Tang (Guangxi Normal University, China)

23:40 Multimodal Sentiment Analysis via Low-Rank Tensor Attention Network with Unimodal Self-Supervised Learning
Linghui Sun, Chaoqun Zhao, Xudong Li, Chengjie Bai and Jie Pan (Shandong Normal University, China)

24:00 Multimodal Feature Enhancement Plugin for Action Recognition
Qingmeng Zhu and Yanan He (Chinese Academy of Sciences, China); Zhipeng Yu (Institute of Software Chinese Academy of Sciences, China); Yukai Lu and Hao He (Chinese Academy of Sciences, China)

24:20 Feature Alignment and Reconstruction Constraints for Multimodal Sentiment Analysis
Qingmeng Zhu (Chinese Academy of Sciences, China); Tianxing Lan and Jian Liang (Institute of Software Chinese Academy of Sciences, China); Deliang Xiang (Beijing University of Chemical Technology, China); Hao He (Chinese Academy of Sciences, China)

23:00 – 24:40
Virtual: A Human-Centric Perspective of Explainability, Interpretability and Resilience in Computer Vision 2
Conference: IJCNN
Room: Zoom 21
Session Chair(s):

23:00 HDDA: Human-Perception-Centric Deepfake Detection Adapter
XiaoRong Ma and JiaHe Tian (University of Chinese Academy of Sciences, China); Yesheng Chai, Jiao Dai and Zhaoxing Li (Chinese Academy of Sciences, China); Liangjun Zang (IIE, China); Jizhong Han (IIE, CAS, China)

23:20 Classroom Action Recognition Based on Graph Convolutional Neural Networks and Contrast Learning
Yuting Zhou (Southwest University, China); Shuang Peng (University of Electronic Science and Technology of China, China); Xinxu Li, Qiancheng Cao and Li Tao (Southwest University, China)

23:40 Full-Dimensional Optimizable Network: A Channel, Frame and Joint-Specific Network Modeling for Skeleton-Based Action Recognition
Gong Yu and Yang Yang (Xi'an Jiaotong University, China); Xuehao Gao (Xi'an JiaoTong University, China); Shaoyi Du (Xi'an Jiaotong University, China)

24:00 Dynamic Gesture Recognition Using a Spatio-Temporal Adaptive Multiscale Convolutional Transformer Network
Jie Chen and Yun Tie (Zhengzhou University, China); Liang Chengwu (Henan University of Urban Construction, China); Lin Qi (Zhengzhou University, China)

24:20 P2H-GAN: An Effective Method for Handwritten Expressions Generation
Mohua Chen, cmh and XiaoLong Cheng (University of Science and Technology of China, China)

23:00 – 24:40
Virtual: Human-Machine Interaction 2
Conference: IJCNN
Room: Zoom 22
Session Chair(s):

23:00 Event Detection Model Based on the Fusion of Hierarchical Syntactic and Type Semantic Features
Guozheng Rao and Qing Cong (Tianjin University, China); Li Zhang (Tianjin University of Science and Technology, China); Kaijia Tian (Tianjin University, China)

23:20 Enhancing Event Causality Identification with Rationale and Structure-Aware Causal Question Answering

Baiyan Zhang, Qin Chen, Jie Zhou, Jian Jin and Liang He (East China Normal University, China)

23:40 Target Speech Extraction with Pre-Trained AV-HuBERT and Mask-And-Recover Strategy

Wenxuan Wu, Xueyuan Chen and Xixin Wu (The Chinese University of Hong Kong, Hong Kong); Haizhou Li (The Chinese University of Hong Kong Shenzhen, China); Helen Meng (Chinese University of Hong Kong, Hong Kong)

24:00 Data-Driven Approach for Optimising Resource Allocation of O-RAN Networks

Haitham Mahmoud (Birmingham City University (BCU), UK (Great Britain)); Najam Farooqui (Sir Syed University of Engineering & Technology & NED University of Engineering & Technology, Pakistan); De Mi (Birmingham City University, UK (Great Britain)); Liucheng Guo (Tangi0 Ltd, UK (Great Britain) & Capital University of Physical Education and Sports, China); Chen Lu (Shenzhen Institute of Information Technology, China); Yuxi Gan and Zhen Gao (Beijing Institute of Technology, China)

24:20 Machine Learning-Based Spectrum Allocation Using Cognitive Radio Networks

Haitham Mahmoud (Birmingham City University (BCU), UK (Great Britain)); Tobi Baiyekusi, Umar Daraz and De Mi (Birmingham City University, UK (Great Britain)); Ziming He (Samsung Electronics, UK (Great Britain)); Chen Lu and Guan Mingxiang (Shenzhen Institute of Information Technology, China)

23:00 – 24:40
Virtual: Applied Artificial Intelligence for Reliable and Trustworthy Medical Decision-Making Systems 2
Conference: IJCNN
Room: Zoom 23
Session Chair(s): Guan Qiu

23:00 AMRUNet: An Attention-Guided MultiResUNet for Continuous Noninvasive Blood Pressure Estimation

Ruijie Zhao, Yu Lu and Leya Li (Shenzhen Technology University, China); Huilin Ge (Jiangsu University Science and Technology, China); Xianghua Fu (Shenzhen Technology University, China)

23:20 Patch Ranking Map: Explaining Relations Among Patches, Top-Ranked Features and Decisions of a Convolutional Neural Network

Luna Zhang (Stony Brook University, unknown)

23:40 LP-DWLA-ViT: Light-Patch and Dynamic Window Local Attention Vision Transformer Network for Alzheimer's Disease Classification

Bo Liu and Haozhen Xiang (Liaoning Normal University, China); Lingling Fang (Liaoning Normal University, China)

24:00 ARS-Net:3D Multimodal Feature Recalibration Fusion Network for Brain Tumor Image Segmentation
JIng Zhang and Wei Wu (Inner Mongolia University, China)

24:20 IAFI-FCOS: Intra- and Across-Layer Feature Interaction FCOS Model for Lesion Detection of CT Images
Guan Qiu (Zhejiang University of Technology, China); Mengjie Pan (Zhejiang University of Technology & None, China); Feng Chen (Zhejiang University, China); Zhiqiang Yang, Zhongwen Yu, Qianwei Zhou and Haigen Hu (Zhejiang University of Technology, China)

23:00 – 24:40
Virtual: Multi-/Many-objective Optimization
Conference: CEC
Room: Zoom 24
Session Chair(s):

23:00 Scalable Polynomial RegEM(a)O for Multi-/Many-objective Platform-based Design Optimization Problems
Ritam Guha and Kalyanmoy Deb (Michigan State University, USA)

23:20 Well Trajectory Design Based on Constrained Many-objective Optimization Algorithms
Zhaojun Wang, Chenwen Ding, Wenji Li and Yifeng Qiu (Shantou University, China); Dong Chen (China University of Petroleum, China); Biao Xu and Jiafan Zhuang (Shantou University, China); Yun Li (Shenzhen Institute for Advanced Study of UESTC, China); Zhun Fan (Shantou University, China)

23:40 Sequential Transfer with Multi-Objective Genetic Algorithm for Feature Selection of Small, High-Dimensional Datasets
Parth C Upadhyay (University of Missouri- Columbia, USA); Guilherme N. DeSouza (University of Missouri-Columbia, USA); John A. Lory (University of Missouri - Columbia, USA)

24:00 Biased Dyadic Crossover for Variable-Length Multi-Objective Optimal Control Problems
Ben Parsonage and Christie Maddock (University of Strathclyde, UK (Great Britain))

24:20 A mobile application for Hypoglycemia and Hyperglycemia prediction by Genetic Programming
J. Ignacio Hidalgo and Marina de la Cruz (Universidad Complutense de Madrid, Spain); Esther Maqueda (Hospital Universitario de Toledo, Spain); Oscar Garnica (Complutense U. of Madrid, Spain); J. Manuel Velasco (Universidad Complutense de Madrid, Spain)

23:00 – 24:40
Virtual: Applications 2
Conference: CEC
Room: Zoom 25
Session Chair(s): Wenjing Hong

23:00 An Elite Archive-Assisted Multi-Objective Evolutionary Algorithm for mRNA Design
Wenjing Hong (Shenzhen University, China); Cheng Chen (Southern University of Science and Technology, China); Zexuan Zhu (Shenzhen University, China); Ke Tang (Southern University of Science and Technology, China)

23:20 Neural network agents trained by declarative programming tutors
Julian Szymański and Jan Dobrosolski (Gdansk University of Technology, Poland); Higinio Mora (University of Alicante, Spain)

23:40 Emotion-Conditioned MusicLM: Enhancing Emotional Resonance in Music Generation
Yuelang Sun (Auckland University of Auckland, New Zealand); Matthew M.Y. Kuo (Auckland University of Technology, New Zealand); Xiaodan Wang (Yanbian University, China); Weihua Li (Auckland University of Technology, New Zealand); Quan Bai (University of Tasmania, Australia)

24:00 Evolutionary Multitasking with Compatibility Graph for Point Cloud Registration
Hangqi Ding, Jun Jiang, Yue Wu, Hao Li, Maoguo Gong, Wenping Ma and Qiguang Miao (Xidian University, China)

24:20 Evaluation Framework for AI-driven Molecular Design of Multi-target Drugs: Brain Diseases as a Case Study
Arthur Cerveira, Frederico Kremer, Darling de Andrade Lourenço and Ulisses B Corrêa (Universidade Federal de Pelotas, Brazil)

July 2, 2024

8:20 Optimal Transport-Based Fusion of Two-Stream Convolutional Networks for Action Recognition

Sravani Yenduri (Indian Institute of Technology Hyderabad (IITH), India); Madhavi Gudavalli (JNTU Kakinada, India)

8:40 Deep Learning Models for Gait Event Prediction

Diego Teran-Pineda, Karl Thurnhofer-Hemsi, Jose David Fernandez-Rodriguez and Enrique Domínguez (University of Malaga, Spain)

9:00 How Image Distortions Affect Inference Accuracy

Petr Dvořáček (University of Ostrava, Czech Republic)

9:20 CPF6D:6DoF Pose Estimation Net Based on Context Part Fusion for Robotic Grasping

Shuangjie Yuan, Dong Ouyang, Lu Yang and Tieshan Li (University of Electronic Science and Technology of China (UESTC), China)

9:40 Autonomous Perceptual Categorization for Robotic Lifelong Learning in Dynamic Domains

Sergio Martínez Alonso, Alejandro Romero and José Antonio Becerra (Universidade da Coruña,

Spain); Richard J. Duro (Universidad de la Coruña, Spain)

8:20 – 10:00
IJCNN S5_7 Special Session: Neuromorphic/Brainmorphic AI Models, Hardware and Applications 1
Conference: IJCNN
Room: 313+314
Session Chair(s): Hakaru Tamukoh

8:20 Low-Power Event-Based Face Detection with Asynchronous Neuromorphic Hardware
Caterina Caccavella (University of Zurich, Switzerland); Federico Paredes-Vallés (Sony Europe, Switzerland); Marco Cannici (University of Zurich, Switzerland); Lyes Khacef (Sony Europe, Switzerland)

8:40 Augmenting Reservoirs with Higher Order Terms for Resource Efficient Learning
Bedirhan Çelebi (Özyeğin University, Turkey); Minoru Asada (Osaka University, Japan); Erhan Oztop (Osaka University & Ozyegin University, Japan)

9:00 Enhancement of the Robustness of Redundant Robot Arms Against Perturbations by Inferring Dynamical Systems Using Echo State Networks
Hiroshi Atsuta, Yuji Kawai and Minoru Asada (Osaka University, Japan)

9:20 Out-Of-Distribution Data Detection Using Bayesian Convolutional Neural Network with Variational Inference
Koki Minagawa (Hokkaido University, Japan)

9:40 From "What" to "When" - a Spiking Neural Network Predicting Rare Events and Time to Their Occurrence
Mikhail Kiselev and Andrey Lavrentyev (Kaspersky, Russia); Denis Larionov (Cifrum, Russia); Dmitry Ivanov (Moscow State University, Russia)

8:20 – 10:00
IJCNN S5_3 Special Session: Trustworthy and Explainable Federated Learning: Towards Security and Privacy Future
Conference: IJCNN
Room: 315
Session Chair(s): Tianzi Zang

8:20 QI-DPFL: Quality-Aware and Incentive-Boosted Federated Learning with Differential Privacy
Wenhao Yuan and Xuehe Wang (Sun Yat-Sen University, China)

8:40 From Data Integrity to Global Model Integrity for Decentralized Federated Learning: A Blockchain-Based Approach

Na Wang (Qilu University of Technology, China); Yao Zhao (Deakin University, Australia); Youyang Qu and Lei Cui (Shandong Computer Science Center, China); Bai Li (Zhejiang Tianheng Information Technology Company, China); Longxiang Gao (Shandong Computer Science Center, China)

9:00 Grouped Federated Meta-Learning for Privacy-Preserving Rare Disease Diagnosis

Xinru Song (Qilu University of Technology, China); Feng Wu (University of Technology Sydney, Australia); Zongchao Xie (University of Melbourne, Australia); Longxiang Gao, Lei Cui, Youyang Qu and Shujun Gu (Shandong Computer Science Center, China)

9:20 Federated Learning with Data-Free Distillation for Heterogeneity-Aware Autonomous Driving

Junyao Liang and Juan Li (Nanjing University of Aeronautics and Astronautics, China); Ji Zhang (University of Southern Queensland, Australia); Tianzi Zang (NanJing University of Aeronautics and Astronautics, China)

8:20 – 10:00
IJCNN S5_4 Special Sessions: Reservoir Computing and Representation Learning
Conference: IJCNN
Room: 411+412
Session Chair(s): Xiaotong Qian

8:20 To Join or Not to Join: A Study on the Impact of Joint or Unimodal Representation Learning on Audio-Visual Emotion Recognition

Amirhossein Hajavi, Harmanpreet Singh and Homa Fashandi (LG Electronics, Canada)

8:40 Incremental Multi-View Clustering Using Barycentric Coordinate Representation

Xiaotong Qian (CY Cergy Paris Université, France); Guenael Cabanes (Sorbonne Paris Nord University, France); Parisa Rastin (Université de Lorraine, France); Nistor Grozavu (CY Cergy Paris Université, France)

9:00 Designing Network Topologies of Multiple Reservoir Echo State Networks: A Genetic Algorithm Based Approach

Ziqiang Li and Kantaro Fujiwara (The University of Tokyo, Japan); Gouhei Tanaka (Nagoya Institute of Technology, Japan)

9:20 Reservoir Computing Neural Networks for Estimating Mechanical Properties of Hot Steel Strips

Francesca Motta (Danieli Automation, Italy); Claudio Gallicchio (University of Pisa, Italy)

9:40 Decentralized Incremental Federated Learning with Echo State Networks

Geremia Pompei, Patrizio Dazzi, Valerio De Caro and Claudio Gallicchio (University of Pisa, Italy)

8:20 – 10:00
IJCNN S5_5 Special Session: Neuromorphic/Brainmorphic AI Models, Hardware and Applications 3
Conference: IJCNN
Room: 413
Session Chair(s): Kakei Yamamoto

8:20 Event Camera-Based Real-Time Gesture Recognition for Improved Robotic Guidance

Muhammad Aitsam (Sheffield Hallam University, UK (Great Britain)); Sergio Davies (Manchester Metropolitan University, UK (Great Britain)); Alessandro Di Nuovo (Sheffield Hallam University, UK)

8:40 Can Timing-Based Backpropagation Overcome Single-Spike Restrictions in Spiking Neural Networks?

Kakei Yamamoto (Massachusetts Institute of Technology, USA); Yusuke Sakemi (Chiba Institute of Technology, Japan); Kazuyuki Aihara (The University of Tokyo, Japan)

9:00 A Hippocampus-Inspired Environment-Specific Knowledge Acquisition System Utilizing Common Knowledge with Contextual Information

Akinobu Mizutani, Yuichiro Tanaka, Hakaru Tamukoh, Osamu Nomura, Katsumi Tateno and Takashi Morie (Kyushu Institute of Technology, Japan)

9:20 CADE: Cosine Annealing Differential Evolution for Spiking Neural Network

Runhua Jiang (Xiamen University Malaysia, Malaysia); Guodong Du (Harbin Institute of Technology Shenzhen, China); Shuyang Yu, Yifei Guo and Sim Kuan Goh (Xiamen University Malaysia, Malaysia); Ho-Kin Tang (Harbin Institute of Technology Shenzhen, China)

9:40 Adaptive Robot Control Using Modular Reservoir Computing to Minimize Multimodal Errors

Yuji Kawai, Hiroshi Atsuta and Minoru Asada (Osaka University, Japan)

8:20 – 10:00
CEC TU1-R10: Biometrics, Bioinformatics and Biomedical Applications
Conference: CEC
Room: 414+415
Session Chair(s): Wilfried Segretier

8:20 A Survey of Applications of Multi-Objective Evolutionary Algorithms in Biotechnology
Carlos Felipe Coello Castillo (UAM Cuajimalpa, Mexico); Carlos Coello Coello (Cinvestav, Mexico)

8:40 Leveraging Latent Evolutionary Optimization for Targeted Molecule Generation
Siddartha Reddy, Mukkamala Venkata Sai Prakash, Varun V and Saisubramaniam Gopalakrishnan (Quantiphi Analytics, India); Vishal Vaddina (Quantiphi, Canada)

9:00 Prediction of Mycobacterium tuberculosis lineages from annotated whole genome sequences: An evolutionary approach
Wilfried Segretier (University of French West Indies, Guadeloupe); Erick Stattner (University of the French West Indies and Guiana & LAMIA Lab., Martinique); David Couvin (University of French West Indies, Guadeloupe); Nalin Rastogi (Institut Pasteur, France)

9:20 Data sampling via Active Learning in Cartesian Genetic Programming for Biomedical Data
Yuri Lavinas (University of Toulouse, France); Nathaniel Haut (Michigan State University, France); Bill Punch (USA); Wolfgang Banzhaf (Memorial University of Newfoundland, Canada); Sylvain Cussat-Blanc (University of Toulouse 1 Capitole- Irit, France)

8:20 – 10:00
CEC TU1-R11: Real-world Applications III
Conference: CEC
Room: 416+417
Session Chair(s): Takafumi Fukase

8:20 Optimization of Node Reduction Using BRKGA for GNN-Based Traffic Speed Forecasting
Yuto Inokuchi (Kumamoto University, Japan); Pedro Henrique González (Federal University of Rio de Janeiro, Brazil); Israel Mendonca and Masayoshi Aritsugi (Kumamoto University, Japan)

8:40 Evolving Design For Engineering Structures
Rahul Dubey (Missouri State University, USA); Simon Hickinbotham and Edgar Buchanan (University of York, UK (Great Britain)); Andrew Robert Colligan (Queen's University Belfast, UK (Great Britain)); Imelda Friel (Queens University Belfast, UK (Great Britain)); Mark Price (Queen's University Belfast, UK (Great Britain)); Andy Tyrrell (University of York, UK (Great Britain))

9:00 Extending Lexicase DE for a Multi-Niche Constraint Satisfaction Industrial Design Problem
Takafumi Fukase (TDK Corporation, Japan); Yuta Kobayashi and Claus Aranha (University of Tsukuba, Japan)

9:20 Dynamic Multi-Workflow Scheduling: A Comparative Analysis of Real-time Data
Sugandha Rathi (Amity University, India); Deepti Mehrotra (AMITY School of Engineering and Technology & Amity Univerisity, India); Renuka Nagpal (Amity University, India); Gautam Srivastava (Brandon University & China Medical University, Canada)

9:40 MVBA_TSC: Majority Voting and Bayesian Average-based Trustful Service Composition in Cloud and Edge Environments
Faten Sebri (University of Jaén, Spain); Rocío Pérez de Prado (University of Jaen, Spain); Zaki Brahmi (Higher Institute of Computer and Communication Techniques, Tunisia)

8:20 – 10:00
CEC TU1-R12: SS on Adaptive EC and SI Algorithms
Conference: CEC
Room: 418
Session Chair(s):

8:20 An Adaptive Metaheuristic Framework for Changing Environments
Bestoun S. Ahmed (Karlstad University, Sweden)

8:40 Effectiveness of an ACO algorithm with Levy Flight for Large-scale Constraint Satisfaction Problems
Takuma Onagi, Kazunori Mizuno and Koichiro Sato (Takushoku University, Japan)

9:00 Q-Learning-Driven Framework for High-Dimensional Optimization Problems
Kanchan Rajwar and Kusum Deep (Indian Institute of Technology Roorkee, India)

9:20 Deep Reinforcement Learning Based Adaptive Environmental Selection for Evolutionary Multi-Objective Optimization
Ye Tian, Lianjie Yao, Shuai Shao, Yajie Zhang and Xingyi Zhang (Anhui University, China)

9:40 Bias in Standard Self-Adaptive Evolution Strategies
Amir Omeradzic and Hans-Georg Beyer (Vorarlberg University of Applied Sciences, Austria)

8:20 – 10:00
CEC TU1-R13: Evolutionary Multi-objective Algorithms IV
Conference: CEC
Room: 419
Session Chair(s): Arnaud Liefooghe

8:20 MOW-P: A Simple yet Efficient Partial Neighborhood Walk for Multiobjective Optimization

Matthieu Basseur, Arnaud Liefooghe and Sara Tari (University of the Littoral Opal Coast, France)

8:40 Repeated ε-Sampling for Many-objective Optimization

Yu Takei, Hernan Aguirre and Kiyoshi Tanaka (Shinshu University, Japan)

9:00 An Effective Algorithm Based on Space Net Optimization for Multi-Objective Optimization

Chun-Wei Tsai, Cheng-Hao Lin and Wei-Hong Wang (National Sun Yat-sen University, Taiwan)

9:20 Pareto Front Estimation Model Optimization for Aggregative Solution Set Representation

Naru Okumura, Keiki Takadama and Hiroyuki Sato (The University of Electro-Communications, Japan)

9:40 A Federated Data-driven Multiobjective Evolutionary Algorithm via Continual Learnable Clustering

Takato Kinoshita, Naoki Masuyama and Yusuke Nojima (Osaka Metropolitan University, Japan)

8:20 – 10:00
FUZZ TU1-R15 SS: Advances on eXplainable Artificial Intelligence Part 1
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Tajul Rosli Razak

8:20 Beyond large language models: rediscovering the role of classical statistics in modern data science

Inmaculada Gutiérrez, Daniel Gomez and Javier Castro (Complutense University of Madrid, Spain); Bruce Bimber and Julien Labarre (University of California Santa Barbara, USA)

8:40 A User Study on the Utility of Context-aware Explanations for Assisting Data Scientists in Error Analysis of Fuzzy Decision Trees

Guillermo Fernandez (University of Castilla-La Mancha, Spain); Jose M. Alonso-Moral (Universidade de Santiago de Compostela, Spain); Jose Gamez, José Puerta and Juan Aledo (University of Castilla-La Mancha, Spain); Alberto Bugarín-Diz (Universidade de Santiago de Compostela, Spain)

9:00 A Comprehensive Guideline to Design Interpretable Hierarchical Fuzzy Systems

Tajul Rosli Razak (UiTM Shah Alam, Malaysia); Jonathan Garibaldi (University of Nottingham, UK (Great Britain)); Christian Wagner (Nottingham, UK (Great Britain))

9:20 Generating locally relevant explanations using causal rule discovery

Te Zhang (University of Nottingham, UK (Great Britain)); Christian Wagner (Nottingham, UK (Great Britain))

8:20 – 10:00
FUZZ TU1-R16: Fuzzy data analysis Part 1
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Pasi Luukka

8:20 Robustness of General Type-2 TSK Fuzzy Systems

Dhan Jeet Singh (Indian Institute of Technology Kanpur, India); Mohd Aquib (Indian Institute of Technology, Kanpur, India); Teena Sharma (Indian Institute of Technology Guwahati, India); Nishchal K Verma (Indian Institute of Technology Kanpur, India)

8:40 Fuzzifying Chaos in Dynamical Systems

Ricardo A Rios (Federal University of Bahia, Brazil & Institute of Computing, Brazil); Tatiane Nogueira Rios and Marcos V Ferreira (Federal University of Bahia, Brazil)

9:00 Three Fuzzy Clustering Algorithms for Nominal Data: Enhancement through Tsallis Entropy-based Feature Weighting and q-Divergence-based Fuzzification

Yuchi Kanzawa (Shibaura Institute of Technology, Japan)

9:20 NNAWA: A Granular Nearest Neighbor Imputation Technique Based on Alpha-Weighted Average

Pasi Luukka (Lappeenranta University of Technology, Finland); Jan Stoklasa (Finland); Mahinda Mailagaha Kumbure (Finland)

9:40 A cluster validity protocol to evaluate internal indices for clustering of high-dimensional datasets

Fernanda Silva Eustáquio (Universidade Federal da Bahia, Brazil); Ricardo A Rios (Federal University of Bahia, Brazil & Institute of Computing, Brazil); Tatiane Nogueira Rios (Federal University of Bahia, Brazil)

8:20 – 18:40
Exhibition
Room: 501+502

10:00 – 10:20
Break

10:20 – 11:30
IEEE Frank Rosenblatt Award Ceremony and Recipient Plenary Talk by Marios M. Polycarpou
Room: 301+302+303+304
Session Chair(s): Yaochu Jin

Connecting Computational Intelligence to the Cyber-Physical World

Marios M. Polycarpou
University of Cyprus

The development of cyber-physical systems with multiple sensor/actuator components and feedback loops has given rise to advanced automation applications, including energy and power, intelligent transportation, water systems, manufacturing, etc. Traditionally, feedback control has focused on enhancing the tracking and robustness performance of the closed-loop system; however, as cyber-physical systems become more complex and interconnected and more interdependent, there is a need to refocus our attention not only on performance but also on the resilience of cyber-physical systems. In situations of unexpected events and faults, computational intelligence can play a key role in improving the fault tolerance of cyber-physical systems and preventing serious degradation or a catastrophic system failure. The goal of this presentation is to provide insight into the design and analysis of intelligent monitoring methods for cyber-physical systems, which will ultimately lead to more resilient societies.

11:30 – 13:00
Lunch

13:00 – 14:00
Keynote talk by Masashi Sugiyama
Conference: IJCNN
Room: 301+302
Session Chair(s): Petia Georgieva

Towards More Robust and Reliable Machine Learning
Masashi Sugiyama
Riken, The University of Tokyo

In statistical machine learning, training data is often full of uncertainties due to insufficient information, label noise, and bias. In this talk, I will give an overview of our research on reliable machine learning, including weakly supervised learning, noise-robust learning, and transfer learning. Then, I will discuss our recent challenges to integrate these approaches and develop a generic machine learning methodology with fewer modeling assumptions.

13:00 – 14:00
Keynote talk by Handing Wang
Conference: CEC
Room: 303+304
Session Chair(s): Yaochu Jin

Challenges in Data-Driven Evolutionary Optimization
Handing Wang
Xidian University

Many real-world problems that are optimized based on data collected from historical records, numerical simulations, or physical experiments are called data-driven optimization problems. The interdisciplinary research area of data-driven evolutionary optimization involves techniques in data science, machine learning, and evolutionary algorithms. In an evolutionary data-driven optimization framework, data will be collected at first. Then, surrogate models, which are machine learning models, are built from the data to approximate the real objective functions and / or constraint functions. Given the approximated objective or constraint functions, evolutionary algorithms can then be applied to perform optimization. This talk will highlight the current challenges of data-driven evolutionary optimization based on the view of real-world applications. Also, the techniques to address those challenges will be introduced.

13:00 – 14:00
Keynote Talk by Francisco Herrera
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Susana Vieira

Fuzzy Systems to Support Safe and Trustworthy Artificial Intelligence
Francisco Herrera
University of Granada

Artificial Intelligence (AI) has matured as a technology, AI has quietly entered our lives, and it has taken a giant leap in the last year. Image generative AI models or the latest evolutions of large language models have meant that AI has gone, in just a few months, practically from science fiction to being an essential part of the daily lives of hundreds of millions of people around the world.

This emergence goes hand in hand with a growing global debate on the ethical dimension of AI which raises the need for responsible, fair, inclusive, trustworthy, safe, transparent and accountable frameworks. Two essential concepts emerge in this scenario. 1) Trustworthy AI, supported on the legal, ethical, and technical robustness pillars, including seven technical requirements. 2) AI safety, which encompass machine ethics and AI alignment, aiming to make AI systems moral and beneficial, and robustness technical problems (including monitoring systems for risks, robustness against adversaries, detecting malicious use, attacks and backdoors, …) Safe and trustworthy AI is a critical area to meet upcoming regulations, the necessary auditability metrics for their analysis and compliance, address ethical issues, manage risk analysis in human-AI system interaction, and ensure the technical soundness of responsible AI systems (auditability and accountability during its design, development and use). This talk addresses the role that fuzzy systems can play in supporting the technical requirements of safe and trustworthy AI. The use of fuzzy sets and systems can support auditability and accountability metrics, to address different technical requirements for trustworthy (explainability, privacy and federated learning, fairness, ...), and to design fuzzy monitoring systems for robustness, ... Finally, we should delve into another essential aspect, discuss and think about the development of fuzzy technologies that fit into the design requirements for auditability and design frameworks for accountable AI systems. This is a great opportunity to explore in today's emerging safe and trustworthy AI scenario.

14:00 – 14:20
Break

14:20 – 18:40
Workshop: International Workshop on Forging Trust in Artificial Intelligence
Room: 211+212

14:20 – 18:40
Workshop on Computational Intelligence Applications
Room: 213

14:20 – 16:20
IJCNN S6_14 Special Session Mixed: A Human-Centric Perspective of AI and Advancements
Conference: IJCNN
Room: 301+302
Session Chair(s): Di Nardo Emanuel

14:20 Towards Compact and Explainable Deep Belief Networks
Jan Bronec and Iveta Mrazova (Charles University, Czech Republic)

14:40 Explainable Visual Question Answering via Hybrid Neural-Logical Reasoning
Jingying Gao and Alan Blair (University of New South Wales, Australia); Maurice Pagnucco (The University of New South Wales, Australia)

15:00 Neuroscience-Informed Interpretability of Intermediate Layers in Artificial Neural Networks
Oziel Cortés Piña, Adolfo A. Villegas-Jiménez, Fernando Aguilar-Canto, Jr., Omar Juárez Gambino and Hiram Calvo (Instituto Politécnico Nacional, Mexico)

15:20 Revealing the Unseen: Explainable AI-Driven Masked Face Recognition
Madhu Kashania and Ankit Rajpal (University of Delhi, India); Sheetal Rajpal (Department of Computer Science, Dyal Singh College, University of Delhi, Delhi, India.); Naveen Kumar (University of Delhi, India)

15:40 The SAME Score: Improved Cosine Based Measure for Semantic Bias
Sarah Schröder, Alexander Schulz and Barbara Hammer (Bielefeld University, Germany)

16:00 OAA: An Abstraction for Efficient Accelerator Adaptation in Deep Learning Frameworks
Zhengxian Lu (Nankai University, China); Chengkun Du (Huawei Technologies, China); Xueshuo Xie (Haihe Lab of ITAI, China); Qiankun Dong, Cheng Gong and Li Tao (Nankai University, China)

14:20 – 16:20
IJCNN S6_15: Neuroengineering
Conference: IJCNN
Room: 303+304
Session Chair(s): Hubert Cecotti

14:20 SwinTaste: Bimodal Biosignals Taste Sensation Recognition via Swin Transformer
Han Gao, Shuo Zhao and You Wang (Zhejiang University, China); Zhang Jin (Changsha University of Science & Technology, China); Wei Yao (Changsha University of Science and Technology, China); Zhiyuan Luo (Royal Holloway University of London, UK (Great Britain)); Guang Li (Zhejiang University, China)

14:40 Single-Trial Detection and Session Detection in a Rapid Serial Visual Presentation Task with Covariate, Target Probability, and Concept Shifts
Hubert Cecotti (California State University, Fresno, USA)

15:00 Low-Latency Deep Learning Inference Schedule on Multi-Core MCU
Chaonong Xu and Min Liu (China University of Petroleum (Beijing), China); Chao Li (zhejiang lab, China); Weiming Kong (China University of Petroleum, Beijing, China)

15:20 Energy-Efficient Seizure Detection Suitable for Low-Power Applications
Julia Werner (University of Tübingen & Embedded Systems, Germany); Bhavya Kohli (Indian Institute of Technology Bombay, India); Paul Palomero Bernardo (University of Tuebingen, Germany); Christoph Gerum (University of Tübingen, Germany); Oliver Bringmann (University of Tuebingen, Embedded Systems / FZI, Germany)

15:40 New-Design Orthotic Footwear for Tactile Stimulation: A Pilot Study on Two Distinct Stimuli
Wachirayongyot Thimabut (Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Natapatchakrid Thimabut (Srinakharinwirot University, Thailand); Liang Peng (Institute of Automation, Chinese Academy of Sciences, China); Zeng-Guang Hou (Chinese Academy of Sciences, China)

16:00 A Neuromorphic Architecture for Reinforcement Learning from Real-Valued Observations
Sergio Chevtchenko and Yeshwanth Bethi (Western Sydney University, Australia); Teresa B Ludermir (Universidade Federal de Pernambuco, Brazil); Saeed Afshar (Western Sydney University, Australia)

14:20 – 16:20
IJCNN S6_16: Neurodynamics
Conference: IJCNN
Room: 311+312
Session Chair(s): Rafael Afonso Rodrigues

14:20 Computational Effects of Free-Flowing Ion Concentrations in Spiking Neural Networks
Rafael Afonso Rodrigues and Simon O'Keefe (University of York, UK (Great Britain))

14:40 A Novel Wireless CPG Based on Ergodic Sequential Logic Dynamics: Synchronization Analysis, Efficient FPGA Implementation, and Applications to Robot Control and Functional Electronic Stimulation
Rikuto Nozu, Yunosuke Takemae and Hiroyuki Torikai (Hosei University, Japan)

15:00 Adaptive Federated Learning for EEG Emotion Recognition
Calvin Chan and Qingqing Zheng (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China); Chengjian Xu (University of Chinese Academy of Sciences, China); Qiong Wang (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China); Pheng Ann Heng (The Chinese University of Hong, Hong Kong)

15:20 LSvT: EEG Channel Localization and Selection via Training for BCI Applications
Chun-Ming Huang (TSRI, NARL, Taiwan); Wei-Lin Lai (TSRI, Taiwan); Chih-Chyau Yang (Taiwan Semiconductor Research Institute, NARLabs, Taiwan); Yi-Jie Hsieh (TSRI, Taiwan); Chien-Ming Wu (Taiwan Semiconductor Research Institute (TSRI), Taiwan); Chu-Hui Lee (Chaoyang University of Technology, Taiwan)

15:40 CASTNet: Cycle-Consistent Attention-Based Network for Decoding Open/Close Hand Movement Attempts Using EEG
Han Wei Ng (Nanyang Technological University & AI Singapore, Singapore); Kavitha Thomas (Nanyang Technological University, Singapore); Neethu Robinson (NTU Singapore, Singapore); Aung Aung Phyo Wai, Leran Jenny Liang, Nishka Khendry, Aarthy Nagarajan and Cuntai Guan (Nanyang Technological University, Singapore)

16:00 A Debiased Domain Adaptation Framework with Minimum Class Confusion for Motor Imagery Decoding
Cunhang Fan, Zhen Chen, Xun Song, Xinhui Li, Jun Xue, Ping Li and Zhao Lv (Anhui University, China)

14:20 – 16:20
IJCNN S6_17: Neural Networks Models - Spiking, Recurrent, Deep Learning
Conference: IJCNN
Room: 313+314
Session Chair(s): Lennard Bodden

14:20 Spiking CenterNet: A Distillation-Boosted Spiking Neural Network for Object Detection
Lennard Bodden and Duc Bach Ha (Fraunhofer IAIS, Germany); Franziska Schwaiger (Fraunhofer IKS, Germany); Lars Kreuzberg (Fraunhofer IAIS, Germany); Sven Behnke (University of Bonn, Germany)

14:40 EvSegSNN: Neuromorphic Semantic Segmentation for Event Data
Dalia Hareb (Université Côte d'Azur & Laboratoire d'Informatique, Signaux Et Systémes de Sophia Antipolis (I3S), France); Jean Martinet (Université Côte d'Azur, Laboratoire d'Informatique Systémes et Signaux de Sophia Antipolis (I3S), France)

15:00 OneSpike: Ultra-Low Latency Spiking Neural Networks
Kaiwen Tang and Zhanglu Yan (National University of Singapore, Singapore); Weng-Fai Wong (National University off Singapore, Singapore)

15:20 Neuron Efficiency Index: An Empirical Method for Optimizing Parameters in Deep Learning
Basim Azam (University of Melbourne, Australia); Deepthi Praveenlal Praveenlal Kuttichira and Brijesh Verma (Griffith University, Australia)

15:40 Structured Latent Space for Lightweight Prediction in Locally Interacting Discrete Dynamical Systems
Beomseok Kang, Minah Lee, Harshit Kumar and Saibal Mukhopadhyay (Georgia Institute of Technology, USA)

14:20 – 16:20
IJCNN S6_18: Neural Networks Models - Recurrent and Other Topics in ANN
Conference: IJCNN
Room: 315
Session Chair(s): Angelo Ciaramella

14:20 Bilateral Unsymmetrical Graph Contrastive Learning for Recommendation
Jiaheng Yu, Jing Li, Yue He, Kai Zhu and Shuyi Zhang (Wuhan University, China); Wen Hu (Wuchang University of Technology, China)

14:40 Aquaformer: Underwater Image Enhancement via Adaptive Transformer
Harsh Bhandari (Indian Statistical Institute, India); Sarbani Palit (Indian Statistical Institute, Calcutta, West Bengal, India)

15:00 A Neural Network Architecture for Learning a Feedback Controller from Demonstration
Arash Mehrabi (Ozyegin University, Turkey); Erhan Oztop (Osaka University & Ozyegin University, Japan)

15:20 A Novel Physics-Informed Recurrent Neural Network Approach for State Estimation of Autonomous Platforms
Adolfo Perrusquia (Cranfield University, UK (Great Britain)); Weisi Guo (Cranfield University & Alan Turing Institute, University of Warwick, UK (Great Britain))

15:40 Quaternion Recurrent Neural Network with Real-Time Recurrent Learning and Maximum Correntropy Criterion
Pauline Bourigault (Imperial College London, UK); Dongpo Xu (Northeast Normal University, China); Danilo Mandic (Imperial College, London, UK (Great Britain))

16:00 MARKS-Mech: A Mask-Based Prior Knowledge Dissemination Mechanism for Including Discourse Relations for Sentiment Classification
Shashank Gupta, Antonio Robles-Kelly, Mohamed Reda Bouadjenek, Asef Nazari and Dhananjay Thiruvady (Deakin University, Australia)

14:20 – 16:20
IJCNN S6_19: Neural Networks Models and Other topics in ANN 3
Conference: IJCNN
Room: 411+412
Session Chair(s): Yoshitsugu Kakemoto

14:20 Learning Feature Bindings with EVSF-Network
Yoshitsugu Kakemoto (The JSOL, Ltd, Japan); Shinichi Nakasuka (The University of Tokyo, Japan)

14:40 Cohesive Explanation for Time Series Prediction
Bin Li (TU Dortmund University, Germany); Emmanuel Müller (TU Dortmund, Germany)

15:00 Robust Neural Pruning with Gradient Sampling Optimization for Residual Neural Networks
Juyoung Yun (Stony Brook University, USA)

15:20 Improving Speech Emotion Recognition Through Hierarchical Classification and Text Integration for Enhanced Emotional Analysis and Contextual Understanding
Nawal Alqurashi, Yuhua Li and Kirill Sidorov (Cardiff University, UK (Great Britain))

15:40 Temporal Encoding for Sequential Recommendation
Zhichao Zhong and Ling Luo (University of Melbourne, Australia); Xiaohan He (Victoria University, Australia); Hao Li (Hunan University, China)

16:00 Steganographic Encryption and Decryption Using Duality Preserving GANs
Aaryak Shah (Indian Institute of Information Technology and Management, Gwalior, India); Alok K Kamal (Indian Institute of Information Technology and Management, India)

14:20 – 16:20
IJCNN S6_20: Neural Networks Models and Other topics in ANN 2
Conference: IJCNN
Room: 413
Session Chair(s): Yuqi Feng

14:20 Robust Neural Architecture Search Under Long-Tailed Distribution
Yuqi Feng, Jian Zhang and Yanan Sun (Sichuan University, China)

14:40 Data-Free Backdoor Model Inspection: Masking and Reverse Engineering Loops for Feature Counting
Qi Zhou (Harbin Institute of Technology, Shenzhen, China); Wenjian Luo (Harbin Institute of Technology, China); Zipeng Ye (Harbin Institute of Technology, Shenzhen & 38th Annual AAAI Conference on Artificial Intelligence (AAAI2024), China); Yubo Tang (Harbin Institute of Technology, China)

15:00 Prototypical Contrastive Learning Through Alignment and Uniformity for Recommendation
Yangxun Ou and Lei Chen (East China Normal University, China); Fenglin Pan (Zhejiang University of Technology, China); Yupeng Wu (East China Normal University, China)

15:20 High Frequency Feature Distillation Network for Compressive Sensing Reconstruction
Fuma Kimishima and Jiayao Xu (Hosei University, Japan); Manato Shirai (Graduate School & Hosei University, Japan); Jinjia Zhou (Hosei University, Japan)

15:40 Fast Solving Partial Differential Equations via Imitative Fourier Neural Operator
Lulu Cao (Xiamen University, China); Haokai Hong (The Hong Kong Polytechnic University, Hong Kong); Min Jiang (Xiamen University, China)

16:00 Graph Structure Optimization Using Simulated Annealing
Dongdong Nian and Ercan Kuruoglu (Tsinghua University, China)

14:20 – 16:20
CEC TU2-R10: SS on The 2nd Edition of the Quantum Artificial Intelligence
Conference: CEC
Room: 414+415
Session Chair(s):

14:20 An Innovative Knowledge Learning Adaptive Quantum-inspired Algorithm for Trend Ratio-Based Portfolio Construction Model
Shu-Yu Kuo (National Taiwan University, Taiwan); Yu-Chi Jiang (Princeton University, USA); Ching-Hsuan Wu, Cheng-Yen Hua and Yun-Ting Lai (National Chi Nan University, Taiwan); Yao-Hsin Chou (National Chi-Nan University, Taiwan)

14:40 A Quantum-inspired Multi-objective Portfolio Strategy Based on Trend Ratio Model in Global Financial Network
Yao-Hsin Chou (National Chi-Nan University, Taiwan); Yun-Ting Lai, Yong Feng Tong, Alvin Young, Ming-Ho Chang and Kun-Min Wu (National Chi Nan University, Taiwan); Yu-Chi Jiang (Princeton University, USA); Shu-Yu Kuo (National Taiwan University, Taiwan)

15:00 Urban Land Cover Classification with Efficient Hybrid Quantum Machine Learning Model
Fan Fan (Technical University of Munich & German Aerospace Center, Germany); Yilei Shi (Technical University of Munich, Germany); Xiao Xiang Zhu (German Aerospace Center (DLR), Remote Sensing Technology & Technical University of Munich (TUM), Signal Processing in Earth Observation, Germany)

15:20 Hybrid Quantum Annealing with Innovative Trend Ratio Model for Portfolio Optimization
Yao-Hsin Chou (National Chi-Nan University, Taiwan); Ching-Hsuan Wu and Pei-Shin Huang (National Chi Nan University, Taiwan); Shu-Yu Kuo (National Taiwan University, Taiwan); Yu-Chi Jiang (Princeton University, USA); Sy-Yen Kuo and Ching-Ray Chang (National Taiwan University, Taiwan)

15:40 Improving Quantum Genetic Algorithms through Recursive Search Space Exploration
Giovanni Acampora (University of Naples Federico II & Istituto Nazionale di Fisica Nucleare, Italy); Autilia Vitiello (University of Naples Federico II, Italy)

14:20 – 16:20
CEC TU2-R11: SS on Advances in CI in Health and Medicine (ACIHM)
Conference: CEC
Room: 416+417
Session Chair(s): Yasin Mamatjan and Tayo Obafemi-Ajayi

14:20 Indoor Area Location System Using UWB Technology and Axis-Linear Bounding Boxes
José Luis López Ruiz, Sr. and Jose María Jiménez Villar (University of Jaén, Spain); Antonio Pedro Albín Rodríguez (Education and Sports Council, Spain); Macarena Espinilla Estevez (University of Jaen, Spain)

14:40 Optimized Drug Design using Multi-Objective Evolutionary Algorithms with SELFIES
Tomoya Hömberg (Otto-Von-Guericke University, Germany); Sanaz Mostaghim (Otto von Guericke University Magdeburg, Germany); Satoru Hiwa and Tomoyuki Hiroyasu (Doshisha University, Japan)

15:00 Hyperdimensional Computing Approaches in Single Cell RNA Sequencing Classification
Petros Barmpas, Sotiris K. Tasoulis and Spiros Georgakopoulos (University of Thessaly, Greece); Vassilis Plagianakos (University Of Thessaly, Greece)

15:20 Pan-Cancer Classification System with Explainable AI Interpretation: A Feasibility Study
Yasin Mamatjan (Thompson Rivers University & Princess Margaret Cancer Centre, Canada)

15:40 Introducing the RSNA-VR and the RSNA-DE algorithms for Diagnosing Alzheimer's Disease
Antonio Della Cioppa, Angelo Marcelli and Antonio Iannaccone (University of Salerno, Italy)

16:00 Promoting Diversity in the Evolution of Biological Sequence Data
Michael Dube (University of Guelph, Canada); Sheridan Houghten (Brock University, Canada); Steffen Graether (University of Guelph, Canada)

14:20 – 16:20
Panel: How to Improve and Promote EC Research and EC Conferences
Conference: CEC
Room: 418

14:20 – 16:20
CEC TU2-R13: SS on Generative AI and Heuristic Optimization
Conference: CEC
Room: 419
Session Chair(s):

14:20 Generating Interior Images with Latent User Preferences through GANs
Sakabe Kentaro and Keiko Ono (Doshisha University, Japan); Panagiotis Adamidis (International Hellenic University, Greece); Naohiro Masuda (Doshisha University, Japan)

14:40 Exploring Generative AIs as Population Variation Operator in Multi-objective Optimization Problems
Gerardo Ibarra-Vazquez and Hugo Terashima-Marín (Tecnologico de Monterrey, Mexico); Carlos Coello Coello (Cinvestav, Mexico)

15:00 Prompt Evolutionary Design Optimization with Generative Shape and Vision-Language models
Melvin Wong (Nanyang Technological University, Singapore); Thiago Rios and Stefan Menzel (Honda Research Institute Europe, Germany); Yew Soon Ong (School of Computer Engineering, Nanyang Technological University, Singapore)

15:20 ROIL: Rule Optimization via Large Language Model for Imitation Learning
Yossathorn Tianrungroj (The University of Tokyo, Japan); Hitoshi Iba (University of Tokyo, Japan)

15:40 Assembling Fragmented Domain Knowledge: A LLM-Powered QA System for Taiwan Cinema
Enchun Kuo and Yea-Huey Su (National Central University, Taiwan)

14:20 – 16:20
FUZZ TU2-R15: SS: Advances on eXplainable Artificial Intelligence Part 2
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Vladik Kreinovich

14:20 An Explainable Smart Agriculture System based on In-Vivo Biosensors
Riccardo Pecori (eCampus University, Italy & IMEM-CNR, Italy); Giovanni Panella (IMEM-CNR and University of Naples Federico II, Italy); Filippo Vurro and Manuele Bettelli (IMEM-CNR, Italy); Michela Fazzolari (IIT-CNR, Italy); Pietro Ducange (University of Pisa, Italy)

14:40 Trustworthy AI in Heterogeneous Settings: Federated Learning of Explainable Classifiers
Mattia Daole, Pietro Ducange, Francesco Marcelloni and Alessandro Renda (University of Pisa, Italy)

15:00 Interpretability Index based on Balanced Volumes for Transparent Models and Agnostic Explainers

Daniel F Leite, Arnab Sharma, Caglar Demir and Axel Ngomo Ngonga (University of Paderborn, Germany)

15:20 Hierarchical Fuzzy Classifier Design Using a Reject Option

Rowan Fuerst, Naoki Masuyama and Yusuke Nojima (Osaka Metropolitan University, Japan)

15:40 A Tractable Approach to Fitting the Choquet Integral for Explainable Prediction and Analysis

Gleb Beliakov, Simon James, Jian-Zhang Wu and Marek Gagolewski (Deakin University, Australia)

16:00 Fairness-aware Classifier Design via Multi-objective Fuzzy Genetics-based Machine Learning

Takeru Konishi and Naoki Masuyama (Osaka Metropolitan University, Japan); Jorge Casillas (University of Granada, Spain); Yusuke Nojima (Osaka Metropolitan University, Japan)

14:20 – 16:20
FUZZ TU2-R16: Fuzzy data analysis Part 2
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Dongjiao Ge

14:20 A noise-robust approach to estimate dimension of sleep EEG in mice using permutation entropy

Kazuki Koyama (Rikkyo University, Japan); Masanori Sakaguchi (University of Tsukuba, Japan); Takaaki Ohnishi (Rikkyo University, Japan)

14:40 Takagi-Sugeno Functional Fuzzy System for Function-on-Function Regression

Dongjiao Ge, Haoming Xie, Linwei Bai and Yuxin Yan (City University of Macau, Macao)

15:00 A Study on Multi-Class Online Fuzzy Classifiers for Dynamic Environments

Kensuke Ajimoto, Yuma Yamamoto, Tomoharu Nakashima and Kusunoki Yoshifumi (Osaka Metropolitan University, Japan)

15:20 Applications of Autonomous Learning Multi Model System to Multiclass Imbalanced Datasets

Andre Seabra (Universidade de Lisboa - Instituto Superior Técnico, Portugal); Rodrigo Saragoça Boal Ventura (IDMEC - Instituto Superior Técnico - Universidade de Lisboa, Portugal); Rui Jorge Almeida (Maastricht University, The Netherlands); Susana Vieira (Universidade de Lisboa - Instituto Superior Técnico, Portugal); João Sousa (IDMEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal)

15:40 Enhancing performance of FCA algorithms via rearrangement of formal contexts
Manuel Ojeda-Hernandez (Universidad de Malaga, Spain); Domingo López-Rodríguez (Universidad de Málaga, Spain)

16:00 Sparse Projected Maximum Entropy Fuzzy c-means
YuAn He, Kensuke Tanioka, Satoru Hiwa and Tomoyuki Hiroyasu (Doshisha University, Japan)

14:20 – 16:40
Poster Session
Conference: IJCNN+CEC
Room: 501+502
Session Chair(s): Petia Georgieva, Zenglin Xu, and Spiros Georgakopoulos

1: Fine-Grained Contrastive Learning for Pulmonary Nodule Classification
Yubin Zheng, Peng Tang and Tianjie Ju (Shanghai Jiao Tong University, China); Weidong Qiu (Shanghai Jiaotong University, China); Bo Yan (Shanghai Chest Hospital, China)

2: Detecting Major Depression Disorder with Multiview Eye Movement Features in a Novel Oil Painting Paradigm
Tianfang Ma and Luyu Liu (Shanghai Jiao Tong University, China); Liming Zhao (Emotion Helper, China); Dan Peng and Yong Lu (Shanghai Jiao Tong University Medical School Affiliated Ruijin Hospital, China); Wei-Long Zheng and Bao-Liang Lu (Shanghai Jiao Tong University, China)

3: Deformable Dual-Path Networks for Chronic Obstructive Pulmonary Disease Staging in CT Images
Chao Min (Xiamen University, China); Xiongbiao Luo (Nagoya University, Japan); Wenkang Fan, Hao Fang and Zhuo Zeng (Xiamen University, China); Xiangxing Chen (Zhongshan Hospital Xiamen University, China); Haichao Peng (Xiamen University, China)

4: Causal Learning for Heterogeneous Subgroups Based on Nonlinear Causal Kernel Clustering
Lu Liu (East China University of Science and Technology, China); Yang Tang (East China University of Science and Technology Shanghai, China); Kexuan Zhang and Qiyu Sun (East China University of Science and Technology, China)

5: Siamese-Like Time-Series Forecasting with Prior Anomaly Detection and Inner Reconstruction
Li Shen, Yuning Wei, Yangzhu Wang, Xuyi Fan and Minghao Zhao (Beihang University, China)

6: Enhancing Few-Shot Classification Through Token Selection for Balanced Learning
Wangding Zeng, Peiwen Sun and Honggang Zhang (Beijing University of Posts and Telecommunications, China)

7: One-Shot Domain Incremental Learning
Yasushi Esaki, Satoshi Koide and Takuro Kutsuna (Toyota Central R&D Labs., Inc., Japan)

8: Test-Time Similarity Modification for Person Re-Identification Toward Temporal Distribution Shift

Kazuki Adachi and Shohei Enomoto (NTT, Japan); Taku Sasaki (Nippon Telegraph and Telephone Corporation, Japan); Shin'ya Yamaguchi (NTT & Kyoto University, Japan)

9: One Masked Model is All You Need for Sensor Fault Detection, Isolation and Accommodation

Yiwei Fu (GE Research, USA); Weizhong Yan (GE Global Research, USA)

10: TaDFusion: Infrared and Visible Image Fusion Network Based on the Target Detection Task-Driven Method

ShaoHui Jin (ZhengZhou University, China); QiXu Liu, Hao Liu and Mingliang Xu (Zhengzhou University, China)

11: Deep Kernel Calibration

Zunlei Feng, Wenxiang Xu and Tian Qiu (Zhejiang University, China); Jie Lei (Zhejiang University of Technology, China); Huiqiong Wang and Zhongle Xie (Zhejiang University, China)

12: Feature Augmentation for Self-Supervised Contrastive Learning: A Closer Look

Yong Zhang (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China & Sangfor Technologies Inc., China); Rui Zhu (The Chinese University of Hong Kong, Shenzhen, China); Shifeng Zhang and Xu Zhou (Sangfor Technologies Inc., China); Shifeng Chen (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China); Xiaofan Chen (Sangfor Technologies Inc., China)

13: Single-Domain Generalization Combining Geometric Context Toward Instance Segmentation of Track Components

Shixiang Su, Songlin Du, Dezhou Wang, Shuzhen Tong and Xiaobo Lu (Southeast University, China)

14: Heterogeneous Structured Federated Learning with Graph Convolutional Aggregation for MRI-Based Mental Disorder Diagnosis

Yao Hu (City University of Hong Kong, Hong Kong); Rui Liu and JiaQi Zhang (The Hong Kong Polytechnic University, Hong Kong); Zhi-An Huang (City University of Hong Kong, China); Linqi Song (City University of Hong Kong, Hong Kong); Kay Chen Tan (The Hong Kong Polytechnic University, Hong Kong)

15: EFNAS: Efficient Federated Neural Architecture Search Across AIoT Devices

Xiaohui Wei, Guanhua Chen, Chen Yang, Hairui Zhao, Chenyang Wang and Hengshan Yue (Jilin University, China)

16: UWFormer: Underwater Image Enhancement via a Semi-Supervised Multi-Scale Transformer

Weiwen Chen (University of Macau, Macao); Yingtie Lei (China); Shenghong Luo (University of Macau, Macao); Ziyang Zhou and Mingxian Li (Huizhou University, China); Chi-Man Pun (University of Macau, Macao)

17: ShaDocFormer: A Shadow-Attentive Threshold Detector with Cascaded Fusion Refiner for Document Shadow Removal
Weiwen Chen (University of Macau, Macao); Yingtie Lei (China); Shenghong Luo (University of Macau, Macao); Ziyang Zhou and Mingxian Li (Huizhou University, China); Chi-Man Pun (University of Macau, Macao)

18: SQMG: An Optimized Stochastic Quantization Method Using Multivariate Gaussians for Distributed Learning
Jianan Zhang, Zaipeng Xie, Hongxing Li, Xuanyao Jie, Yunfei Wang and Bowen Li (Hohai University, China)

19: GenPower-NeRF: A Neural Radiance Field Method with Powerful Generalization
Zipei Ding, Zhibin Zhang and Yajie Liang (Inner Mongolia University, China)

20: Smart Feature is What You Need
Zhaoxin Hu and Keyan Ren (Beijing University of Technology, China)

21: A Riemannian Residual Learning Mechanism for SPD Network
Zhenyu Cai, Rui Wang, Tianyang Xu and Xiaojun Wu (Jiangnan University, China); Josef Kittler (University of Surrey, UK (Great Britain))

22: CyclePermea: Membrane Permeability Prediction of Cyclic Peptides with a Multi-Loss Fusion Network
Zixu Wang (University of Tsukuba, Japan); Yangyang Chen (Tsukuba University, Japan); Xiucai Ye and Tetsuya Sakurai (University of Tsukuba, Japan)

23: Test-Time Adaptation Meets Image Enhancement: Improving Accuracy via Uncertainty-Aware Logit Switching
Shohei Enomoto (NTT, Japan); Naoya Hasegawa (University of Tokyo, Japan); Kazuki Adachi (NTT, Japan); Taku Sasaki (Nippon Telegraph and Telephone Corporation, Japan); Shin'ya Yamaguchi (NTT & Kyoto University, Japan); Satoshi Suzuki (NTT, Japan); Takeharu Eda (NTT Software Innovation Center, Japan)

24: SentKB-BERT: Sentiment-Filtered Knowledge-Based Stance Detection
Hongzhou Chen, Ke Yan, Mustafa Raad Kadhim, Kui Wu and Ling Tian (University of Electronic Science and Technology of China, China)

25: Scaling Dual Stage Image-Text Retrieval with Multimodal Large Language Models
Zhenyu Wang and YiFei Wu (Donghua University, China)

26: COREX: Document-Level Relation Extraction Framework with Consistent Two-Hop Reasoning and Evidence Sentence Prediction
Silan Zhao (Tsinghua University, China); Chunping Li (School of Software, China)

27: Collaborative Multi-Task Representation for Natural Language Understanding
Yaming Yang (Peking University, China); Defu Cao (University of Southern California, China); Ming Zeng (Carnegie Mellon University, USA); Jing Yu (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China); Xiang Ren (University of Southern California, Japan); Yunhai Tong and Yujing Wang (Peking University, China)

28: PMMC: Prompt-Based Multi-Modal Rumor Detection Model with Modality Conversion
Yehan Liu, Yanran Ren and Jie Sui (University of Chinese Academy of Sciences, China)

29: An Enhanced Adaptive Filter Pruning Algorithm Utilizing Sparse Group Lasso Penalty
Lipeng Chen and Daixi Jia (Chinese Academy of Sciences, China); Sheng Yang (Institute of Software Chinese Academy of Sciences, China); Fengge Wu and Junsuo Zhao (Chinese Academy of Sciences, China)

30: A Method for Cultural Relics Named Entity Recognition Based on Enhanced Lexical Features
Yao Li, He Yan, Yunxiang Yang and Xu Wang (Chongqing University of Technology, China)

31: Scene Text Image Super-Resolution via Content Perceptual Loss and Criss-Cross Transformer Blocks
Rui Qin (School of Software, Tsinghua University, China); Bin Wang (Tsinghua University, China)

32: Self-Supervised Learning Based on Domain Interpolation for Histopathological Image Analysis
Yating Huang (The University of Manchester, UK (Great Britain)); Hujun Yin (University of Manchester, UK (Great Britain))

33: Optimizing Mongolian Abstractive Summarization with Semantic Consistency Enhancement
Yuan Zhao, Hongxu Hou, Jipeng Ma, Shuo Sun, Wei Chen and Shi Guodong (Inner Mongolia University, China)

34: Feature Transformation for Few-Shot Learning
Peizheng Wang, Qifei Zhang, Jie Zhang, Gang Li and Chao Wu (Zhejiang University, China)

35: Learning with Noisy Labels Through Learnable Weighting and Centroid Similarity
Farooq Ahmad Wani, Maria Sofia Bucarelli and Fabrizio Silvestri (Sapienza University of Rome, Italy)

36: Learn from Noise: Detecting Deepfakes via Regional Noise Consistency
Weiming Bai (University of Chinese Academy of Sciences, China); Yufan Liu (Chinese Academy of Sciences Institute of Automation, China); Zhipeng Zhang (DiDiChuxing, China); Xinyi Zhang and Bo Wang (Chinese Academy of Sciences Institute of Automation, China); Chengwei Peng (National Computer Network Emergency Response Technical Team, China); Weiming Hu (CAS, China); Bing Li (Chinese Academy of Sciences Institute of Automation, China)

37: Predict EGFR Mutation Status on CT Images Using Texture and Contour Enhanced Masked Autoencoders

Yuping Peng, Xing Wu, Zhongshi He and ChengLiang Wang (College of Computer Science, Chongqing University, Chongqing 400000, China); Haidong Wang (Department of Thoracic Surgery, Southwest Hospital of Army Medical University, Chongqing, China); Peng Wang and Hongqian Wang (Medical Big Data Center, Southwest Hospital of Army Medical University, Chongqing, China)

38: Retrieval and Sorting of Scientific Documents Based on Stacked Embedding and Hybrid Attention Model

BingHao Zeng (HeBeiUniversity, China); Xuedong Tian (Hebei University, China)

39: Self-Supervised Masked Hypergraph Autoencoders for Spatio-Temporal Forecasting

Yaunpei Huang and Nanfeng Xiao (South China University of Technology, China)

40: DiffuQuant: Diffusion Based Zero-Shot Quantization

Alan Li (Imperial College London, UK (Great Britain))

41: Characteristic-Aware Time-Series Representation Learning for Unsupervised Anomaly Detection

Yaming Yang and Zhuo Li (Peking University, China); Pingping Lin, Juanyong Duan and Hang Zhao (Microsoft, China); Tianmeng Yang (Peking University, China); Congrui Huang (Microsoft, China); Zhengjie Lin, Yunhai Tong and Yujing Wang (Peking University, China)

42: CIS-Net: An End-To-End Chromosome Instance Segmentation Method Based on Disturbance Features Deactivation and Strengthened Disparity

Yulin Tan (Chongqing University, China); Xing Wu (Chongqing University, USA); ChengLiang Wang (Chongqing University, China); Zailin Yang, Longrong Ran and Yao Liu (Chongqing University Cancer Hospital, China)

43: Sensor Fusion and Motion Planning with Unified Bird's-Eye View Representation for End-To-End Autonomous Driving

Yuandong Lyu (Shenzhen Campus of Sun Yat-sen University, China); Xiaojun Tan (Shenzhen Campus of Sun Yat-sen University, China); Ze Yu (Shenzhen Campus of Sun Yat-sen University, China); Zhengping Fan (Sun Yat-sen University, China)

44: NFE-Net: Detection and Segmentation of Thyroid Nodules in Ultrasound Images Based on Nodule Feature Enhanced

Zhaoxin Long (Chongqing University, China); Xing Wu (Chongqing University, USA); Supeng Yin (Chongqing General Hospital, China); ChengLiang Wang (Chongqing University, China); Haidong Wang, Peng Wang and Hongqian Wang (Southwest Hospital of Army Medical University, USA)

45: Using Piecewise Polynomial Activation Functions and Relevance Attention for Long-Term Time-Series Prediction

Linling Jiang and Fan Zhang (Shandong Technology and Business University, China)

46: Multi-Objective Optimization for Sparse Deep Multi-Task Learning

Sedjro Salomon Hotegni, Manuel Berkemeier and Sebastian Peitz (Paderborn University, Germany)

47: Unlocking Chain of Thought in Base Language Models by Heuristic Instruction

Ren Zhuang, Ben Wang and Shuifa Sun (Hangzhou Normal University, China); Yanlong Wang (Communication University of Zhejiang, China); Zhipeng Ding and Wenbo Liu (Hangzhou Normal University, China)

48: Learning Node Representations Under Partial Label Learning

Jiaguo Yuan (Chinese Academy of Sciences, China); Hang Gao (Institute of Software Chinese Academy of Sciences, China); Fengge Wu and Junsuo Zhao (Chinese Academy of Sciences, China)

49: Forecasting Distillation: Enhancing 3D Human Motion Prediction with Guidance Regularization

Yawen Du, Zhihao Wang and Yinming Li (Zhejiang University, China); Xiaosong Yang (Bournemouth University, UK (Great Britain)); Chao Wu and Zhao Wang (Zhejiang University, China)

50: Weakly Supervised Segmentation of Plasma Cells in Bone Marrow via Scribble Annotations

Jian Chen and ChengLiang Wang (Chongqing University, China); Xing Wu (Chongqing University, USA); Longrong Ran, Zailin Yang and Yao Liu (Chongqing University Cancer Hospital, China)

51: Multiple Instance Learning with Fine-Grained Causal Intervention for Histopathological Diagnosis

Xueru Song (East China Normal University, China)

52: Disentangling Racial Phenotypes: Fine-Grained Control of Race-Related Facial Phenotype Characteristics

Seyma Yucer, Amir Atapour-Abarghouei, Noura Al Moubayed and Toby Breckon (Durham University, UK (Great Britain))

53: Cross-Patch Relation Enhanced for Weakly Supervised Semantic Segmentation

Su Huiqing (Tsinghua University, China); Wenqin Huang (Tsinghua Shenzhen International Graduate School, China); Qingmin Liao and Zongqing Lu (Tsinghua University, China)

54: Online Action Detection by Long Short-Term Transformer with Query Exemplars—transformer

Honglei Zhang and Yijing Guo (Xiamen University, China); Xiaofu Du (Huzhou Vocational and Technical College, China)

55: Camouflaged Object Detection Using Multi-Level Feature Cross-Fusion

Tianchi Qiu, Xiuhong Li, Songlin Li, Chenyu Zhou and Kangwei Liu (Xinjiang University, China)

56: Learning Meta Model for Strong Generalization Deepfake Detection

Dezhou Huang (Xidian University, China); Zhang Yuqing (University of Chinese Academy of Sciences, China)

57: Boarding for ISS: Imbalanced Self-Supervised Discovery of a Scaled Autoencoder for Mixed Tabular Datasets

Samuel Stocksieker (Université de Lyon & Aix-Marseille Université, France); Denys Pommeret (Aix Marseille Université, France); Arthur Charpentier (Université du Québec à Montréal, France)

58: Mutual Information-Based Counterfactuals for Fair Graph Neural Networks

Long Chen (Minzu University of China, China); Wenzhuo Chen (Xijing University, China); Jiayi Li (Liaoning University, China); Jiahui Yu (Zhejiang University, China)

59: SOFIM: Stochastic Optimization Using Regularized Fisher Information Matrix

Mrinmay Sen (Indian Institute of Technology Hyderabad & Swinburne University of Technology Hawthorn, Australia); A. Kai Qin (Swinburne University of Technology, Australia); C Gayatri and Raghu Neelisetti (Mahindra University, India); Yen-Wei Chen (Ritsumeikan University, Japan); Balasubramanian Raman (Indian Institute of Technology (IIT) Roorkee, India)

60: Topological Representations of Heterogeneous Learning Dynamics of Recurrent Spiking Neural Networks

Biswadeep Chakraborty and Saibal Mukhopadhyay (Georgia Institute of Technology, USA)

61: Large Language Models as Evolutionary Optimizers

Shengcai Liu (Agency for Science, Technology and Research & Southern University of Science and Technology, Singapore); Caishun Chen (ASTAR, Singapore); Xinghua Qu (Shanda Group, Singapore); Ke Tang (Southern University of Science and Technology, China); Yew Soon Ong (School of Computer Engineering, Nanyang Technological University, Singapore)

62: A Hypervolume Contribution Approximation Method Based on Angular Points

Chengxin Wen (Beijing Institute of Tecnoligy, China); Lihua Li and Hongbin Ma (Beijing Institute of Technology, China)

63: Evolving Priority Rules for Online Yard Crane Scheduling with Incomplete Tasks Data

Chenwei Jin (University of Nottingham Ningbo China, China); Ruibin Bai (University of Nottingham Ningbo, China); Huayan Zhang (University of Nottingham Ningbo China, China)

64: A Niching-based Reproduction and Preselection-based Multiobjective Differential Evolution for Multimodal Multiobjective Optimization

Hongyu Lin, Jing Liang and Caitong Yue (Zhengzhou University, China); Yaonan Wang (Hunan University, China)

65: Exploring multi-objective evolutionary approaches for path planning of autonomous mobile robots

Miguel Angel Jiménez-Domínguez, Néstor Andrés García-Rojas and Saúl Zapotecas-Martínez (National Institute of Astrophysics Optics and Electronics, Mexico); Raquel Díaz Hernández (Instituto Nacional de Astrofisica, Optica y Electronica, Mexico); Leopoldo Altamirano (National Institute for Astrophysics, Optics and Electronics, Mexico)

66: A Q-learning Evolutionary Multiobjective Framework for Multiobjective Optimization with Separable and Interacting Variables

Hui Li (Xi'an Jiaotong University, China); Yanhui Tang (Xi'an Jiaotong University, China); Yuxiang Shui (Xi'an Jiaotong University, China); Jianyong Sun (Xi'an Jiaotong University, China)

67: An Enhanced Particle Swarm Algorithm Based on Fitness Landscape Information

Zhenya Diao (Minnan Normal University, China)

68: Multiobjective Bayesian Optimization for Antenna Placement in In-building Distributed Antenna System

Xilei Wu (City University of Hong Kong, Hong Kong); Pei-Qiu Huang (Central South University, China); Linqi Song (City University of Hong Kong, Hong Kong); Hai-Lin Liu (Guangdong University of Technology, China); Qingfu Zhang (City University of Hong Kong, Hong Kong)

69: QGAPHEnsemble: Combining Hybrid QLSTM Network Ensemble via Adaptive Weighting for Short Term Weather Forecasting

Anuvab Sen, Mayukhi Paul and Ananya Sutradhar (Indian Institute of Engineering Science and Technology, India); Sujith Sripadam Sai (National Institute of Technology Rourkela, India); Chhandak Mallick (Jadavpur University, India); Aakash Mallik (National Institute of Technology Karnataka Surathkal, India)

70: A Bilevel Evolutionary Algorithm Based on Upper-level-driven Lower-level Search

Ning Yang, Hai-Lin Liu and Lei Chen (Guangdong University of Technology, China); Yuping Wang (Xidian University, China); Yiu-ming Cheung (Hong Kong Baptist University, Hong Kong)

71: A Survey on Multi-Objective Optimization in Microgrid Systems

Saiful Islam (Otto-von-Guericke-University Magdeburg, Germany); Sanaz Mostaghim (Otto von Guericke University Magdeburg, Germany); Michael Hartmann (SRH University of Applied Sciences, Germany)

72: Harnessing LSTMs for Enhanced Prediction of Psychotic Episodes in Schizophrenia Spectrum

Paraskevi V. Tsakmaki, Sotiris K. Tasoulis and Spiros Georgakopoulos (University of Thessaly, Greece); Vassilis Plagianakos (University Of Thessaly, Greece)

16:40 – 18:40
IJCNN S6_21: Neural Networks Models and Other topics in ANN 1
Conference: IJCNN
Room: 301+301
Session Chair(s):

16:40 Look and Review, Then Tell: Generate More Coherent Paragraphs from Images by Fusing Visual and Textual Information
Zhen Yang (Beijing Institute of Technology, China); Hongxia Zhao (Chineae Academy of Sciences, China); Ping Jian (Beijing Institute of Technology, China)

17:00 Growing NAS for Complex-Valued CNNs in Digital Predistortion Power Amplifier Applications
Jiang Xiao and Yi Zhong (University of Electronic Science and Technology of China, China); Yun Li (University of Electronic Science and Technology of China, UK (Great Britain))

17:20 Image Caption Method from Coarse to Fine Based on Dual Encoder-Decoder Framework
Zefeng Li, Yuehu Liu and Yonghong Song (Xi'an Jiaotong University, China)

17:40 SARA: Semantic-Assisted Reinforced Active Learning for Entity Alignment
Ching-Hsuan Liu (Academia Sinica, National Taiwan University, Taiwan); Chih-Ming Chen (Academic Sinica, National ChengChi University, Taiwan); Jing-Kai Lou (KKCompany, Taiwan); Ming-Feng Tsai (National Chengchi University, Taiwan); Jiun-Lang Huang (Graduate Institute of Electronics Engineering, National Taiwan University, Taiwan); Chuan-Ju Wang (Academic Sinica, Taiwan)

18:00 Waving Goodbye to Low-Res: A Diffusion-Wavelet Approach for Image Super-Resolution
Brian Bernhard Moser (RPTU Kaiserslautern-Landau & German Research Center for Artificial Intelligence (DFKI), Germany); Stanislav Frolov (German Research Center for Artificial Intelligence, Germany); Federico Raue and Sebastian Palacio (DFKI, Germany); Andreas Dengel (Deutsche Forschungszentrum für Künstliche Intelligenz GmbH, Germany)

18:20 Eyes Attribute Editing Assisted by Dual-Coordinate System and Multi-Probability Fusion Prediction
Zheyi Sun, Hao Liu and Jiu Zhen Liang (Changzhou University, China)

16:40 – 18:40
IJCNN S6_22: Large scale models, Modular networks and Other topics
Conference: IJCNN
Room: 303+304
Session Chair(s): Guilherme N. DeSouza and Abdellah Madane

16:40 Anchor Your Embeddings Through the Storm: Mitigating Instance-To-Document Semantic Gap

Ramiro N Barros and Kristen K Arguello (Pontifícia Universidade Católica do Rio Grande do Sul & Teia Labs, Brazil); Jonatas Wehrmann (Teia Labs, Brazil)

17:00 One-Pass Generation of Multivariate Time Series Through Conditional Multivariate Modeling

Abdellah Madane (DAVID LAB, France); Florent Forest (EPFL (IMOS), Switzerland); Hanane Azzag (University of Sorbonne Paris Nord, France); Mustapha Lebbah (DAVID LAB, France); Jérôme Lacaille (Safran Aircraft Engines, France)

17:20 Local Attention: Enhancing the Transformer Architecture for Efficient Time Series Forecasting

Ignacio Aguilera-Martos, Andrés Herrera-Poyatos, Julián Luengo and Francisco Herrera (University of Granada, Spain)

17:40 XMNet: XGBoost with Multitasking Network for Classification and Segmentation of Ultra-Fine Grained Datasets

Ramy Farag and Jacket Dembys (University of Missouri, USA); Muhammad Arifuzzaman (US Department of Agriculture, USA); Guilherme N. DeSouza (University of Missouri-Columbia, USA)

18:00 FocusLearn: Fully-Interpretable, High-Performance Modular Neural Networks for Time Series

Qiqi Su and Christos Kloukinas (City, University of London, UK (Great Britain)); Artur Garcez (City, Univeristy of London, UK (Great Britain))

18:20 Halveformer: A Novel Architecture Combined with Linear Models for Long Sequences Time Series Forecasting

Yuan Feng, Kai Xia and Xiaoyu Qu (Ocean University of China, China); Xuwei Hu (Ocean Universtiy of China, China); Long Sun (Ocean University of China, China); Zilong Zhang (OUC, China)

16:40 – 18:40
IJCNN S6_23: Neural Networks Models - Feedforward and Fuzzy
Conference: IJCNN
Room: 311+312
Session Chair(s): Harry Maltby

16:40 Towards Precise 3D Human Pose Estimation with Multi-Perspective Spatial-Temporal Relational Transformers
JianBin Jiao and Xina Cheng (Xidian University, China); Weijie Chen (Xi' an Polytechnic University, China); Xiaoting Yin and Hao Shi (Zhejiang University, China); Kailun Yang (Hunan University, China)

17:00 MALT: Multi-Scale Action Learning Transformer for Online Action Detection
Zhipeng Yang, Ruoyu Wang, Yang Tan and Liping Xie (Southeast University, China)

17:20 PP-YOLO-CS: A Novel Approach for Real-Time Fire and Smoke Detection in Industrial Park Environments
Ming Ma and Mengkun Guo (Inner Mongolia University, China)

17:40 A Frequency Bin Analysis of Distinctive Ranges Between Human and Deepfake Generated Voices
Harry Maltby (UEL, UK (Great Britain)); Wall Julie (University of West London, UK (Great Britain)); Cornelius Glackin (Intelligent Voice Ltd., UK (Great Britain)); Mansour Moniri (University of East London); Nigel Cannings (Intelligent Voice Ltd., UK (Great Britain)); Iwa Salami (University of East London, UK (Great Britain))

18:00 Exponential Synchronization of Multiple Time-Delay Chaotic Systems
Feng-Hsiag Hsiao and Shih-Ming Wang (National University of Tainan, Taiwan)

16:40 – 18:40
IJCNN S6_24: Machine Learning, Neural Models of Perception, Cognition and Action
Conference: IJCNN
Room: 313+314
Session Chair(s): Ponnuthurai Nagaratnam Suganthan

16:40 Wind Speed Forecasting Using an Ensemble Deep Random Vector Functional Link Neural Network Based on Parsimonious Channel Mixing
Ruke Cheng, Ruobin Gao and Minghui Hu (Nanyang Technological University, Singapore); Ponnuthurai Nagaratnam Suganthan (Qatar University, Qatar); Kum Fai Yuen (Nanyang Technological University, Singapore)

17:00 Learning Quantum Phase Estimation by Variational Quantum Circuits

Chen-Yu Liu (Hon Hai Research Institute, Taiwan); Kuan-Cheng Chen and Chu-Hsuan Abraham Lin (Imperial College London, UK (Great Britain))

17:20 SLEEPCVT: Combination of Convolution Neural Network and Vision Transformer for Automatic Sleep Scoring

Chih-En Kuo and Hao-Hsiang Wang (National Chung Hsing University, Taiwan); Tsung-Hua Lu (National Cheng Kung University Hospital, Taiwan)

17:40 PSAIR: A Neuro-Symbolic Approach to Zero-Shot Visual Grounding

Yi Pan and Yujia Zhang (Chinese Academy of Sciences, China); Michael Kampffmeyer (UiT The Arctic University of Norway, Norway); Xiao-Guang Zhao (Institute of Automation, Chinese Academy of Sciences, China)

18:00 GANet: A Pedestrian Crossing Intention Prediction Method Based on Group Modelling and Individual Abnormal Action Detection

Lingqiu Zeng, Guilin Xu, Qingwen Han, Xujing Ding, Lei Ye and Han Hu (Chongqing University, China)

18:20 Few-Shot Camouflaged Object Segmentation

Ziqiu Wang, Yuying Li, Yang Yang and Yamin Li (Hubei University, China); Gaoyang Liu (Huazhong University of Science and Technology, China)

16:40 – 18:40
IJCNN S6_25: Unsupervised learning and clustering, visualisation
Conference: IJCNN
Room: 413
Session Chair(s): Yukihiro Hamasuna

16:40 Masked Multi-Query Slot Attention for Unsupervised Object Discovery

Rishav Pramanik (Jadavpur University, India); José-Fabian Villa-Vásquez (ÉTS Montréal, Canada); Marco Pedersoli (ETS Montreal, Canada)

17:00 Unsupervised Incremental Learning with Dual Concept Drift Detection for Identifying Anomalous Sequences

Jin Li, Kleanthis Malialis, Christos Panayiotou and Marios Polycarpou (University of Cyprus, Cyprus)

17:20 Gaussian Process Based Sequential Regression Models

Kaito Takegawa, Yuya Yokoyama and Yukihiro Hamasuna (Kindai University, Japan)

17:40 Confidence-Oriented Contrastive Graph Clustering

Yan-Di Huang, Guang-Yu Zhang and Dong Huang (South China Agricultural University, China); Chang-Dong Wang (Sun Yat-sen University, China); Yang Liu (Sun Yat-Sen University, China); Enbo Huang (Nanning Normal University, China)

18:00 Label-Free Topic-Focused Summarization Using Query Augmentation

Wenchuan Mu and Kwan Hui Lim (Singapore University of Technology and Design, Singapore)

18:20 Shortcut Detection with Variational AutoEncoders

Nicolas Müller (Fraunhofer AISEC, Germany); Simon Roschmann and Shahbaz Khan (Fraunhofer AISEC and TU Munich, Germany); Philip Sperl (Fraunhofer AISEC, Germany); Konstantin Böttinger (Fraunhofer Research Institution AISEC, Germany)

16:40 – 18:40
CEC TU3-R10: SS on Evolutionary Deep Learning and Applications
Conference: CEC
Room: 414+415
Session Chair(s): Seyed Jalaleddin Mousavirad

16:40 An Evolutionary Compact Deep Transfer Learning with CNN for Hyper-parameter Tuning in Temporal Sorting of Plant Growth

Seyed Jalaleddin Mousavirad (Mid Sweden University, USA); Irida Shallari and Mattias O'Nils (Mid Sweden University, Sweden)

17:00 Automatic design of LSTM networks with skip connections through evolutionary and differentiable architecture search

Ramya Anasseriyil Viswambaran (ESR, New Zealand); Seyed Mohammad Nekooei, Gang Chen and Bing Xue (Victoria University of Wellington, New Zealand)

17:20 Multi-Optimiser Training for GANs based on Evolutionary Computation

Yixia Zhang and Yu Xue (Nanjing University of Information Science and Technology, China); Ferrante Neri (University of Surrey, UK (Great Britain))

17:40 Characterising Deep Learning Loss Landscapes with Local Optima Networks

Yuyang Zhou (University of Nottingham Ningbo China, China); Ferrante Neri (University of Surrey, UK (Great Britain)); Ruibin Bai (University of Nottingham Ningbo, China)

18:00 Genetic Drift Regularization: on preventing Actor Injection from breaking Evolution Strategies

Paul Templier (University of Toulouse & ISAE-SUPAERO, France); Emmanuel Rachelson (ISAE-SUPAERO, Université de Toulouse, France); Antoine Cully (Imperial College London, UK (Great Britain)); Dennis G Wilson (ISAE-Supaero & University of Toulouse, France)

18:20 Evolutionary Design of Long Short Term Memory Networks and Ensembles through Genetic Algorithms

Ramya Anasseriyil Viswambaran (ESR, New Zealand); Seyed Mohammad Nekooei, Gang Chen and Bing Xue (Victoria University of Wellington, New Zealand)

16:40 – 18:40
CEC TU3-R11: SS on Advances in Decomposition-based EMO
Conference: CEC
Room: 416+417
Session Chair(s): Yunpeng Ba

16:40 MOEA/D-CMA Made Better with (1+1)-CMA-ES

Chengyu Lu and Yilu Liu (City University of Hong Kong, Hong Kong); Qingfu Zhang (City University of Hong Kong, Mexico)

17:00 Decomposition-Based Memetic Algorithm for Multi-Objective Fleet Size and Mix Vehicle Routing Problem

Yunpeng Ba, Ruihao Zheng and Zhenkun Wang (Southern University of Science and Technology, China)

17:20 Push and Pull Search with Directed Mating for Constrained Multi-objective Optimization

Ryo Takamiya, Minami Miyakawa, Keiki Takadama and Hiroyuki Sato (The University of Electro-Communications, Japan)

17:40 On a Better Understanding of Unique Identifiers of Pareto Solutions for Multi-criterion Optimization, Visualization, and Decision-making

Anirudh Suresh and Kalyanmoy Deb (Michigan State University, USA)

18:00 Distributed Bit Climbing Algorithm for Binary Multi-objective Optimization

Yudai Tagawa, Hernan Aguirre and Kiyoshi Tanaka (Shinshu University, Japan)

16:40 – 18:40
CEC TU3-R12: Evolutionary Robotics
Conference: CEC
Room: 418
Session Chair(s): Radomil Matousek

16:40 Benchmarking Derivative-Free Global Optimization Methods on Variable Dimension Robotics Problems

Jakub Kudela, Martin Juricek and Roman Parak (Brno University of Technology, Czech Republic); Alexandros Tzanetos (Jönköping University, Sweden); Radomil Matousek (Brno University of Technology, Czech Republic)

17:00 Genetic Algorithm-based Robot Path Planning with the Extraction of Topological Map
Zhen Liu (The University of Tokyo, Japan); Jinglue Xu (the University of Tokyo, Japan); Hitoshi Iba (University of Tokyo, Japan)

17:20 The Virtual Programmable Logic Device, a Novel Machine Learning Architecture
Fraser Borrett and Mark Beckerleg (Auckland University of Technology, New Zealand)

17:40 A Comparison of a Digital and Floating-Point Virtual Programmable Logic Device and an Artifical Neural Network Evolved for Robotic Navigation
Fraser Borrett and Mark Beckerleg (Auckland University of Technology, New Zealand)

18:00 Heterogeneous UAV Swarm Task Allocation via Hierarchy Tolerance Pigeon-Inspired Optimization
Zhiqiang Zheng, Haibin Duan and Yongbin Sun (Beihang University, China)

16:40 – 18:40
CEC TU3-R13: Evolutionary Multitasking and Transfer Learning
Conference: CEC
Room: 419
Session Chair(s): Eric O Scott

16:40 Evolutionary Constrained Multi-Factorial Optimization Based on Task Similarity
Shio Kawakami, Keiki Takadama and Hiroyuki Sato (The University of Electro-Communications, Japan)

17:00 Surrogate-Assisted Adaptive Knowledge Transfer for Expensive Multitasking Optimization
Jiangtao Shen, Huachao Dong, Peng Wang, Xinjing Wang and Wenxin Wang (Northwestern Polytechnical University, China)

17:20 Similar Locality based Transfer Evolutionary Optimization for Minimalistic Attacks
Wenqiang Ma, Yaqing Hou and Hua Yu (Dalian University of Technology, China); Xiangrong Tong (Yantai University, China); Qiang Zhang (Dalian University of Technology, China)

17:40 Varying Difficulty of Knowledge Reuse in Benchmarks for Evolutionary Knowledge Transfer
Eric O Scott (MITRE, USA); Kenneth A De Jong (George Mason University, USA)

18:00 One-Shot Surrogate for Evolutionary Multiobjective Neural Architecture Search
Kuangda Lyu, Maoguo Gong, Hao Li, Yuan Gao and Yue Wu (Xidian University, China); Dan Feng (Xi'an University of Posts and Telecommunications, China); Jiao Shi and Yu Lei (Northwestern Polytechnical University, China)

18:20 A Review on Evolutionary Multiform Transfer Optimization
Yinglan Feng (The Hong Kong Polytechnic University, Hong Kong); Liang Feng (Chongqing University, China); Xiaoming Xue (City University of Hong Kong, Hong Kong); Sam Tak Wu Kwong (Lingnan University, Hong Kong); Kay Chen Tan (The Hong Kong Polytechnic University, Hong Kong)

16:40 – 18:40
FUZZ TU3-R15: SS: Explainable Artificial Intelligence methods in healthcare
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Uzay Kaymak

16:40 A Rule-Based Approach for Interpretable Intensity-Modulated Radiation Therapy Treatment Selection
Xabier Gonzalez-Garcia (Public University of Navarre, Spain); Javier Fumanal Idocin (University of Essex, UK (Great Britain)); Joan M. Nunez do Rio (Universitat Oberta de Catalunya, Spain); Humberto Bustince (Universidad Publica de Navarra, Spain)

17:00 PEFNN: Parallel Evolving Fuzzy Neural Network for Sepsis Identification in Patients
Paulo Vitor De Campos Souza and Mauro Dragoni (Fondazione Bruno Kessler, Italy)

17:20 An Interpretability-Driven Fuzzy Modeling Methodology for Personalized Meal Detection
Danilo Ferreira de Carvalho and Uzay Kaymak (Eindhoven University of Technology, The Netherlands); Pieter Van Gorp (Eindhoven University of Technology & Information Systems, The Netherlands); Natal van Riel (Eindhoven University of Technology, The Netherlands)

17:40 Prototype-based explanations to improve understanding of unsupervised datasets
Gabriella Casalino (University of Bari Aldo Moro, Italy); Giovanna Castellano (University of Bari, Italy); Katarzyna Kaczmarek-Majer (Polish Academy of Sciences, Italy); Gianluca Zaza (University of Bari Aldo Moro, Italy)

18:00 Trading-Off Interpretability and Accuracy in Medical Applications: A Study Toward Optimal Explainability of Hoeffding Trees
Arnab Sharma, Daniel F Leite, Caglar Demir and Axel Ngomo Ngonga (University of Paderborn, Germany)

16:40 – 18:40
FUZZ TU3-R16: Fuzzy data analysis/ SS: Fuzzy and intelligent methods in Data and Text Mining /SS: Fuzzy Logic for Knowledge Graphs
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Katsuhiro Honda

16:40 A Hybrid Federated Learning Model for FCM-Induced ANFIS Under Privacy Consideration
Katsuhiro Honda, Hiroki Minato, Seiki Ubukata and Akira Notsu (Osaka Metropolitan University, Japan)

17:00 Fuzzy attribute implication theory and its application to renewable energies
M. Eugenia Cornejo (Universidad de Cádiz, Spain); Jesus Medina (University of Cádiz, Spain); Francisco Ocaña (Universidad de Cádiz, Spain)

17:20 Aggregation of inconsistency measures of unsolvable fuzzy relation equations
David Lobo, Víctor López-Marchante and Jesus Medina (University of Cádiz, Spain)

17:40 An Uncertainty-Adaptive Self-Organizing Map
Watchanan Chantapakul (Biomedical Engineering Institute, Chiang Mai University, Chiang Mai, Thailand); Sansanee Auephanwiriyakul and Nipon Theera-Umpon (Chiang Mai University, Thailand)

18:00 From Data to Insights: Using Fuzzy Logic in Spatial Data Summarization with Fuzzy Spatial OLAP
Sinan Keskin (Middle East Technical University, Turkey); Adnan Yazici (Nazarbayev Univ, Kazakhstan & Nazarbayev University, Kazakhstan)

18:20 Fuzzy Spatiotemporal RDF Graph Store in Neo4j Databases
Li Yan, Chaojie Zhang and Zongmin Ma (Nanjing University of Aeronautics and Astronautics, China)

16:40 – 18:40
INNS Doctoral Consortium
Room: 411+412

19:00 – 22:00
INNS "AI & Regulations" Section Meeting
Room: 315

19:00 – 20:40
Virtual: Neural Networks in Cyber Security 1
Conference: IJCNN
Room: Zoom 1
Session Chair(s):

19:00 STMS: An Out-Of-Distribution Model Stealing Method Based on Causality
Yunfei Yang (Chinese Academy of Sciences, China); Xiaojun Chen and Zhendong Zhao (Institute of Information Engineering, Chinese Academy of Sciences, China); Yuexin Xuan, Bisheng Tang and Xiaoying Li (Chinese Academy of Sciences, China)

19:20 High Resolution Face Privacy-Enhancing Method Based on Latent Optimization with Identity-Preserving Facial Masking
Haoxuan Tai, Yang Zhang, Bofei Guo, Guibo Luo and Yuesheng Zhu (Peking University, China)

19:40 A Watermark-Based Framework to Actively Protect Deep Neural Networks
Yuling Luo, Yuanze Li, Shunsheng Zhang, Junxiu Liu and Sheng Qin (Guangxi Normal University, China)

20:00 Masked Conditional Diffusion Model for Enhancing Deepfake Detection
Tiewen Chen and Shanmin Yang (Chengdu University of Information Technology, China); Shu Hu (Purdue University, USA); Zhenghan Fang (Johns Hopkins University, USA); Ying Fu and Xi Wu (Chengdu University of Information Technology, China); Xin Wang (University at Albany SUNY, USA)

20:20 QuantumLeak: Stealing Quantum Neural Networks from Cloud-Based NISQ Machines
Zhenxiao Fu, Min Yang and Cheng Chu (Indiana University Bloomington, USA); Yilun Xu and Gang Huang (Lawrence Berkeley National Laboratory, USA); Fan Chen (Indiana University Bloomington, USA)

19:00 – 20:40
Virtual: Neural Networks for Video Processing 1
Conference: IJCNN
Room: Zoom 2
Session Chair(s): Yang Li

19:00 MT-CNN: A Lightweight Spatial-Temporal Convolutional Neural Network for Deep Learning of Complex Trajectory Distributions Based on Area Partitioning
Rongkun Ye, Zhiqiang Lv, Zhihao Xu and Jianbo Li (Qingdao University, China)

19:20 MemoTiChat: A Memory-Augmented Time-Sensitive Model for Ultra-Long Video Understanding

Jianlong Hou, Tao Tao and Jibin Wang (China Mobile Information Technology Center, China); Zhuo Chen and Xuelian Ding (Chinamobile Information Technology Com., LTD, China); Kai Wang (Southeast University, China)

19:40 HeRF: A Hierarchical Framework for Efficient and Extendable New View Synthesis

Xiaoyan Yang, Dingbo Lu, Wenjie Liu, Ling You, Yang Li and Changbo Wang (East China Normal University, China)

20:00 Multi-Involution Memory Network for Unsupervised Video Object Segmentation

Jialing Lin and Bo Li (South China University of Technology, China)

20:20 Visual Dialog with Explicit Co-Reference Resolution and Personality Consistency

Yunpeng Li (Chinese Academy of Sciences, China); Yue Hu (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China); Xu Bai (Chinese Academy of Sciences, China)

19:00 – 20:40
Virtual: Transformers 6
Conference: IJCNN
Room: Zoom 3
Session Chair(s):

19:00 A Transformer-Based Knowledge Graph Embedding Model Combining Graph Paths and Local Neighborhood

Tong Zhu, Huobin Tan, XinYu Chen and Yating Ren (Beihang University, China)

19:20 CTUnet: A Novel Paradigm Integrating CNNs and Transformers for Medical Image Segmentation

Xiaoyu Wang, Chunlin Zhu and Jiaquan Li (Xiamen University, China)

19:40 ECT: Efficient Cross Transformer for Image Deblurring

Chengwei Hu, Weiling Cai and Chen Zhao (Nanjing Normal University, China)

20:00 STPSformer: Spatial-Temporal ProbSparse Transformer for Long-Term Traffic Flow Forecasting

Jun Lu, Dan Wang and Zhanquan Wang (East China University of Science and Technology, China)

20:20 Dual Variational Knowledge Attention for Class Incremental Vision Transformer
Haoran Duan, Rui Sun, Varun Ojha and Tejal Shah (Newcastle University, UK (Great Britain)); Zhuoxu Huang (Aberystwyth University, UK (Great Britain)); Ouyang Zizhou (The University of Edinburgh, UK (Great Britain)); Yawen Huang (Tencent, UK (Great Britain)); Yang Long (Durham University, UK (Great Britain)); Rajiv Ranjan (Newcastle University, UK (Great Britain))

19:00 – 20:40
Virtual: Neural Networks for Natural Language Processing 6
Conference: IJCNN
Room: Zoom 4
Session Chair(s):

19:00 Document-Level Overlapping Event Extraction via ChatGPT Leading Decision and Cross-Sentence Entity Representation Enhancements
Dong Yu and JiaWen Cao (Beijing Language and Culture University, China)

19:20 Beyond Single: Multidimensional Evaluation of Sentence Embeddings in PLMs
Bo Huang, Cui Chen, Xin Liu and Zu-ping Zhang (Central South University, China)

19:40 Internal-External Information Enhanced Causal Reasoning
Yucheng Yao, Fan Yang, Kaiyue Wang and Xiabing Zhou (Soochow University, China)

20:00 Document-Level Event Factuality Identification Using ChatGPT via Cross-Lingual and Syntactic Data Augmentation
Zijie Qian, Zhong Qian, Peifeng Li and Qiaoming Zhu (Soochow University, China)

20:20 Enhancing Code Representation Learning for Code Search with Abstract Code Semantics
Shaojie Zhang (SUSTech, China); Yiwei Ding and Enrui Hu (Huawei, China); Yue Yu (Peng Cheng Lab, China); Yu Zhang (Southern University of Science and Technology, China)

19:00 – 20:40
Virtual: Reinforcement Learning 6
Conference: IJCNN
Room: Zoom 5
Session Chair(s):

19:00 Spatio-Temporal Graph Learning for Enhanced Agent Collaboration in Multi-Aircraft Combat
ZhengChao Wang and Cuiwei Liu (Shenyang Aerospace University, China); Yue Han (SAD-RI Institute, China); Chen Liang (Shenyang Institute of Automation Chinese Academy of Sciences, China); Huaijun Qiu (Shenyang Aerospace University, China)

19:20 Genetic Imitation Learning by Reward Extrapolation
Boyuan Zheng and Jianlong Zhou (University of Technology Sydney, Australia); Jieping Ma (Australia National University, Australia); Fang Chen (University of Technology Sydeny, Australia)

19:40 Signed Safety Field Reinforcement Learning with Multi-Agent System in Competitive and Cooperative Environments
Jianping Li and Guozhen Tan (Dalian University of Technology, China)

20:00 CLIP-Based Semantic Enhancement and Vocabulary Expansion for Video Captioning Using Reinforcement Learning
Lihuan Zheng (Beijing Jiaotong University, China); Ping Guo (Intel, China); Zhenjiang Miao and Wanru Xu (Beijing Jiaotong University, China)

20:20 Remember the past for Better Future: Memory-Augmented Offline RL
Yue Zhang (University of Science and Technology of China, China); Yaodong Yang (Peking University, China); Zhenbo Lu (Hefei Comprehensive National Science Center, China); Wengang Zhou and Houqiang Li (University of Science and Technology of China, China)

19:00 – 20:40
Virtual: Neural Networks for Time Series Data 3
Conference: IJCNN
Room: Zoom 6
Session Chair(s): Guillaume Durand

19:00 Forecasting Hypoxia Events in North Atlantic Ecosystems Using Chaotic Dynamics
Guillaume Durand (National Research Council Canada, Canada); Julio Valdes (Researcher at the National Research Council of Canada, Canada); Olivia Gerry Rice (University of New-Brunswick, Canada); Thomas Guyondet (Fisheries and Oceans Canada, Canada)

19:20 MP3Net: Multi-Scale Patch Parallel Prediction Networks for Multivariate Time Series Forecasting
Daishun Cui and Jiwei Qin (Xinjiang University, China); Fang He (Hongyousoft Co., Ltd., China); Fei Shi, Qiang Li, Dezhi Sun and Jiachen Xie (Xinjiang University, China)

19:40 DPS-Net: Dual-Path Stimulation Network for Continuous Sign Language Recognition
Xiaopeng Tian, Sheng Liu, Yuan Feng, Jiantao Yang, Yineng Zhang and Songqi Pan (Zhejiang University of Technology, China)

20:00 Prompt-Based Chinese Event Temporal Relation Extraction on LLM Predictive Information
Fan Yang, Sheng Xu, Peifeng Li and Qiaoming Zhu (Soochow University, China)

20:20 CorrDCN: Decomposed Convolutional Network with Seasonal Autocorrelation 2D-Variation Modeling for Time Series Forecasting
Jiaqi Chu (Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Chengbao Liu (Chinese Academy of Sciences, China); Jingwei Li and Yuan Li (Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Jie Tan (Institute of Automation, Chinese Academy of Sciences, China)

19:00 – 20:40
Virtual: Neural Networks for Image Processing 11
Conference: IJCNN
Room: Zoom 7
Session Chair(s):

19:00 Attention-Based Deep Neural Network for Point Cloud Learning
Tian lei Wang, Keyu Chen and Ma Luo (University of Electronic Science and Technology of China, China); Hong Qu (University of Electronic Science and Technology of China, USA)

19:20 YOLO-DS: Application of One-Stage Instance Segmentation in the Dark at Construction Sites
Cong Zhang and Jie Shen (UESTC, China)

19:40 Exploring the Impact of Zero-Cost Proxies for Hybrid Vision Transformers
Mario Haddad, Neto (SIDIA Science and Technology Institute & Federal University of Amazonas, Brazil); André Silva (Sidia Science and Technology Institute, Brazil); Rayol Mendonca, Neto (Sidia R&D Institute, Brazil); Luiz Cordovil (Sidia Science and Technology Institute, Brazil)

20:00 MRUIE: Multi-Reference Mapping for Underwater Image Enhancement
Tonglin Cheng, Juan Li, Jintao Luo and Zhihui Li (Beijing University of Technology, China)

20:20 Location IoU: A New Evaluation and Loss for Bounding Box Regression in Object Detection
Lu Yang and Kai Zhang (TIANJIN UNIVERSITY OF TECHNOLOGY); Jiaqi Liu (Autobrain Technology, China); Chongke Bi (Tianjin University, China)

19:00 – 20:40
Virtual: Neural Networks for Image Processing 12
Conference: IJCNN
Room: Zoom 8
Session Chair(s):

19:00 DBDH: A Dual-Branch Dual-Head Neural Network for Invisible Embedded Regions Localization
Chengxin Zhao, Hefei Ling, Sijing Xie, Nan Sun, Zongyi Li, Yuxuan Shi and Jiazhong Chen (Huazhong University of Science and Technology, China)

19:20 SSINet: Snapshot Spectral Imaging Method with Matrix Fusion Module for Face Anti-Spoofing
Xueqian Zhang, Yidong Huang, Shijie Rao, Kaiyu Cui and Ya-Li Li (Tsinghua University, China)

19:40 Study on the Method of Progressive Restoration of Defective Chinese Characters
Wei Wei and Lijun Yan (Dalian Minzu University, China)

20:00 CLIP-Driven Low-Cost Image Captioning
Yiyu Wang and Jungang Xu (University of Chinese Academy of Sciences, China); Yingfei Sun (Sensors Network and Applications Research Center, UCAS, China)

20:20 Learning Frequency-Aware Representation for Low-Light Image Enhancement
Jinlong Wang (University of Chinese Academy of Sciences & Institute of Software, Chinese Academy of Sciences, China); Xiongxin Tang (Chinese Academy of Science, China)

19:00 – 20:40
Virtual: Neural Networks for Medical Data Processing 6
Conference: IJCNN
Room: Zoom 9
Session Chair(s): Sourav Raha

19:00 Enhancing MRI-Based Classification of Alzheimer's Disease with Explainable 3D Hybrid Compact Convolutional Transformers
Arindam Majee, Avisek Gupta and Sourav Raha (TCG CREST, India); Swagatam Das (Indian Statistical Institute, India)

19:20 PEM: A Medical Named Entity Recognition Method Based on Proximity Enhancement
Mei Liu, Zuohua Ding and Hongyun Huang (Zhejiang Sci-Tech University, China)

19:40 CCFN: Depression Detection via Multimodal Fusion with Complex-Valued Capsule Network
Jierui Lei, Qingyi Yang, Bo Li and Wenjian Zhang (Central China Normal University, China)

20:00 Towards Ethical Dermatology: Mitigating Bias in Skin Condition Classification
Anshul Pundhir and Sanchit Verma (Indian Institute of Technology Roorkee, India); Balasubramanian Raman (Indian Institute of Technology (IIT) Roorkee, India)

20:20 2MF-Net: 3D Cardiac Keypoint Detection with Multi-Scale and Multi-Dimension Feature Fusion Net
Guodong Zhang and Yanlin Li (Shenyang Aerospace University, China); Bo Zhou (The People Hospital of Liaoning Province, China); Tingyu Liang (Shenyang Aerospace University, China); Zhuoning Zhang (State Grid, China); Ronghui Ju (The People Hospital of Liaoning Province, China)

19:00 – 20:40
Virtual: Deep Learning for Graphs 11
Conference: IJCNN
Room: Zoom 10
Session Chair(s): Xiuwen Liu

19:00 Nonlinear Correct and Smooth for Semi-Supervised Learning
Yuanhang Shao and Xiuwen Liu (Florida State University, USA)

19:20 Spatiotemporal Adaptive Hybrid Dynamic Graph Convolutional Network for Traffic Flow Prediction
YaMin Wen (Shenzhen University, China); Yuming Huang and Bin Ren (Dongguan University of Technology, China); Yanshan Li and Lianghong Wu (Shenzhen University, China)

19:40 Boosting Fairness for 3D Face Reconstruction
Zeyu Cui (University of Science and Technology of China & USTC, China); Jun Yu (University of Science and Technology of China, China)

20:00 Hypergraph Neural Networks with Logic Clauses
João Pedro Gandarela de Souza and Gerson Zaverucha (Universidade Federal do Rio de Janeiro, Brazil); Artur Garcez (City University of London, UK (Great Britain))

20:20 S2RC-GCN: A Spatial-Spectral Reliable Contrastive Graph Convolutional Network for Complex Land Cover Classification Using Hyperspectral Images
Renxiang Guan (National University of Defense Technology, China); Zihao Li (China University of Geosciences, Wuhan, China); Chujia Song (China University of Geosciences, China); Guo Yu (Wuhan University of Science and Technology, China); Xianju Li (China University of Geosciences, Wuhan, China); Ruyi Feng (China University of Geosciences (Wuhan), China)

19:00 – 20:40
Virtual: Deep Learning for Graphs 12
Conference: IJCNN
Room: Zoom 11
Session Chair(s):

19:00 Encoding Individual Activation and Collective Diffusion Capability for Influence Maximization
Si Chen (Huazhong University of Science and Technology, China); Bang Wang (Huazhong University of Science and Technology (HUST), China)

19:20 PNAHN: Parallel Neighbor Aggregation for Heterogeneous Graph Neural Network
Fan Li, Kaihang Dou and Suixiang Gao (University of Chinese Academy of Sciences, China)

19:40 Multi-Scale Feature Learning with Graph Attention Network for Face Forgery Detection
Yanqun Su, Weiguo Lin, Junfeng Xu and Xintao Liu (Communication University of China, China)

20:00 Using Joint Training for Hybrid Automated Augmentations in Graph Contrastive Learning
Yifu Chen (Heilongjiang University,　China); Qianqian Ren (Heilongjiang University, China)

20:20 Temporal Closing Path for PLM-Based Temporal Knowledge Graph Completion
Xin Zhou, Yongxue Shan, Zixuan Dong and Haijiao Liu (National University of Defense Technology, China); Xiaodong Wang (National University of Defence Technology, China)

19:00 – 20:40
Virtual: Neural Networks for Sentiment Analysis 1
Conference: IJCNN
Room: Zoom 12
Session Chair(s): Yi Huo

19:00 Specific Sentiment Mask Auto-Encoder Model (S2MA) for Image Sentiment Classification
Lehao Xing, Ge Shi and Guang Yang (Beijing University of Technology, China); Lifang Wu (Beijing University Of Technology, China)

19:20 ERC DMSP: Emotion Recognition in Conversation Based on Dynamic Modeling of Speaker Personalities
Xiaoyang Li and Zhenyu Yang (Qilu University of Technology, China); Zhijun Li (QILU University of Technology, China); Yiwen Li (Qilu University of Technology, China)

19:40 MCAF: Multi-Headed Causal Attention Fusion Approach for Multimodal Sentiment Analysis
Qingao Wang, Xingang Wang, Jinxiao Yang and Yurun Bi (Qilu University of Technology, China)

20:00 VAD-Net: Multidimensional Emotion Recognition from Facial Expression Images
Yi Huo (Beijing University of Technology, China); Ge Yun (University of Chinese Academy of Social Sciences, China)

20:20 LaWNet: Audio-Visual Emotion Recognition by Listening and Watching
Kailei Cheng and Lihua Tian (Xi'an Jiaotong University, China); Chen Li (Xi'an Jiaotong University, China)

19:00 – 20:40 **Virtual:** Self-supervised Learning 1 **Conference:** IJCNN **Room:** Zoom 13 **Session Chair(s):** Siamak Mehrkanoon

19:00 A Novel Dual-Stream Time-Frequency Contrastive Pretext Tasks Framework for Sleep Stage Classification
Sergio Kazatzidis and Siamak Mehrkanoon (Utrecht University, The Netherlands)

19:20 NCSE: Neighbor Contrastive Learning for Unsupervised Sentence Embeddings
Zhengfeng Zhang, Peichao Lai, Ruiqing Wang, Feiyang Ye and Yilei Wang (Fuzhou University, China)

19:40 GSDI: Spatio-Temporal Contrastive Learning for Geo-Sensory Data Inference
Songyu Ke (Shanghai Jiao Tong University, China); Yuxuan Liang (The Hong Kong University of Science and Technology Guangzhou, China); Xiuwen Yi, Junbo Zhang and Yu Zheng (JD Intelligent Cities Research, China)

20:00 Tri-Directional Hypergraph Contrastive Learning for Session-Based Recommendation
Da-Ren Dai and Richard Tzong-Han Tsai (National Central University, Taiwan)

20:20 Hierarchical Differential Amplifier Contrastive Learning for Semi-Supervised Extractive Summarization
Jiankuo Li, Xuejie Zhang, Jin Wang, Shitong Cao and Xiaobing Zhou (Yunnan University, China)

19:00 – 20:40
Virtual: Self-supervised Learning 2
Conference: IJCNN
Room: Zoom 14
Session Chair(s):

19:00 Unsupervised Deep Hashing via Sample Weighted Contrastive Learning
Ziyu Meng, Jingyuan Fang and Xiushan Nie (Shandong Jianzhu University, China)

19:20 Pre-Training Encoder-Decoder for Minority Language Speech Recognition
Bo Wang (Yanbian University, unknown); Xiaofeng Jin (Yanbian Universit, China); Mingdong Yu, Guirong Wang and Jiaqi Chen (Yanbian University, China)

19:40 Dynamic Denoising of Contrastive Learning for GNN-Based Node Embedding
Pinyi Zhang (East China Normal University, China); Hexin Bai (ByteDance, USA); Yu Dai (East China Normal University, China); Haibin Ling (Stony Brook University, USA); Kai Zhang (East China Normal University, China)

20:00 Prefix Tuning for Few-Shot Malware Classification with Supervised Contrastive Cross-Entropy Learning
Zhengming Yuan, Yaoxiang Yu and Yue Wu (Wuhan University, China); Siwei Huang (WuHan University, China); Bo Cai (Wuhan University, China)

20:20 Supervised Contrastive Learning with Hard Negative Samples
Ruijie Jiang (Tufts University, USA); Thuan Nguyen (Worcester Polytechnic Institute, USA); Prakash Ishwar (Boston University, USA); Shuchin Aeron (Tufts University, USA)

19:00 – 20:40
Virtual: Machine Learning and Deep Learning Methods Applied to Vision and Robotics 1
Conference: IJCNN
Room: Zoom 15
Session Chair(s):

19:00 Generative Shape Deformation with Optimal Transport Using Learned Transformations
Jorge Azorin-Lopez (University of Alicante, Spain); Marc Sebban (Université Jean Monnet, France); Nahuel E Garcia-d'Urso, Sr. (University of Alicante, Spain); Amaury Habrard (University Jean Monnet, France); Andres Fuster-Guillo (University of Alicante, Spain)

19:20 Aerial-Guided Groupwise CRFs for Multiple Panorama Depth Estimation with Scale-Consistent
Yang Xu (Tsinghua University, China); Jun Ma and Chenggang Yan (Hangzhou Dianzi University, China)

19:40 Stereo Matching Method with Integrated Geometric Encoding for Disparity Refinement
Shujia Ye (Jingdezhen Ceramic University, Jingdezhen City, Jiangxi Province, China); Ligang Cao (Jingdezhen Ceramic University, China); Chun Yuan (Tsinghua University, China); Feng Hao, Lihua Yang, Qianghua Li, Peng Sun and Gang Li (Jingdezhen Ceramic University, China)

20:00 HWA-DETR: Pedestrian Detection Algorithm Based on High-Width Modulation Attention and Branch Decoupling Reparameters for Improving DETR
Xudong Li, Jingzhi Zhang, Linghui Sun, Chengjie Bai and Xinyao Lv (Shandong Normal University, China)

20:20 Energy-Efficient Multi-UAV Collaborative Path Planning Using Levy Flight and Improved Gray Wolf Optimization
Hongtao Zhang, Li Tan, Yuzhao Liu, Tianli Yuan and Haixia Zhao (Beijing Technology and Business University, China); He Liu (Chongqing Academy of Educational Science, China)

19:00 – 20:40
Virtual: Explainable AI 3
Conference: IJCNN
Room: Zoom 16
Session Chair(s):

19:00 A High-Dimensional Temporal Data Publishing Method Based on Dynamic Bayesian Networks and Differential Privacy
Yaxin Wang, Zhen Zhang, Heng Qian and Yongchao Gao (Qilu University of Technology, China); Qiuyue Wang (National Supercomputer Center in Jinan, China)

19:20 Prior-Posterior Knowledge Prompting-And-Reasoning for Surgical Visual Question Localized-Answering
Peixi Peng (Dalian University, China); Wanshu Fan (Dalian University of Technology, China); Wenfei Liu (Affiliated Zhongshan Hospital of Dalian University, China); Xin Yang (Dalian University of Technology, China); Dongsheng Zhou (Dalian University, China)

19:40 FedDADP: A Privacy-Risk-Adaptive Differential Privacy Protection Method for Federated Android Malware Classifiers
Changnan Jiang (Beihang University, China & Aviation System Engineering Institute of China, China); Chunhe Xia and Mengyao Liu (Beihang University, China); Rui Fang and Pengfei Li (National Innovation Center of Intelligent and Connected Vehicles, China); Huacheng Li and Tianbo Wang (Beihang University, China)

20:00 P-I2Prange: An Automatic Construction Architecture for Scenarios in I2P Ranges
Runnan Tan (Guangzhou University, China); Qingfeng Tan (Cyberspace Institute of Advanced Technology, Guangzhou University, China); Haiyan Wang (Peng Cheng Laboratory, China); Yushun Xie (University of Electronic Science and Technology of China, China); Peng Zhang (University of Science and Technology Beijing, China)

20:20 Knowledge Distillation Enables Federated Learning: A Data-Free Federated Aggregation Scheme
JiaYi Huang, Yuanyuan Zhang, Renwan Bi and Jiayin Lin (Fujian Normal University, China); Jinbo Xiong (Fujian Normal University & College of Computer and Cyber Security, China)

19:00 – 20:40
Virtual: Image Super Resolution and Generation 1
Conference: IJCNN
Room: Zoom 17
Session Chair(s):

19:00 A Suitable and Efficient Super-Resolution Network for Neural Video Delivery
Wenbin Tian, Qingmiao Jiang, Haolin Li, Lu Chen and Jinyao Yan (Communication University of China, China)

19:20 TargetSR: Towards Semantic Location Real-World Image Super-Resolution with Diffusion Prior
Shouhao Wu (Wuhan Texture University, Hong Kong); Junjie Zhang (Wuhan Textile University, China)

19:40 NeRF-SR++: Towards Higher Quality Supersampled Neural Radiation Fields
QiangQiang Xiang, Jing Xiao and Jin Huang (South China Normal University, China); Weihao Yu (Research Institute of China Telecom Corporate Ltd., China); Tinghua Zhang (China Electronic Product Reliability and Environmental Testing Research Institut, China); Zhixiong Mo (South China Normal University, China)

20:00 A Two-Stage Enhancement Method for Object Detection on Low-Resolution Images
Zijian Yuan, Mingyang Ling, Kan Chang and Mengyu Yin (Guangxi University, China); Minghong Li (Central South University, China); Boning Chen (The University of Melbourne, Australia)

19:00 – 20:40
Virtual: Neural Networks for Anomaly Detection 1
Conference: IJCNN
Room: Zoom 18
Session Chair(s): Rizal Fathony

19:00 A Full-Granularity Anomaly Detection Model Based on Attribute-Enhanced Sampling
Jiao LongLong (University of Information Engineering, China); Meijuan Yin (Zhengzhou Information Science and Technology Institute, China); Xiangyang Luo (State Key Laboratory of Mathematical Engineering and Advanced Computing & Key Laboratory of Cyberspace Situation Awareness of Henan Province, China); Duan ShunRan (Information Engineering University, China)

19:20 Simultaneously Detecting Node and Edge Level Anomalies on Heterogeneous Attributed Graphs
Rizal Fathony (Grab, Indonesia); Jenn Ng and Jia Chen (Grab, Singapore)

19:40 Surface Anomaly Detection and Localization with Diffusion-Based Reconstruction
Xinyu Sheng (Shanghai University, China); Shande Tuo (Central Southern China Municipal Engineering Design and Research Institute, China); Lu Wang (Shanghai University, China)

20:00 Multi-Task Representation Learning with Temporal Attention for Zero-Shot Time Series Anomaly Detection
Chandana Priya Nivarthi and Zhixin Huang (University of Kassel, Germany); Christian Gruhl (Universit of Kassel, Germany); Bernhard Sick (University of Kassel, Germany)

20:20 HiparaLog: Improving Log-Based Anomaly Detection Through Parameter Feature Integration
Guangming Li, Jiaqing Mo, Gang Zhou and Cheng Li (Xinjiang University, China)

19:00 – 20:40
Virtual: Neural Networks in Health Care 1
Conference: IJCNN
Room: Zoom 19
Session Chair(s):

19:00 CBLA: Empowering Virtual Sensor Nodes with Zero Deployment Costs for SHM Systems
Yang Wang, Ke Lei, Chong Zhang, Xin Wang, Xin Shi and Aihua Deng (Southwest Petroleum University, China)

19:20 Interpretable Transformers for Alzheimer Disease Diagnosis on Multi-Modal Data
Md Sarwar Kamal (University of Technology Sydney, Australia); Sonia Farhana Nimmy (University of New South Wales, Australia)

19:40 Class-Aware Patch Based Contrastive Learning for Medical Image Segmentation
Shaozhi Wu and Han Li (University of Electronic Science and Technology of China, China & Yangtze Delta Region Institute (Quzhou), China); Xingang Liu and Dan Tian (University of Electronic Science and Technology of China, China); Han Su (University of Electronic Science and Technology of China & Yangtze Delta Region Institute (Quzhou), China)

20:00 CampusFall: A Multi-Perspective Indoor and Outdoor Fall Detection Dataset Based on Campus Surveillance
Mansu Gu and Yiran Wang (Xidian University, China); Jing Bai (School of Artificial Intelligence, Xidian University, China); Zheng Chen (Xidian University, China); Jiao Shi (Northwestern Polytechnical University, China)

20:20 Attention-Based Medical Knowledge Injection in Deep Image Classification Models
Yaning Wu and Nathalie Japkowicz (American University, USA); Sebastien Gilbert (The Ottawa Hospital, Canada); Roberto Corizzo (American University, USA)

19:00 – 20:40 **Virtual:** Spiking Neural Networks 1 **Conference:** IJCNN **Room:** Zoom 20 **Session Chair(s):** Ankita Paul

19:00 Data Driven Learning of Aperiodic Nonlinear Dynamic Systems Using Spike Based Reservoirs-In-Reservoir
Ankita Paul, Nagarajan Kandasamy, Kapil Dandekar and Anup Das (Drexel University, USA)

19:20 Knowledge Distill for Spiking Neural Network
Xiubo Liang and Ge Chao (Zhejiang University, China); Mengjian Li (Zhejiang Lab, China); Yijun Zhao (Zhejiang University, China)

19:40 SENSIM: An Event-Driven Parallel Simulator for Multi-Core Neuromorphic Systems
Prithvish Nembhani (TU-Delft, The Netherlands); Kanishkan Vadivel, Guangzhi Tang, Mohammad Tahghighi, Gert-Jan van Schaik and Manolis Sifalakis (IMEC, The Netherlands); Zaid Al-Ars (Delft University of Technology, The Netherlands); Amirreza Yousefzadeh (University of Twente, The Netherlands)

20:00 HL-ESViT: High-Low Frequency Efficient Spiking Vision Transformer
Kexin Shi, Hanwen Liu and Yi Chen (University of Electronic Science and Technology of China, China); Hong Qu (University of Electronic Science and Technology of China, USA)

20:20 Parallel Spiking Unit for Efficient Training of Spiking Neural Networks

Yang Li (Institute of Automation Chinese Academy of Sciences, China); Yinqian Sun (Chinese Academy of Sciences, China); Xiang He (Institute of Automation, Chinese Academy of Sciences (CAS), China); Yiting Dong (University of Chinese Academy of Sciences, China); Dongcheng Zhao (Chinese Academy of Sciences, China); Yi Zeng (Institute of Automation Chinese Academy of Sciences, China)

19:00 – 20:40
Virtual: Machine Learning Algorithms 1
Conference: IJCNN
Room: Zoom 21
Session Chair(s): Huiyan Sun

19:00 Research on the Classification Model of Thangka Subjects Based on Efficient PatchEmbed

Qin Yang, Jin Yang, Shengqiao Ni, Jing Zhang, Hang Ren and Nuo Qun (Tibet University, China)

19:20 Active GAN-Based Minority Oversampling for Imbalanced Data

Ping Gu (ChongQing University, China); Yong Lu (Chongqing University, China)

19:40 Estimating Individual Causal Treatment Effect by Variable Decomposition

Hongyang Jiang, Yonghe Zhao, Qiang Huang, Yangkun Cao, Huiyan Sun and Yi Chang (Jilin University, China)

20:00 Multi-Target NeuralLss Regression with Learned Confidence Space

Yuchen Lu (Shanghai Jiao Tong University & Learnable.Ai, China); Yuanqi He (Shanghai Jiao Tong University & Learnable Inc., China); Chunlong Fang (Learnable Inc., China); Ziyao Sun (Cary Academy, USA); Guan Wang (Shanghai Jiao Tong University & Learnable, Inc, China)

19:00 – 20:40
Virtual: Machine Learning Algorithms 2
Conference: IJCNN
Room: Zoom 22
Session Chair(s):

19:00 Predicting lncRNA-Protein Interactions Through Global and Local Features Based on Cross Attention Mechanism

Shaoqi Shao, Jinling Liu and Jing Peng (Wuhan University of Technology, China)

19:20 Adaptive Estimation of Multiple Fading Factors Based on RGAM Model
Hongfu Xu (Beijing University of Posts and Telecommunications, China); Haiyong Luo (Chinese Academy of Sciences, China); Zijian Wu and Fang Zhao (Beijing University of Posts and Telecommunications, China); Changhai Lin (Yibin Tinno Communication Ltd, China)

19:40 Distributed and Correlation Group-Based Sure Independence Screening and Sparsifying Operator
YiXin Li (University of ShangHai, China); Yongmei Lei (School of Computer Engineering and Science, Shanghai University, China)

20:00 Confidence-Driven Semi-Supervised Partial Label Learning
Chengkun Liu, Jun Zhang and Jing Chai (Yunnan University, China)

20:20 Blockwise Principal Component Analysis for Monotone Missing Data Imputation and Dimensionality Reduction
Tu Do, Mai Anh Vu and Tuan Vo (University of Science, Vietnam); Thien Ly Hoang (University of Warsaw, Norway); Thu Nguyen (Simula Metropolitan, Norway); Steven Hicks and Michael Alexander Riegler (Simula Research Laboratory, Norway); Pål Halvorsen (Simula Research Laboratory & Department of Informatics, University of Oslo, Norway); Binh T Nguyen (VNU HCM - University of Science, Ho Chi Minh City, Vietnam)

19:00 – 20:40
Virtual: Unsupervised Learning and Clustering 1
Conference: IJCNN
Room: Zoom 23
Session Chair(s):

19:00 StyleQuick: Image Quickly Manipulation Based on StyleGAN2
Gao Tianye (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China); Siyuan Ping (Tianjin International Engineering Institute of Tianjin University, China); Shengbao Li (University of Chinese Academy of Sciences, China & Chinese Academy of Sciences, China); Ruihai Ge (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China); Zang Tianning (Chinese Academy of Sciences, China)

19:20 Few Shot Contrastive Spectral Clustering with Meta Learning and Neighbor Mining
Nongxiao Wang, Xulun Ye, Jieyu Zhao and Qing Wang (Ningbo University, China)

19:40 Generative Spoken Language Modeling with Quantized Feature Enhancement
Feiyu Duan, Chen Li and Keheng Wang (Beihang University, China); Si Wu (Orange, China); Chuantao Yin and Wenge Rong (Beihang University, China)

20:00 Mixed Degradation Image Restoration via Deep Image Prior Empowered by Deep Denoising Engine
Weimin Yuan (Beihang University,China); Yinuo Wang, Ning Li and Cai Meng (Beihang University, China); Xiangzhi Bai (Beijing University of Aeronautics and Astronautics, China)

20:20 Kernel-Based Infinite-Dimensional Dimension Reduction for Functional Data
Tian-Le Yang (Osaka University, Japan)

19:00 – 20:40
Virtual: Generative AI 1
Conference: IJCNN
Room: Zoom 24
Session Chair(s): Olaoluwa Adigun

19:00 Bidirectional Variational Autoencoders
Bart Kosko (University of Southern California, USA); Olaoluwa Adigun (University of Southern California Los Angeles & Signal and Image Processing Institute, USA)

19:20 Generative Dual Representations Fusion Network for Document-Level Event Argument Extraction
Boyang Liu and Guozheng Rao (Tianjin University, China); Li Zhang (Tianjin University of Science and Technology, China); Qing Cong and Xin Wang (Tianjin University, China)

19:40 Unveiling Universal Forensics of Diffusion Models with Adversarial Perturbations
Kangyang Xie, Jiaan Liu, Muzhi Zhu, Ganggui Ding, Zide Liu and Hao Chen (Zhejiang University, China); Hangyue Chen (HangZhou Dianzi University, China)

20:00 SSIE-Diffusion: Personalized Generative Model for Subject-Specific Image Editing
Lin Guo and Meiling Liu (Northeast Forestry University, China); Kaiqun Fu (South Dakota State University, USA); Jiyun Zhou (Johns Hopkins University, USA)

20:20 Drift-DiffuSE: Diffusion Model with Learnable Drift Term for Speech Enhancement
Sixing Liu, Yi Jiang, Zhichao Wu, Linyu Yao and Qun Yang (Nanjing University of Aeronautics and Astronautics, China)

19:00 – 20:40
Virtual: Neural Networks
Conference: CEC
Room: Zoom 25
Session Chair(s): Ngoc Hoang Luong

19:00 Zero-Cost Proxy-Based Hierarchical Initialization for Evolutionary Neural Architecture Search
Minh Le and An Vo (University of Information Technology, Vietnam); Ngoc Hoang Luong (University of Information Technology (UIT), VNU-HCM, Vietnam)

19:20 Effective Training of PINNs by Combining CMA-ES with Gradient Descent
Lin Liu (Beihang University, China); Yuan Yuan (Beihang University Zhongguancun Laboratory, China)

19:40 Neural Network-Assisted Particle Swarm Dynamic Optimization
Zhi Liu, Wei Song and Mingshuo Song (Jiangnan University, China)

20:00 Evolutionary Deep Reinforcement Learning via Hybridizing Estimation-of-Distribution Algorithms with Policy Gradients
Thai Bao Tran (University of Information Technology - UIT, Vietnam); Ngoc Hoang Luong (University of Information Technology (UIT), VNU-HCM, Vietnam)

21:00 – 22:40
Virtual: Neural Networks in Cyber Security 2
Conference: IJCNN
Room: Zoom 1
Session Chair(s):

21:00 HiddenSpeaker: Generate Imperceptible Unlearnable Audios for Speaker Verification System
Zhisheng Zhang and Pengyang Huang (Beijing University of Posts and Telecommunications, China)

21:20 Tempo: Confidentiality Preservation in Cloud-Based Neural Network Training
Rongwu Xu and Zhixuan Fang (Tsinghua University, China)

21:40 SecureVeil: A Modular Architecture with Deep Cosine Transformation and Secure Key Fusion for Face Template Protection
Bin Zhu (Changsha University of Science and Technology); Xiaofeng Wang (National University of Defense Technology, China); Wenzhuo Han (Changsha University of Science and Technology); Shun Qin, Wenzheng Liu, Xiaoyong Tang, Ronghui Cao and Tan Deng (Changsha University of Science and Technology, China)

22:00 Attack Behavior Extraction Based on Heterogeneous Threat Intelligence Graphs and Data Augmentation

Jingwen Li (Beijing University of Posts and Telecommunications, China); Ru Zhang (BUPT, China); Jianyi Liu (Beijing University of Posts and Telecommunications, China)

22:20 Evaluating the Impact of Local Differential Privacy on Utility Loss via Influence Functions

Alycia N Carey, Minh-Hao Van and Xintao Wu (University of Arkansas, USA)

21:00 – 22:40
Virtual: Neural Networks for Video Processing 2
Conference: IJCNN
Room: Zoom 2
Session Chair(s):

21:00 Multi-Object Tracking with Partial-Level Features and Adaptive Threshold Mechanism

Lingjie Kong, Xiaopeng Hu and Fan Wang (Dalian University of Technology, China)

21:20 Video Visual Relation Detection Based on Trajectory Fusion

Rong Qian (Beijing Electronic Science and Technology Institute, China); Ziqiang Fu (XiDian University, China); Xiaoyu Liu and Kejun Zhang (Beijing Electronic Science and Technology Institute, China); Zongfang Lv (XiDian University, China); Xinyi Lan (Beijing Electronic Science and Technology Institute, China)

21:40 Adj-MOT: Multi-Object Tracking by ReID with Adjacent Frame Enhancement

Tianyang Dong, Shuqian Lv, Guoqing Zhao, Wenyuan Ying and Chengkai Tong (Zhejiang University of Technology, China)

22:00 STNAM: A Spatio-Temporal Non-Autoregressive Model for Video Prediction

Yu Yuan and Zhaohui Meng (Hohai University, China)

22:20 Multi-Scale Temporal Relations and Segmented Channel Attention for Video Anomaly Detection

Yi Sun (University of Ulster, China); Xiushan Nie (Shandong Jianzhu University); Bryan W. Scotney (University of Ulster, UK (Great Britain)); Shuai Zhang (Ulster University, UK (Great Britain)); Xingbo Liu (Shandong Jianzhu University, China)

21:00 – 22:40
Virtual: Transformers 7
Conference: IJCNN
Room: Zoom 3
Session Chair(s):

21:20 Learning Modality-Complementary and Eliminating-Redundancy Representations with Multi-Task Learning for Multimodal Sentiment Analysis
Xiaowei Zhao, Xinyu Miao, Xiujuan Xu and Yu Liu (Dalian University of Technology, China)

21:40 Graph Transformer: Anomaly Prediction and Interpretation in Multivariate Time Series
Jing Li, Chang Liu and JianLi Ding (Civil Aviation University of China, China)

22:00 Laparoscopic Video Desmoking with Mutually Attention-Guided Deformable Convolutional Networks and LBP Prior
Chuangshi Ma (Tianjin University of Technology, unknown); Congcong Wang (Tianjin University of Technology, Japan); Meng Zhao (Tianjin University of Technology, China)

22:20 SPAFusion: Multi-Focus Image Fusion Based on Shift Patch Attention
Yong Peng (University of Chinese Academy of Sciences, China & Chengdu Institute of Computer Application, Chinese Academy of Sciences, China); Mao Liu (Sichuan Sanlian New Materials Limited Company, China); Zheyu Shi and Shengli Bao (University of Chinese Academy of Sciences, China)

21:00 – 22:40
Virtual: Neural Networks for Natural Language Processing 7
Conference: IJCNN
Room: Zoom 4
Session Chair(s):

21:00 PTCR-PJF: A Person-Job Fit Model for Structured Resumes
Jiaming Li (Hebei Agricultural University, China); Jingfa Yao (Hebei Software Institute, China); Guifa Teng and Mingyue Yan (Hebei Agricultural University, China)

21:20 Learning Latent Variable for Logical Reasoning in Table-Based Fact Verification
Jie Wu and Mengshu Hou (University of Electronic Science and Technology of China, China)

21:40 Multiple Perspectives Analysis for Document-Level Relation Extraction
Guangxin Zhang (Jiangnan University, China)

22:00 Improving Implicit Discourse Relation Recognition via Connective Prediction and Dependency-Weighted Label Hierarchy

Xianzhi Liu, Shaoru Guo, Juncai Li, Zhichao Yan, Xuefeng Su, Boxiang Ma, Yuzhi Wang and Ru Li (Shanxi University, China)

22:20 Refining Entity Descriptions with Relation Embeddings for Scientific Relation Classification

Canyu Li, Xiaojing Liu, Jinliang Li, Junlei Wang and Zaiwen Feng (Huazhong Agricultural University, China); Li Qin (Huazhong Agricultural University & Hubei Engineering Technology Research Center of Agricultural Big Data, China)

21:00 – 22:40
Virtual: Reinforcement Learning 7
Conference: IJCNN
Room: Zoom 5
Session Chair(s):

21:00 Analog Doppelgangers: Twinning with Deep Continuous-Time Recurrent Neural Networks

John Gallagher (University of Cincinnati, USA); Eric Matson (Purdue University, USA)

21:20 Deep Reinforcement Learning-Based Multi-Agent Algorithm for Vehicle Routing Problem in Complex Logistics Scenarios

Xinzhi Zhang, Yeming Yang, Junchuang Cai and Qingling Zhu (Shenzhen University, China); Wei-Neng Chen (South China University of Technoloqy, China); Qiuzhen Lin (Shenzhen University, China)

21:40 LengthPath: The Length Reward of Knowledge Graph Reasoning Based on Deep Reinforcement Learning

Lingxiao Xu, Lin Feng, ZiHao Li, Ling Yue, Qiuping Shuai and Jiewei Li (Sichuan Normal University, China)

22:00 Reinforcement Learning in Agent-Based Market Simulation: Unveiling Realistic Stylized Facts and Behavior

Zhiyuan Yao, Zheng Li, Matthew Thomas and Ionut Florescu (Stevens Institute of Technology, USA)

22:20 Optimal Path Planning Based on Goal Heuristics IQLA for Mobile Robots

Wenhong Wei and Tianfeng Zhou (Dongguan University of Technology, China)

21:00 – 22:40
Virtual: Neural Networks for Time Series Data 4
Conference: IJCNN
Room: Zoom 6
Session Chair(s):

21:00 Density Transformer for Unsupervised Time Series Anomaly Detection in Cloud Computing
Bin Yang (China Unicom, China); Zian Wang (Beijing University of Posts and Telecommunications, China); Zelan Zhu (Renmin University of China, China); Ying Xing (Beijing University of Posts and Telecommunications, China); Yanbing Bai (Renmin University of China, China); Lanshan Zhang (Beijing University of Posts and Telecommunications, China); Yaya Wei (China Telecommunications Corporation, China)

21:20 LinWA: Linear Weights Attention for Time Series Forecasting
Qiang Li, Jiwei Qin, Dezhi Sun, Fei Shi, Daishun Cui and Jiachen Xie (Xinjiang University, China)

21:40 Forecasting Events Within Temporal Intervals Using First Occurrence Distributions
Siqi Zhang, Yangge Qian, Tianyi Wang and Jinjun Zhang (Chengdu Institute of Computer Applications, Chinese Academy of Sciences, China); Xiaolin Qin (Chengdu Institute of Computer Applications, China)

22:00 An Adaptive Hoeffding Tree Model Based on Differential Entropy and Relative Entropy for Concept Drift Detection
Wenzheng Liu, Xiang Li, Yongtong Gu, Jin Li, Xiaoyong Tang, Ronghui Cao and Tan Deng (Changsha University of Science and Technology, China); Xiaofeng Wang (National University of Defense Technology, China)

21:00 – 22:40
Virtual: Neural Networks for Image Processing 13
Conference: IJCNN
Room: Zoom 7
Session Chair(s):

21:00 HSD-YOLO: A Lightweight and Accurate Method for PCB Defect Detection
Zhiyao Li (Qilu University of Technology (ShanDong Academy of Sciences), China); Aimin Li (Qilu University of Technology, China); Wenqiang Li, XiaoTong Kong and Yuechen Zhang (Qilu University of Technology (ShanDong Academy of Sciences), China)

21:20 YOLO-PDNet: Small Target Recognition Improvement for Remote Sensing Image Based on YOLOv8

Liu XiaoDong (ChinaUniversityofGeosciences， Wuhan, China); Hao Zhang (China University of Geosciences, Wuhan, China); Weinyin Gong (China University of Geosciences(Wuhan), China); Xiang Li (China University of Geosciences, China)

21:40 A Two-Stage Neural Network Model for Automatic Detection of Skiffs from Satellite Imagery

Tudor A Ducaru, Stefan Stoica and Vlad G Holban (University of Warwick, Romania); Fayyaz Minhas (University of Warwick, UK (Great Britain))

22:00 Uncertainty-Aware Dynamic Re-Weighting Robust Classificatio   n

Wenshu Ge, Huan Ma, Peizhuo Sheng and Changqing Zhang (Tianjin University, China)

22:20 Memory Coordinated Cross Perception for Few-Shot Object Detection

Chenghao Huang, Hong Liu and Yunfeng Kou (Sichuan University, China); Hu Chen (National Key Laboratory of Fundamental Science on Synthetic Vision, China); Wenchao Du (Sichuan University, China)

21:00 – 22:40
Virtual: Neural Networks for Image Processing 14
Conference: IJCNN
Room: Zoom 8
Session Chair(s):

21:00 CEC-YOLO: An Improved Steel Defect Detection Algorithm Based on YOLOv5
Zhuo Chen (Qilu University of Technology (Shandong Academy of Sciences), China); Yuli Wang (Qilu University of Technology（ShanDong Academy of Sciences）, China); Qiliang Gu (Qilu University of Technology (Shandong Academy of Sciences), China)

21:20 NeIF: Generalizable Illumination Neural Radiance Fields with Implicit Feature Volume
Qingyao Meng (Qufu Normal University & School of Cyber Science and Engineering, China); Luoyuan Xu (Huazhong University of Science and Technology & College of Computer Science and Technology, China); Daying Lu (Qufu Normal University & School of Cyber Science and Engineering, China)

21:40 Noise-Aware Person Re-Identification via Local Uncertainty Estimation
Chunli Song (Chinese Academy of Sciences & Hunan University of Technology, China); Yucan Zhou (Chinese Academy of Sciences, China); Wenqiu Zhu (Hunan University of Technology, China); Jiang Zhou, Xiaoyan Gu and Bo Li (Chinese Academy of Sciences, China)

22:00 MAHFF: An Underwater Image Enhancement Method Based on Multi-Scale Attention Hybrid Feature Fusion

Xinxin Zhou and Yuning Huang (Northeast Electric Power University, China); Yucai Li (Metering Center of National Power Supply Company in Tonghua, China); Xinyue Li (Northeast Electric Power University, China)

22:20 MSSP: A Multi-View Benchmark for Street Scene Perception in Assistive Navigation

Yang Di, Son Lam Phung and Abdesselam Bouzerdoum (University of Wollongong, Australia)

21:00 – 22:40
Virtual: Neural Networks for Medical Data Processing 7
Conference: IJCNN
Room: Zoom 9
Session Chair(s): Bicao Li

21:00 SR2Net: A Separatable Reconstruction Residual Network Based on Channel Attention for PET and MRI Image Fusion

Bicao Li (Zhongyuan University of Technology, China)

21:20 Quantifying Bowel Preparation in Wireless Capsule Endoscopy: Optimizing Latency with Structural Reparameterization in the WCEFastViT Model

Guangquan Wan (Hunan University, China); Guanghui Lian (Central South University, China); Lan Yao (School of Mathematics, Hunan University, China)

21:40 Understanding Feature Importance of Prediction Models Based on Lung Cancer Primary Care Data

Teena Rai, Yuan Shen, Jun He, Mufti Mahmud and David Brown (Nottingham Trent University, UK (Great Britain)); Jaspreet Kaur, Emma ODowd, David Baldwin and Richard Hubbard (University of Nottingham, UK (Great Britain))

22:00 GRU-TSMixers: Sleep Apnea and Hypopnea Detection Based on Multi Scale MLP-Mixers

Zufang Huang and Kejing He (South China University of Technology, China)

22:20 FDAPNet: Feature Denoising and Aggregation Prediction Network for Polyp Segmentation

Yang Deng, Jianzhe Gao, Lijun Bao and Zhong Chen (Xiamen University, China)

21:00 – 22:40
Virtual: Deep Learning for Graphs 13
Conference: IJCNN
Room: Zoom 10
Session Chair(s):

21:00 HierCas: Hierarchical Temporal Graph Attention Networks for Popularity Prediction in Information Cascades
Zhizhen Zhang and Xiaohui Xie (Tsinghua University, China); Yishuo Zhang and Lanshan Zhang (Beijing University of Posts and Telecommunications, China); Yong Jiang (Graduate School at Shenzhen, Tsinghua University, China)

21:20 PMPRec: A Pre-Training Encoder Based on Meta-Path for Recommendation
Wenbing Zhang, Hongmei Chen, Qing Xiao, Lihua Zhou and Lizhen Wang (Yunnan University, China)

21:40 Time-User Heterogeneous Neural Interaction Network for Cyberbullying Detection
Guangkun Zhou, Xiaoyu Sean Lu and Rui Zhang (Nanjing University of Science and Technology, China); Haoyue Liu (Zhejiang Gongshang University, China); Bo Huang (Nanjing University of Science and Technology, China)

22:00 A Network Latency Prediction Method Based on Sequence Decomposition and GNN
Chuhao Chen, Wei Li, Xiangxu Meng, Linying Yang and Wenqi Zheng (Harbin Engineering University, China)

22:20 Lightweight Graph Convolutional Network for Efficient Skeleton Based Action Recognition
Yimeng Zhang and Yang Yang (Xi'an Jiaotong University, China); Xuehao Gao (Xi'an JiaoTong University, China)

21:00 – 22:40
Virtual: Deep Learning for Graphs 14
Conference: IJCNN
Room: Zoom 11
Session Chair(s):

21:00 Type-Aware Enhanced Cylinder Embedding for Multi-Hop Reasoning over Knowledge Graphs
Yong Shang, Xiaoding Zhou and Yan Ming (Qilu University of Technology, China); Yuyan Zheng (Shandong Normal University, China); Huiting Li (Qilu University of Technology，China); Weiyu Zhang (Qilu University of Technology, China)

21:20 Fuzzy Overlapping Community Guided Subgraph Neural Network for Graph Classification
Xin Liu (Central South University, China); Yao Xiao (Xinjiang University, China); Bo Huang, Yan Zhang and Zu-ping Zhang (Central South University, China)

21:40 Anomaly Detection on Attributed Network Based on Hyperbolic Radial Distance
Tianyu Liu, Ruixin Yan and Irwin King (The Chinese University of Hong Kong, Hong Kong)

22:00 MGKT: A Multi-Relation Enhanced Graph-Based Model for Knowledge Tracing
Yingchao Long (South China Normal University, China); Weihao Yu (Research Institute of China Telecom Corporate Ltd., China); Jin Huang (South China Normal University, China); Tinghua Zhang (China Electronic Product Reliability and Environmental Testing Research Institut, China); Nanhui Lai (South China Normal University, China)

22:20 Graph Attention Network with Cross-Modal Interaction for Rumor Detection
Haibing Zhou, Zhong Qian, Peifeng Li and Qiaoming Zhu (Soochow University, China)

21:00 – 22:40
Virtual: Neural Networks for Sentiment Analysis 2
Conference: IJCNN
Room: Zoom 12
Session Chair(s): Xiaoning Wang

21:00 Multimodal Aspect-Category Sentiment Analysis Based on Multi-Level Information
Xiaoning Wang (Communication Univeersity of China, China); Tao Zhou (Xiaohongshu, China); Xiaoling Lu (Renmin University of China, China)

21:20 Facial Expression Recognition with Age-Group Expression Feature Learning
Yansong Huang and Junjie Peng (Shanghai University, China); Zesu Cai (Harbin Institute of Technology, China); Jiatao Guo and Gan Chen (Shanghai University, China); Shuhua Tan (National Engineering Laboratory for Logistics Information Technology YuanTong Express, China)

21:40 NBWAB: A Model for Text Sentiment Analysis with BERT and ChatGPT
Xiaolei Wang, Hongyun Huang and Zuohua Ding (Zhejiang Sci-Tech University, China)

22:00 Quantum-Inspired Neural Network Based on Stochastic Liouville-Von Neumann Equation for Sentiment Classification
Kehuan Yan, Peichao Lai, Qingwei Lyu and Yilei Wang (Fuzhou University, China)

22:20 BNS-Net: A Dual-Channel Sarcasm Detection Method Considering Behavior-Level and Sentence-Level Conflicts
Liming Zhou (Ocean University of China, China); Xiaowei Xu (Ocean University of China); Xiaodong Wang (Ocean University of China, China)

21:00 – 22:40
Virtual: Self-supervised Learning 3
Conference: IJCNN
Room: Zoom 13
Session Chair(s):

21:00 SuperLED: Supervised Contrastive Learning Based Dual Path Triple Extraction Framework
Luyao He and Zhongbao Zhang (Beijing University of Posts and Telecommunications, China); Sen Su (Beijing University of Posts & Telecommunications (BUPT), China); Hui Wang (Beijing University of Posts and Telecommunications, China)

21:20 CPLCS: Contrastive Prompt Learning-Based Code Search with Cross-Modal Interaction Mechanism
Yubo Zhang and Yanfang Liu (Beihang University, China); Xinxin Fan (Chinese Academy of Sciences, China); Yunfeng Lu (Beihang University, China)

21:40 SFMM: Semantic-To-Frame Matching with Multi-Classifier for Few-Shot Action Recognition
YiKang Wang and Fei Guo (Xi'an JiaoTong University, China); Li Zhu and Yuan Guo (Xi'an Jiaotong University, China)

22:00 LRER: A Low-Resource Entity Resolution Framework with Hybrid Information
Ziyi Lian, Nie Tie-zheng, Derong Shen and Yue Kou (Northeastern University, China)

22:20 HE-ASR-IT: Hybrid Excitation and Adaptive Style Recombination for Unpaired Image to Image Translation
Ziyi Wu, Juanjuan Luo, Mingxin Du, Shigang Li, Wenbin Yao and Zhibin Huang (Beijing University of Posts and Telecommunications, China)

21:00 – 22:40
Virtual: Self-supervised Learning 4
Conference: IJCNN
Room: Zoom 14
Session Chair(s):

21:00 De-Redundancy Distillation and Feature Shift Correction for Cross-Domain Few-Shot Learning
Qiuping Shuai, Lin Feng, Ling Yue, ZiHao Li and Lingxiao Xu (Sichuan Normal University, China)

21:20 Feature-Aware Noise Contrastive Learning for Unsupervised Red Panda Re-Identification
Jincheng Zhang (SiChuan University, China); Qijun Zhao (Sichuan University & Tibet University, China); Tie Liu (Sichuan University, China)

21:40 The Bad Batches: Enhancing Self-Supervised Learning in Image Classification Through Representative Batch Curation

Ozgu Goksu (University of Glasgow, UK (Great Britain)); Nicolas Pugeault (University of Glascow, UK (Great Britain))

22:00 Higher-Order Semantic-Aware Adaptive Graph Contrastive Learning

Xianxian Li, Jiayue Zeng, Zhigang Sun and Li-e Wang (Guangxi Normal University, China)

21:00 – 22:40
Virtual: Machine Learning and Deep Learning Methods Applied to Vision and Robotics 2
Conference: IJCNN
Room: Zoom 15
Session Chair(s): Huixin Zhan

21:00 SalientPoint: A Self-Supervised Keypoint Detection Based on Saliency of Descriptor

Keyu Zhou, Wangshu Yao, Siyu Yang and Siyuan Peng (Soochow University, China)

21:20 MD2VO: Enhancing Monocular Visual Odometry Through Minimum Depth Difference

Pengzhi Li, Chengshuai Tang, Yifu Duan and Zhiheng Li (Tsinghua University, China)

21:40 ECA-SLAM: A Visual SLAM Utilizing Depth Features and Attention Mechanism

Wenjie Deng, Yun Tie and Lin Qi (Zhengzhou University, China)

22:00 Focusing on Diacritics to Improve Vietnamese Scene Text Detection

Wenhui Huang (Guilin University Of Electronic Technology, China); Shaoliang Shi (China Academy of Science and Technology Development, China); Yimin Wen (Guilin University of Electronic Technology, China)

22:20 MCF: Multi-Scale Context Fusion for Strip Steel Surface Detection

Jing Hu, Wei Chen and Lei Zhao (Soochow University, China)

21:00 Viewing the Process of Generating Counterfactuals as a Source of Knowledge: A New Approach for Explaining Classifiers
Vincent Lemaire (Orange Labs, France); Nathan Le Boudec (Orange Innovation, France); Victor Guyomard (Skyld, France); Françoise Fessant (Orange Innovation, France)

21:20 Fair Weak-Supervised Learning: A Multiple-Instance Learning Approach
Yucong Dai and Xiangyu Jiang (Clemson University, USA); Yaowei Hu and Lu Zhang (University of Arkansas, USA); Yongkai Wu (Clemson University, USA)

21:40 Achieving Fairness Through Constrained Recourse
Shuang Wang and Yongkai Wu (Clemson University, USA)

22:00 Fourier Graph Convolution Transformer for Financial Multivariate Time Series Forecasting
Junxian Zhou, Shoujin Wang and Ou Yuming (University of Technology Sydney, Australia)

22:20 Achieving Equalized Explainability Through Data Reconstruction
Shuang Wang and Yongkai Wu (Clemson University, USA)

21:00 Information Scaling Distillation Network for Lightweight Single Image Super-Resolution
Tingrui Pei, Minghui Fan, Yanchun Li, Shujuan Tian and Haolin Liu (Xiangtan University, China)

21:20 Weighted Adaptive Clustering Attention for Efficient Image Super-Resolution
Yubin Liu, Jiannan Su, Guangyong Chen and Yigang Zhao (Fuzhou University, China)

21:40 Efficient Image Super-Resolution via Symmetric Visual Attention Network
Qinrui Fan (Chengdu University of Information Technology, China); Chengxu Wu (School of Computer, Chengdu University of Information Technology, China); Shu Hu (Indiana University–Purdue University Indianapolis); Xi Wu (Chengdu University of Information Technology, China); Xin Wang (University at Albany SUNY, USA); Jing Hu (Chengdu University of Information Technology, China)

22:00 Unsupervised Video Face Super-Resolution via Untrained Neural Network Priors
Ruixin Shi (Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China); Weijia Guo (Chinese Academy of Science & School of Cyber Security, University of Chinese Academy of Sciences, China); Shiming Ge (Chinese Academy of Sciences, China)

21:00 – 22:40
Virtual: Neural Networks for Anomaly Detection 2
Conference: IJCNN
Room: Zoom 18
Session Chair(s): Andra Siva Sai Teja

21:00 Enhancing Anomaly Detection in Noisy Images: Unleashing the Power of Attention-Aware PDE Constraint Feature Denoiser Module
Ranjeet Ranjan Jha (Sahaj AI Software Pvt. Ltd., Bengaluru, India); Andra Siva Sai Teja (Indian Institute of Technology Hyderabad, India); Venkatesh Wadawadagi and Ravindra Babu Tallamraju (Sahaj AI Software Pvt. Ltd., India)

21:20 Log Anomaly Detection Based on Parallel Fusion of CNN and GRU
Cheng Li (Xinjiang University,China); Jiaqing Mo, Gang Zhou and Guangming Li (Xinjiang University, China)

21:40 Time Series Anomaly Detection Based on Self-Masked Reconstruction Error with E-AVAE
Yuefeng Ma, Shumei Wang and Zhongchao He (Qufu Normal University, China)

22:00 Image Anomaly Detection Based on Controllable Self-Augmentation
Liujie Hua (Central South University & Computer Science and Engineering, China); Yichao Cao (Southeast University, China); Yitian Long (Vanderbilt University, China); Shan You (SenseTime, China); Xiu Su (University of Sydney, Australia); Jun Long (Central South University, China); Yueyi Luo (Central South University, Indonesia); Chang Xu (University of Sydney, Australia)

22:20 TinyLog: Log Anomaly Detection with Lightweight Temporal Convolutional Network for Edge Device
Chuangying Meng and Chen Ningjiang (Guangxi University, China)

21:00 – 22:40
Virtual: Neural Networks in Health Care 2
Conference: IJCNN
Room: Zoom 19
Session Chair(s):

21:00 Enhancing Diabetic Retinopathy Detection Through Transformer Based Knowledge Distillation and Explainable AI
Abdullah Al Shafi, Miraj Hossain Shawon, Nida Shahid and Rita Rahman (North South University, Bangladesh); Riasat Khan (North South University, Bangladesh & New Mexico State University, USA)

21:20 A Hybrid Bayesian-Heuristic Inference System for Recognition of Gait Phase
Samer Ahmed Mohamed Ahmed (University of Bath & Ain Shams University, UK (Great Britain)); Uriel Martinez-Hernandez (University of Bath, UK (Great Britain))

21:40 Graph-Based EEG Analysis for Parkinson's Disease Classification: A Residual Neural Network Approach
Lucas de O. Santos (IFCE, Brazil); Aldísio Gonçalves Medeiros (Federal University of Ceará & Laboratório de Processamento de Imagens, Sinais e Computação Aplicada, Brazil); Pedro Pedrosa Rebouças Filho (IFCE, Brazil); Paulo A. L. Rego (Federal University of Ceará, Brazil)

22:00 Deep Reinforcement Learning Based Control of Lower Limb Exoskeleton
Mowbray Rv (IIT Madras, India); Sourav Rakshit (IITM, Sri Lanka)

21:00 – 22:40
Virtual: Spiking Neural Networks 2
Conference: IJCNN
Room: Zoom 20
Session Chair(s): Haitham Mahmoud

21:00 Adaptive Spiking TD3+BC for Offline-To-Online Spiking Reinforcement Learning
Xiangfei Yang and Jian Song (Westlake University, China); Xuetao Zhang (Xi'an Jiaotong University, China); Donglin Wang (Westlake University, China)

21:20 A Gaussian Mixture Synapse Model for Time Varying Weight Spiking Neural Classifier
P. Md. Thousif (Indian Institute of Science Bangalore, India); V Sundaram Suresh (Indian Institute of Science, India); Shirin Dora (Loughborough University London, UK (Great Britain))

21:40 Design and Analysis of A Frequency-Driven LIF Model Neuron
Farzad Daryabari and Arash Ahmadi (Carleton University, Canada)

22:00 Spiking Neural Network with Learnable Threshold for Event-Based Classification and Object Detection

Ahmed Hasssan (Cornell University & Arizona State University, USA); Jian Meng (Cornell University, USA); Jae-sun Seo (Cornell Tech, USA)

21:00 – 22:40
Virtual: Machine Learning Algorithms 3
Conference: IJCNN
Room: Zoom 21
Session Chair(s):

21:00 A Connectivity Gradient in Structured Reservoir Computing Predicts a Hierarchy for Mixed Selectivity in Human Cortex

Peter Ford Dominey (Inserm U1093 & Cognition, Action & Plasticity Sensorimotor, France)

21:20 UAN: Unsupervised Adaptive Normalization

Bilal Faye and Hanane Azzag (University of Sorbonne Paris Nord, France); Mustapha Lebbah (DAVID LAB, France); Fangchen Feng (University of Sobonne Paris Nord, France)

21:40 On Prediction Feature Assignment in the Heckman Selection Model
Huy Mai and Xintao Wu (University of Arkansas, USA)

22:00 Improved Concentration Bound for CvaR

Peng Sima and Hao Deng (Huazhong Agricultural University, China); Xuelin Zhang (Huazhong Agriculture University, China); Hong Chen (Huazhong Agricultural University, China)

22:20 An Improved-Knowledge-Distillation Based Method for Working Condition Recognition of Hot Rolling Heating Furnace in Steel Industry

Xianglong Meng, Feng Jin, J. Zhao and W. Wang (Dalian University of Technology, China)

21:00 – 22:40
Virtual: Machine Learning Algorithms 4
Conference: IJCNN
Room: Zoom 22
Session Chair(s): TrungTin Nguyen

21:00 Bayesian Likelihood Free Inference Using Mixtures of Experts

Hien D Nguyen (La Trobe University, Australia & Kyushu University, Japan); TrungTin Nguyen (The University of Queensland, Australia); Florence Forbes (INRIA Rhône-Alpes, France)

21:20 MLTracer: An Approach Based on Multi-Layered Gradient Boosting Decision Trees for Requirements Traceability Recovery

Xingfu Li, Bangchao Wang and Hongyan Wan (Wuhan Textile University, China); Yuanbang Li (Zhoukou Normal University, China); Han Jiang, Yang Deng and Zhiyuan Zou (Wuhan Textile University, China)

21:40 Single Image Dehazing via Multi-Scale Large Kernel Convolutional Neural Networks

Minghui Li, Wei Liu, Zhiguo Kang and Xiaoyu Huang (Wuhan Institute of Technology, China)

22:00 Taking Training Seriously: Human Guidance and Management-Based Regulation of Artificial Intelligence

Colton R Crum (University of Notre Dame Du Lac, USA); Cary Coglianese (University of Pennsylvania, USA)

22:20 Compressive Mahalanobis Metric Learning Adapts to Intrinsic Dimension

Efstratios Palias and Ata Kaban (University of Birmingham, UK (Great Britain))

21:00 – 22:40
Virtual: Unsupervised Learning and Clustering 2
Conference: IJCNN
Room: Zoom 23
Session Chair(s):

21:00 Multi-Similarity Clustering Algorithm by Ordered Pair of Normalized Real Numbers

Hui Zhang (Southwest University of Science and Technology, China); Haoyang Cui (Sothwest University of Science and Technology, China); Zhijing Yang, Chunming Yang and Bo Li (Southwest University of Science and Technology, China); Yi Yang (Sichuan Institute of Standardization, China)

21:20 A Clustering Method with Graph Maximum Decoding Information

Xinrun Xu, Manying Lv and Zhanbiao Lian (University of Chinese Academy of Sciences, China); Yurong Wu (University of Chinese Academy Sciences, China); Jin Yan (University of Chinese Academy of Sciences, China); Shan Jiang (Advanced Institute of Big Data, China); Zhiming Ding (University of Chinese Academy of Sciences & Institute of Software, Chinese Academy of Sciences, China)

21:40 BRG: Bidirectional Regularization Guidance for Unsupervised Domain Adaptation Semantic Segmentation

Chaoyu Rao (Dalian University, China); Wanshu Fan (Dalian University); Xin Yang and Xiaopeng Wei (Dalian University of Technology, China); Dongsheng Zhou (Dalian University, China)

22:00 Chrono Clustering: A Novel Methodology for Dynamic Topic Trend Analysis

Qiaomu Li, Ying Xie and Shaoen Wu (Kennesaw State University, USA)

22:20 PB-DVAE: A Performance Bottleneck Location Model Based on Deep Variational Autoencoder

ZhiJian An, Yong Zhou and Zhaowen Wang (Dalian University of Technology, China)

21:00 – 22:40
Virtual: Generative AI 2
Conference: IJCNN
Room: Zoom 24
Session Chair(s):

21:00 Robust Cross-Modal Medical Image Translation via Diffusion Model and Knowledge Distillation

YueHan Xia and SaiFeng Feng (WuHan University, China); Jianhui Zhao and Zhiyong Yuan (Wuhan University, China)

21:20 PLTON: Product-Level Try-On with Realistic Clothes Shading and Wrinkles

Yanlong Zang (Zhejiang University, China); Han Yang (ETH Zurich, China); Jiaxu Miao and Yi Yang (Zhejiang University, China)

21:40 CHDNet: Enhanced Arbitrary Style Transfer via Condition Harmony DiffusionNet

Wenkai He, Jianhui Zhao and Ying Fang (Wuhan University, China)

22:00 CDM: Text-Driven Image Editing with Composable Diffusion Models

Ye Na and Yuan Sun (Xi'an University of Architecture and Technology, China)

22:20 ABNT: Attention Binary Navigation Tree for Fine-Grained Visual Classification

Boyu Ding, Xiaofeng Xu, Xianglin Bao and Nan Yan (Anhui Polytechnic University, China); Ruiheng Zhang (Beijing Institute of Technology, China)

21:00 – 22:40
Virtual: Evolutionary Computation for Feature Selection, Extraction and Dimensionality Reduction
Conference: CEC
Room: Zoom 25
Session Chair(s): Songbai Liu

21:00 Evolutionary Multiobjective Feature Selection Assisted by Unselected Features

Xuan Duan (ShenZhen University, China); Songbai Liu, Junkai Ji, Lingjie Li and Qiuzhen Lin (Shenzhen University, China); Kay Chen Tan (The Hong Kong Polytechnic University, Hong Kong)

21:20 Feature selection for computer-aided diagnosis via a novelty designed binary harris hawk algorithm

Minhui Dong and Yuki Todo (Kanazawa University, Japan)

21:40 Feature Selection for GPSR based on Maximal Information Coefficient and Shapley Values

Mohamad Rimas Mohamad Anfar and Qi Chen (Victoria University of Wellington, New Zealand); Mengjie Zhang (VUW, New Zealand)

22:10 Enhancing Diversity in Multi-objective Feature Selection

Sevil Zanjani Miyandoab (Ontario Tech University, Canada); Shahryar Rahnamayan (Brock University, Canada); Azam Asilian Bidgoli (Wilfrid Laurier University, Canada); Sevda Ebrahimi (Ontario Tech University, Canada); Masoud Makrehchi (University of Ontario Tech, Canada)

23:00 − 24:40
Virtual: Neural Networks in Cyber Security 3
Conference: IJCNN
Room: Zoom 1
Session Chair(s):

23:00 PRJack: Pruning-Resistant Model Hijacking Attack Against Deep Learning Models

Ge Han (Shandong University, China); Zheng Li (CISPA Helmholtz Center for Information Security, Germany); Shanqing Guo (Shandong University, China)

23:20 SPSS: A Salience-Based Poisoning Selection Strategy for Selecting Backdoor Attack Victims

Zihan Lyu (UCSD, USA); Dongheng Lin (University of Illinois, Urbana-Champaign, USA); Shengkai Sun (University of Southern California, USA); Jie Zhang (Xi'an Jiaotong-Liverpool University, China); Ruiming Zhang (Xi an Jiaotong-Liverpool University, China)

23:40 SpeechGuard: Online Defense Against Backdoor Attacks on Speech Recognition Models

Jinwen Xin and Xixiang Lv (Xidian University, China)

24:00 Sparse Attack with Meta-Learning

Weitao Li, Mingqian Lin and Yihan Meng (Nanjing University, China); Yangdai Si (Huazhong University of Science and Technology, China); Lin Shang (Nanjing University, China)

24:20 Invisible Backdoor Attack Against 3D Point Cloud by Optimized 3D Transformation

Zou Ao and Yufeng Li (Shanghai University, China)

23:00 – 24:40
Virtual: Neural Networks for Video Processing 3
Conference: IJCNN
Room: Zoom 2
Session Chair(s): Rosmaël Zidane Lekeufack Foulefack

23:00 Focus on Your Geometry: Exploiting the Potential of Multi-Frame Stereo Depth Estimation Pre-Training for 3D Object Detection
Zichen Wang, Zhuokun Yao, Jianwei Zhang, Ye Zheng, Zhengyuan Zhang, Shuang Deng, Yajing Liu and Hao Liu (JD Logistics, China)

23:20 Dual-Branch Knowledge Enhancement Network with Vision-Language Model for Human-Object Interaction Detection
Guangpu Zhou (BeiJing University of Technology, China); Dehui Kong, Jinghua Li, Dongpan Chen, Zhuowei Bai and Baocai Yin (Beijing University of Technology, China)

23:40 DTA: Deformable Temporal Attention for Video Recognition
Xiaohan Lei, Mengyu Yang, Gongli Xi, Yang Liu, Jiulin Li, Lanshan Zhang and Ye Tian (Beijing University of Posts and Telecommunications, China)

24:00 Solving Interactive Video Object Segmentation with Label-Propagating Neural Networks
Viktor Varga and Milán Szász (Eötvös Loránd University, Hungary)

24:20 Importance-Aware Spatial-Temporal Representation Learning for Gait Recognition
Bohao Wei, Hefei Ling and Yuxuan Shi (Huazhong University of Science and Technology, China)

23:00 – 24:40
Virtual: Transformers 8
Conference: IJCNN
Room: Zoom 3
Session Chair(s): Yang Di

23:00 Bio-DETR: A Transformer-Based Network for Pest and Seed Detection with Hyperspectral Images
Yang Di and Son Lam Phung (University of Wollongong, Australia); Julian van den Berg and Jason Clissold (Intelligent System Design, Australia); Ly Bui, Hoang Thanh Le and Abdesselam Bouzerdoum (University of Wollongong, Australia)

23:20 ShuffleVITNet: MOBILE-FRIENDLY VISION TRANSFORMER with LESS-MEMORY
XinYu Zhao (HeiLongJiangUniversity, China); Jun Lu (Heilongjiang University, China)

23:40 Efficient Transformer-Based Edge Detector

Jinghuai Jie, Qifan Wang, Junmin Wu, Yan Guo and Baojian Hua (University of Science and Technology of China, China)

24:00 Text Spotting with a Unified Transformer Decoder

Guanyi Zheng, Ming Qiu and Xing Gao (Xiamen University, China)

24:20 MKCBlock: Multi Kernel Convolution with Eliminating Dimension Expansion for Real-Time Semantic Segmentation

Decheng Jia and Dongyu Zhang (Sun Yat-Sen University, China)

23:00 – 24:40
Virtual: Transformers 9
Conference: IJCNN
Room: Zoom 4
Session Chair(s):

23:00 FGF-Bert: A Modified Bert-Based Approach with a Fine-Grained Feature Fusion Strategy for Binary Code Similarity Detection

Liangcong Deng and Shu Liang (Tencent, China)

23:20 Geometry-Aware Enhancement-Based Point Elimination with Overlapping Mask Learning for Partial Point Cloud Registration

Yue Dai (Northeastern University, China); Fucang Jia (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China)

23:40 Self-Supervised Vision Transformers for Scalable Anomaly Detection over Images

Stefano Samele and Matteo Matteucci (Politecnico di Milano, Italy)

24:00 TNT-Net++: Point Cloud Completion by Transformer in Transformer with Dynamic Seed Generator

Xiaohai Zhang, Jinming Zhang, Jianliang Li and Ming Chen (Xinjiang University, China)

24:20 A Semantic-Aware Approach to Image Deraining with Transformer

Jun Hu, Lang Li, Bin Liu, Jiuming Cheng, Jianyu Li and Congming Dai (University of Science and Technology of China, China)

23:00 – 24:40
Virtual: Reinforcement Learning 8
Conference: IJCNN
Room: Zoom 5
Session Chair(s): Nasik Muhammad Nafi

23:00 Analyzing the Sensitivity to Policy-Value Decoupling in Deep Reinforcement Learning Generalization
Nasik Muhammad Nafi, Raja Farrukh Ali and William H Hsu (Kansas State University, USA)

23:20 Dual Dynamic Attention Network for Flexible Job Scheduling with Reinforcement Learning
Yuting Zhao (Tsinghua University, China); Yuepeng Chen (Beijing University of Posts and Telecommunications, China); Ji Wu and Chenyi Guo (Tsinghua University, China)

23:40 Developing an Attention-Based Ensemble Learning Framework for Financial Portfolio Optimisation
Zhenglong Li (The University of Hong Kong, China); Vincent Tam (University of Hong Kong, Hong Kong)

24:00 UUVSim: Intelligent Modular Simulation Platform for Unmanned Underwater Vehicle Learning
Zekai Zhang (Tsinghua University, China); Jingzehua Xu (Tsinghua University & Tsinghua Shenzhen International Graduate School, China); Jun Du (Tsinghua University, Beijing, China); Weishi Mi, Ziyuan Wang and Zonglin Li (Tsinghua University, China); Yong Ren (Tsinghua University, Beijing, China)

23:00 – 24:40
Virtual: Neural Networks for Time Series Data 5
Conference: IJCNN
Room: Zoom 6
Session Chair(s): Feifan Zhao

23:00 Financial Market Volatility Forecasting Based on Domain Adaptation
Qiao Pan, Feifan Zhao and Dehua Chen (Donghua University, China)

23:20 A Multi-Scale Seasonal Decomposition Modeling Framework for Seasonal Time-Series Forecasting
Chenghan Li (ZJUI, USA)

23:40 Enhancing Weather Model: A Meteorological Incremental Learning Method with Long-Term and Short-Term Asynchronous Updating Strategy

Junjiao Liu (Xi'an Jiaotong University, China); Cheng Zhang (Northwest Institute of Mechanical and Electrical Engineering, China); Guoshuai Zhao and Xueming Qian (Xi'an Jiaotong University, China)

24:00 Time-Invariant Latent Space Signatures for Enhanced Time-Frequency Domain Representation

Sai Pradeep Chakka (International Institute of Information Technology Bangalore, India); Neelam Sinha (IISc, India)

24:20 The SES Framework and Frequency Domain Information Fusion Strategy for Human Activity Recognition

Han Wu, Haotian Feng, Lida Shi, Hongda Zhang and Hao Xu (Jilin University, China)

23:00 – 24:40
Virtual: Neural Networks for Image Processing 15
Conference: IJCNN
Room: Zoom 7
Session Chair(s):

23:00 Cross Layer Weakly Supervised Data Augmentation Network for Offline Signature Verification

Yongliang Zhang, JiaHang Wang, Zipeng Chen and Ziwen Li (Zhejiang University of Technology, China)

23:20 Uncovering the Authentic RF Fingerprint: Exploiting Random Window Slicing and Complex-Valued Network

Zhuo Zhang and Yiran Wang (Xidian University, China); Jing Bai (School of Artificial Intelligence, Xidian University, China); Zhu Xiao (Hunan University, China); Huaji Zhou (Science and Technology on Communication Information Security Control Laboratory, China)

23:40 Multi-Scale Image Stitching Based on Unsupervised Controllable Fusion Structure

Li YI Xuan, Yuesheng Zhu, Wang Bo Yu and Guibo Luo (Peking University, China)

24:00 AIFENet: Attention-Induced Feature Enhancement Network for Infrared Small Target Detection

Ying Zheng, Xiuhong Li, Yuye Zhang, Kangwei Liu and Boyuan Li (Xinjiang University, China)

24:20 Boundary-Guided Fusion of Multi-Level Features Network for Camouflaged Object Detection

Songlin Li (Xinjiang University, China); Zhe Li (Hong Kong Polytechnic University, Hong Kong); Boyuan Li and Xiuhong Li (Xinjiang University, China); Jiabao Sheng (The Hong Kong Polytechnic University, Hong Kong)

23:00 – 24:40
Virtual: Neural Networks for Image Processing 16
Conference: IJCNN
Room: Zoom 8
Session Chair(s):

23:00 TSD-YOLOv5: A Traffic Sign Recognition Algorithm Based on Improved YOLOv5
Geng Kong and Qing Yu (Xinjiang University, China)

23:20 A New Approach for Eye Diagram Analysis Using Deep Transfer Learning for Identification and Intensity Classification of Rainfall Effect on Signals Transmitted via Free-Space Optical Communication
Raiane Rocha Reis (IFCE, Brazil & Progressrail, Brazil); Suane Silva (IFCE, Brazil); Elene Firmeza Ohata (Federal University of Ceara, Brazil); Thiago F Portela, Sr. (Instituto Federal de Educação, Ciência e Tecnologia Do Ceará - IFCE, Brazil); Glendo de Freitas Guimarães (Federal Institute of Ceará, Brazil); Aderaldo Irineu Levartoski de Araujo (Instituto Federal de Educação, Ciência e Tecnologia Do Ceará, Brazil); Pedro Pedrosa Rebouças Filho (IFCE, Brazil); Paulo A. L. Rego (Federal University of Ceará, Brazil)

23:40 Rain Streak Attention Network for Single Image Deraining
Zhiguo Kang, Wei Liu, Caiwang Zhang and Minghui Li (Wuhan Institute of Technology, China)

24:00 Using Rotation-Invariant Point and Line Features for Image Matching
Wenpeng Zheng and Yang Yang (Xi'an Jiaotong University, China); Xuehao Gao (Xi'an JiaoTong University, China)

24:20 LR-FPN: Enhancing Remote Sensing Object Detection with Location Refined Feature Pyramid Network
Hanqian Li and Ruinan Zhang (ShanDong University, China); Ye Pan (South China Normal University, China); Junchi Ren (China Telecom Research Institute, China); Fei Shen (Tencent AI Lab, China)

23:00 – 24:40
Virtual: Neural Networks for Image Processing 17
Conference: IJCNN
Room: Zoom 9
Session Chair(s): Abeer Banerjee

23:00 Generalized Gaze-Vector Estimation in Low-Light with Encoded Event-Driven Neural Network

Abeer Banerjee (Academy of Scientific and Innovative Research & CSIR-Central Electronics Engineering Research Institute, Pilani, India); Naval Kishore Mehta, Shyam Sunder Prasad and Himanshu Kumar (Academy of Scientific and Innovative Research, India); Sumeet Saurav (CEERI Pilani, India); Sanjay Singh (CSIR-Central Electronics Engineering Research Institute (CSIR-CEERI), India & Academy of Scientific & Innovative Research (AcSIR), India)

23:20 MVMSFN: A Multi-View and Multi-Scale Fusion Network for Online Detection of Heterogeneous Gestures

Hao Long (Southwest University of Science and Technology, China); Song Wang (SouthWest University of Science and Technology, China); Hao Hu, Yanru Wang, Hao Xu and Hesong Wang (Southwest University of Science and Technology, China)

23:40 Improvement of Low-Contrast Objective Detecting Capability for YOLOv5 Based on Receptive Field Enhancement and Redundant Feature Reuse

QingYu Xu (QiLu University of Technology, China); Jiguo Yu (Qufu Normal University, China); Anming Dong (Qilu University of Technology, China)

24:00 Low-Resolution Face Recognition via Adaptable Instance-Relation Distillation

Ruixin Shi and Weijia Guo (Institute of Information Engineering, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China); Shiming Ge (Chinese Academy of Sciences, China)

24:20 An Instance-Level Motion-Aware Graph Model for Multi-Target Multi-Camera Tracking

Xiaotong Fan and Huicheng Zheng (Sun Yat-sen University, China)

23:00 – 24:40
Virtual: Deep Learning for Graphs 15
Conference: IJCNN
Room: Zoom 10
Session Chair(s):

23:00 DOS-GNN: Dual-Feature Aggregations with Over-Sampling for Class-Imbalanced Fraud Detection on Graphs
Shixiong Jing (Penn State University, USA); Lingwei Chen (Wright State University, USA); Quan Li and Dinghao Wu (The Pennsylvania State University, USA)

23:20 An Attention Mechanism Neural Network for Spatiotemporal Network Traffic Data Completion
Weikang Xiao and Yi Xie (Sun Yat-Sen University, China)

23:40 Legal Judgment Prediction via Fine-Grained Element Graphs and External Knowledge
Yao Guo and Yanling Li (Inner Mongolia Normal University, China); Fengpei Ge (Beijing University of Posts and Telecommunications, China); Haiqing Yu, Sukun Wang and Zhongyi Miao (Inner Mongolia Normal University, China)

24:00 Heterogeneous Augmentation Based Spatio-Temporal Graph Convolutional Network for Traffic Forecasting
Hongyan Mao, ZhenYu Sun and Ning Qin (East China Normal University, China)

24:20 Multi-Masks and Bi-Spaces Reconstruction Based Single-Layer Auto-Encoder for Heterogeneous Graph Representation Learning
Pei Zhang, Lihua Zhou, Lizhen Wang, Hongmei Chen and Qing Xiao (Yunnan University, China)

23:00 – 24:40
Virtual: Neural Networks for Sentiment Analysis 4
Conference: IJCNN
Room: Zoom 11
Session Chair(s):

23:00 CTF-ERC: Coarse-To-Fine Reasoning for Emotion Recognition in Conversations
Feifei Xu, Tao Sun, Wang Zhou, Ziheng Yu and Jiahao Lu (Shanghai University of Electric Power, China)

23:20 Orthogonal Synthesis: Data Augmentation for Multimodal Sentiment Analysis
Tao Zheng (UTS, Australia); Wei Liu (University of Technology Sydney, Australia)

23:40 Sabiá in Action: An Investigation of Its Abilities in Aspect-Based Sentiment Analysis, Hate Speech Detection, Irony Detection, and Question-Answering

Júlia da Rocha Junqueira, Emerson Lopes, Claudio Luis da S. M. Junior, Félix Leonel Silva and Eduarda Abreu Carvalho (Universidade Federal de Pelotas, Brazil); Larissa Freitas, Sr. (University of Pelotas, Brazil); Ulisses B Corrêa (Universidade Federal de Pelotas, Brazil)

24:00 LoRA-Enhanced Language Alignments for Robust Code-Mixed Text Representation

Xuqiao Ran, You Zhang, Jin Wang, Dan Xu and Xuejie Zhang (Yunnan University, China)

23:00 – 24:40
Virtual: Neural Networks for Sentiment Analysis 3
Conference: IJCNN
Room: Zoom 12
Session Chair(s):

23:00 D-Man: A Distance-Based Multi-Channel Attention Network for ERC

Feifei Xu, Guangzhen Li, Zheng Zhong, Yingchen Zhou and Wang Zhou (Shanghai University of Electric Power, China)

23:20 A Joint Model with Contextual and Speaker Information for Conversational Causal Emotion Entailment

Shanliang Yang and Guozheng Rao (Tianjin University, China); Li Zhang (Tianjin University of Science and Technology, China); Qing Cong (Tianjin University, China)

23:40 Investor Sentiment Analysis of Financial Texts Based on GPT and RoBERTa

Jia Miao and Jianwu Lin (Tsinghua University, China); Tong Luo (Rxhui.com, China); Guangling Liu (Tsinghua University, China)

24:00 Multi-View Contrastive Parsing Network for Emotion Recognition in Multi-Party Conversations

Yunhe Xie, Chengjie Sun, Bingquan Liu and Zhenzhou Ji (Harbin Institute of Technology, China)

24:20 Modeling Sentiment-Speaker-Dependency for Emotion Recognition in Conversation

Lin Ge, Faliang Huang, Qi Li and YiHua Ye (Nanning Normal University, China)

23:00 – 24:40
Virtual: Deep Learning Theory
Conference: IJCNN
Room: Zoom 13
Session Chair(s): Qian Wan

23:00 AwmFace: Adaptive Weighting Margin for Deep Face Recognition
Xiangsong Jia, Xinkun Wu, Xiaobo Zhang and Xiaole Zhao (Southwest Jiaotong University, China)

23:20 Deep Compression of Convolutional Neural Networks with Tensor Decomposition and Structured Sparsity Regularization
Chenbin Yang and Huiyi Liu (Hohai University, China)

23:40 A Benchmark and Baseline for Open-Set Incremental Object Detection
Qian Wan (China); Shouwen Wang (Huazhong University of Science and Technology, China)

24:00 Progressively Robust Loss for Deep Learning with Noisy Labels
Zhenhuang Cai (Hohai University, China); Shuai Yan (Nanjing University of Science and Technology, China); Yuanbo Chen (Beijing University of Posts and Telecommunications, China); Chuanyi Zhang (Hohai University, China); Zeren Sun (Nanjing University of Science and Tech, China); Yazhou Yao (Nanjing University of Science and Technology, China)

24:20 Learning a Sparse Neural Network Using IHT
Saeed Damadi (University of Maryland, Baltimore County, USA); Soroush ZolfagharI (University of Isfahan, USA); Mahdi Rezaie (Amirkabir University of Technology, USA); Jinglai Shen (University of Maryland Baltimore County, USA)

23:00 – 24:40
Virtual: Hybrid Learning Methods
Conference: IJCNN
Room: Zoom 14
Session Chair(s): YuTing Shi

23:00 RMFFNet: A Reverse Multi-Scale Feature Fusion Network for Remote Sensing Scene Classification
Wei Wang, YuTing Shi and Xin Wang (Changsha University of Science and Technology, China)

23:20 Efficient Selection Based on Integrated Information for Dialogue State Tracking
Hongyun Du, Jikun Dong, Shenyu Fan, Shengjie Jia, Feiyue Diao, Jiran Zhu, Wei Sun, Hui Yu and Weizhi Xu (Shandong Normal University, China)

23:40 Robust Adaptive Feature Enhancement and Contrastive Clustering for New Intent Discovery

Keyue Chen, Jindian Su and Zijian Pan (South China University of Technology, China)

24:00 Predicting Credit Spreads of Chinese Municipal Bonds: A Hybrid Model of Wavelet Transform, Random Forest, and SAM-GRU

Yuke Wang, Jianwu Lin and Guangling Liu (Tsinghua University, China)

23:00 – 24:40
Virtual: Neural Networks in Robotics
Conference: IJCNN
Room: Zoom 15
Session Chair(s):

23:00 ISFP: Iterative Simultaneous Optical Flow Estimation and Interest Points Extraction Network

Weiguang Chen, Jichao Jiao and Ben Ding (Beijing University of Posts and Telecommunications, China)

23:20 A Temporal and Self-Attention Based Method for Small Object Detection in UAV Imagery

Liang Zuo, Jie Hao and LingXiao Yu (Nanjing University of Aeronautics and Astronautics, China)

23:40 Modular Method for Embodied Instruction Following with Environmental Context Adaptation

Zhuoqun Xu and Liubo Ouyang (Hunan University, China); Yang Liu (Samsung RD Institute China - Beijing, China); Li Zhang (Hunan University, China)

24:00 A Real-Time Grasp Detection Network Based on Multi-Scale RGB-D Fusion
DingXi Liu and XiaoDong Feng (Beijing University of Chemical Technology, China)

24:20 SVR-AVT: Scale Variation Robust Active Visual Tracking
Biao Zhang (National University of Defense Technology & Tianjin Artificial Intelligence Innovation Center, China); Songchang Jin and Qianying Ouyang (Intelligent Game and Decision Lab, China); Huanhuan Yang (National University of Defense Technology, China); YuXi Zheng (Intelligent Game and Decision Lab & Tianjin Artificial Intelligence Innovation Center, China); Chunlian Fu (Tianjin Artificial Intelligence Innovation Center, China); Dian-xi Shi (Intelligent Game and Decision Lab, China)

23:00 A Meta-Learning-Based Joint Two-View Framework for Inductive Knowledge Graph Completion

Doudou Yang (University of Chinese Academy of Sciences & Institute of Information Engineering, Chinese Academy of Sciences, China); Zhixin Shi (Chinese Academy of Sciences, China); Yangyang Zong (University of Chinese Academy of Sciences & Institute of Information Engineering, Chinese Academy of Sciences, China); Xiaoyu Kang (Chinese Academy of Sciences, China)

23:20 Leveraging Sample Complementarity: A Novel Ensemble Strategy

Pin Xu, Yanyi Li, Yufei Han, Haoyuan Chen, Kuan Li and Jianping Yin (Dongguan University of Technology, China)

23:40 A cGAN Ensemble-Based Uncertainty-Aware Surrogate Model for Offline Model-Based Optimization in Industrial Control Problems

Cheng Feng (Siemens, China)

24:00 A Proposal for a Fusion of an Ensemble with Error Correction Model Applied to Automotive Time Series

Diogo Medeiros de Almeida (UFPE, Brazil)

23:00 Causal Inference in Deep Learning Forecasting: A Bayesian Approach to Analyzing the Relationship Between Employment Rate and Immigration

Kenneth Lai, Gregor Wolbring and Svetlana N. Yanushkevich (University of Calgary, Canada)

23:20 Efficient Neural Decoder: Mixture-Regularized Bidirectional GRU with Attention

Xiaole Zhang (University of Southern California, USA); Jingchen Zuo (Carnegie Mellon University, USA); Xiecheng Shao (University of Southern California, USA)

23:40 MGSTA: Meta Learning Based Graph Convolutional Stacked Temporal Attention Neural Network for Traffic Flow Forecasting

Na Li and Shengjie Zhao (Tongji University, China); Yushan Feng (Shanghai Huawei Technologies, China); Fengxia Han (Tongji University, China)

24:00 openLG: A Tunable and Efficient Open-Source LSTM on GPUs
Zhaowen Shan and Xuanteng Huang (Sun Yat-Sen University, China); Zheng Zhou (SunYatSen University, China); Xianwei Zhang (Sun Yat-Sen University, China)

23:00 – 24:40
Virtual: Transfer Learning
Conference: IJCNN
Room: Zoom 18
Session Chair(s):

23:00 Object Detection in Transitional Weather Conditions for Autonomous Vehicles
Kondapally Madhavi (Indian Institute of Technology, Hyderabad & IIT Hyderabad, India); K Naveen Kumar (Indian Institute of Technology Hyderabad, India); C Krishna Mohan (IIT Hyderabad, India)

23:20 Reasoning Knowledge Transfer for Logical Table-To-Text Generation
Baoqiang Liu and Yu Bai (Shenyang Aerospace University, China); Fang Cai (Stanford University, USA); Shuang Xue and Na Ye (Shenyang Aerospace University, China); XinYuan Ye (The Australian National University, Australia)

23:40 The Long-Term Memory Transformer with Multimodal Fusion for Radiology Report Generation
Longlong Yu, Xiaoru Wang and Bowen Deng (Beijing University of Posts and Telecommunications, China); Chenyang Ma (BUPT, China)

24:00 Adapting Pre-Trained Language Models to Vision-Language Tasks via Dynamic Visual Prompting
Shubin Huang, Qiong Wu and Yiyi Zhou (Xiamen University, China)

24:20 Relation-Based Multi-Teacher Knowledge Distillation
Yutian Wang and Yi Xu (University of Electronic Science and Technology of China, China)

23:00 – 24:40
Virtual: Adversarial Attack
Conference: IJCNN
Room: Zoom 19
Session Chair(s):

23:00 Boosting the Transferability of Adversarial Examples via Adaptive Attention and Gradient Purification Methods
Liwen Wu and Lei Zhao (Yunnan University, China); Bin Pu (Hunan University, China); Yi Zhao and

Xin Jin (Yunnan University, China); Shao Wen Yao (National Pilot School of Software，YunNan University, China)

23:20 BDP: Bipartite Graph Adversarial Defense Algorithm Based on Graph Purification
Bowen Deng, Lin Feng, Siwen Li, Shuo Qin and Fancheng Yang (Sichuan Normal University, China)

23:40 Offline Textual Adversarial Attacks Against Large Language Models
Huijun Liu (National University of Defense Technology, China); Bin Ji (National University of Singapore, Singapore); Jie Yu, Shasha Li, Jun Ma, Miaomiao Li and Xi Wang (National University of Defense Technology, China)

24:00 A Transferable Adversarial Attack Against Object Detection Networks
Yier Wei, Haichang Gao, Xingyi Quan and Guotu Luo (Xidian University, China)

23:00 – 24:40
Virtual: Adversarial Machine Learning and Cyber Security
Conference: IJCNN
Room: Zoom 20
Session Chair(s):

23:00 Reversible Adversarial Examples Based on Self-Embedding Watermark for Image Privacy Protection
Xu Cao, Ju Liu, Jinghui Yin and XueJun Cheng (Shandong University, China); Jing Li (Shandong Normal University, China); Hao Ma (Shandong University & None, China); Guanghui Luo (Shandong University, China)

23:20 Adversarial Examples are Misaligned in Diffusion Model Manifolds
Peter Lorenz (Heidelberg University & ITWM Fraunhofer, Germany); Ricard Lopez Durall (ITWM Fraunhofer, Germany); Janis Keuper (IMLA Offenburg, Germany)

23:40 Boosting Transferability of Decision-Based Sampling Batch Attack Using Skeleton Feature
Shengbo Chen and Shuai Wang (Shanghai University, China)

24:00 Fed-IoVIDS: Intrusion Detection Based on Attack Behavior Analysis with Temporal Model on IoV Considering Privacy Protection
Rui Chen and Jing Zhao (Dalian University of Technology, China)

24:20 AppFineGraph: Hierarchical Mobile Encrypted Traffic Classification at Multi-Granularities via a Branch Graph Neural Network

Shengbao Li (University of Chinese Academy of Sciences, China & Chinese Academy of Sciences, China); Zhuohang Lv (National Computer Network Emergency Response Technical Team Coordination Center, China); Zang Tianning (Chinese Academy of Sciences, China); Lanqi Yang (University of Chinese Academy of Sciences, China); Qian Qiang (National Computer Network Emergency Response Technical Team Coordination Center, China)

23:00 – 24:40
Virtual: Machine Learning Algorithms 5
Conference: IJCNN
Room: Zoom 21
Session Chair(s):

23:00 Robust Barrier-Certified Safe Learning-Based Adaptive Control for Multi-Agent Systems in Presence of Uncertain Environments

Shawon Dey (University of Nevada, Reno., USA); Hao Xu (University of Nevada, Reno, USA)

23:20 Multi-Organ Segmentation Based on Multi-Granularity Prototype Learning

Jiahai Su, Changjian Wang, Fengyu Tian and Shimin Tang (National University of Defense Technology, China); Hongjun He (National University of Defence Technology, China); Li Luo (National University of Defense Technology, China)

23:40 Collaborative Pareto Set Learning in Multiple Multi-Objective Optimization Problems

Chikai Shang (Guangdong University of Technology, China); Rongguang Ye (Southern University of Science and Technology, China); Jiaqi Jiang and Fangqing Gu (Guangdong University of Technology, China)

24:00 A Fast ADMM Framework for Training Deep Neural Networks Without Gradients

Xueting Wen (Shanghai University, China); Yongmei Lei (School of Computer Engineering and Science, Shanghai University, China)

24:20 Adaptive Codomain Sampling for Accurate Surrogate Modeling

Qian Huang (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China); Jiahui Huang (The Hong Kong Polytechnic University, China); Weinong Fu (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China)

23:00 – 24:40
Virtual: Machine Learning Algorithms 6
Conference: IJCNN
Room: Zoom 22
Session Chair(s):

23:00 Accelerating Unbalanced Optimal Transport Problem Using Dynamic Penalty Updating
Xun Su (Waseda University, Japan); Hiroyuki Kasai (WASEDA University, Japan)

23:11 Subset Selection in Support Vector Machine
Jiangshuo Zhao and Canhong Wen (USTC, China)

23:23 Learning Defendant-Aware Label Representation for Multi-Defendant Charge Prediction
Yu Chen, You Zhang, Jin Wang, Dan Xu and Xuejie Zhang (Yunnan University, China)

23:35 Learning with Noisy Labels: A Novel Meta Label Corrector Without Clean Validation Data
Kai Jiang, Bin Cao, Yuqi Liu and Jing Fan (Zhejiang University of Technology, China)

23:47 A Tree Regression Algorithm Based on Incremental Gradient Boosting
Hui Zhang, WeiWen Wu, Chunming Yang and Bo Li (Southwest University of Science and Technology, China)

23:00 – 24:40
Virtual: Unsupervised Learning and Clustering 3
Conference: IJCNN
Room: Zoom 23
Session Chair(s):

23:00 Dual-Adaptive Fusion Multi-View Clustering Based on Graph Autoencoder
Changyong Niu, Mengqi Wu and Lijuan Zhou (Zhengzhou University, China)

23:20 Multi-Level Graph Subspace Contrastive Learning for Hyperspectral Image Clustering
Jingxin Wang (China University of Geosciences, Wuhan, China); Renxiang Guan (National University of Defense Technology, China); Kainan Gao and Zihao Li (China University of Geosciences, Wuhan, China); Hao Li (National University of Defense Technology & None, China); Xianju Li (China University of Geosciences, Wuhan, China); Chang Tang (China University of Geosciences, China)

23:40 Large-Scale Few-Shot Classification with Semi-Supervised Hierarchical k-Probabilistic PCAs
Ke Han and Adrian Barbu (Florida State University, USA)

24:00 A Fast Heterogeneous Information Network Embedding Framework

Kuangmeng Wang and Hong Zhang (Southwest University, China)

24:20 Adding Explainability to Visual Clustering Tendency Assessment (VAT) Methods Through Feature Importance

B Srinath Achary, Rankit Kachroo and Punit Rathore (Indian Institute of Science, India)

23:00 – 24:40
Virtual: Evolutionary Computation in Healthcare Industry
Conference: CEC
Room: Zoom 25
Session Chair(s):

23:00 Lightweight Detection Architecture Adapted to Small Lesions Using Multiscale Sampling Method

Ayu Karasudani, Masaki Ishihara, Tatsuya Yamaguchi, Ayaka Oka, Yu Hasome, Nobuhiro Miyazaki, Hiroaki Takebe and Takayuki Baba (Fujitsu Limited, Japan); Shogo Maeda, Yuko Nakamura, Toru Higaki and Kazuo Awai (Hiroshima University, Japan)

23:20 COR-MFS: A Correlation-based Multi-objective Feature Selection on EEG Signals

Ananda Sutradhar (Daffodil International University, Bangladesh); Azam Asilian Bidgoli (Wilfrid Laurier University, Canada); Shahryar Rahnamayan (Brock University, Canada)

23:40 A surrogate-assisted genetic algorithm framework to discover peptides against COVID-19 virus

Elias Silva (Federal Institute of Education Science and Technology of Rondônia, Brazil); Lucas Palmeira (Federal University of Minas Gerais, Brazil); Marcelo Garcia-Junior and Luiz Gustavo A. Martins (Federal University of Uberlândia, Brazil); Yaochu Jin (Westlake University, China); Bruno S. Andrade (State University of Southwestern Bahia, Brazil); Robinson Sabino-Silva and Murillo G. Carneiro (Federal University of Uberlândia, Brazil)

24:00 Feature Selection-driven Bias Deduction in Histopathology Images: Tackling Site-Specific Influences

Farnaz Kheiri (University of Ontario Tech, Canada); Azam Asilian Bidgoli (Wilfrid Laurier University, Canada); Masoud Makrehchi (University of Ontario Tech, Canada); Shahryar Rahnamayan (Brock University, Canada)

24:20 MiRNN: A mutual information augmented recurrent neural network framework for reconstruction of gene regulatory networks

Prianka Dey (University of Calcutta & Narula Institute of Technology, India); Abhinandan Khan (ARP Engineering & University of Calcutta, India); Goutam Saha (North Eastern Hill University, India); Rajat Pal (University of Calcutta, India)

July 3, 2024

8:20 A CLIP-Based Siamese Approach for Meme Classification
Javier Huertas-Tato (Universidad Politécnica de Madrid, Spain); Christos Koutlis (Information and Telematics Institute, Greece); Symeon Papadopoulos (Informatics and Telematics Institute (ITI), Greece); David Camacho (Universidad Politecnica de Madrid, Spain); Ioannis Kompatsiaris (Centre for Research and Technology Hellas, Greece)

8:40 An Active Learning Framework for Continuous Rapid Rumor Detection in Evolving Social Media
Zhejie Shao, Guoyong Cai, Qinghua Liu and Yunxian Shang (Guilin University of Electronic Technology, China)

9:00 Identifying Coordinated Activities on Online Social Networks Using Contrast Pattern Mining
Isura Manchanayaka (The University of Melbourne, Australia); Zainab Zaidi, Shanika Karunasekera and Christopher Leckie (University of Melbourne, Australia)

9:20 Training Deepfake Detection Model from Photos with Face Mask
Yu-Hsun Lin and Yu-Shao Xu (National Tsing Hua University, Taiwan)

9:40 Deepfake Detection via a Progressive Attention Network
Siyou Guo and Mingliang Gao, Jr. (Shandong University of Technology, China); Qilei Li (Queen Mary University of London, USA); Gwanggil Jeon (Incheon National University, Korea (South)); David Camacho (Universidad Politecnica de Madrid, Spain)

8:20 – 10:00
IJCNN S4_8 Special Session: Self-Organizing Clustering for Continual Learning and Its Applications 2
Conference: IJCNN
Room: 301+302+303+304
Session Chair(s): Naoki Masuyama

8:20 Segmentation of Human Body Parts Using Growing Neural Gas with Event Camera
Masatoshi Eguchi, Takenori Obo and Naoyuki Kubota (Tokyo Metropolitan University, Japan)

8:40 Topological Clustering for Spatial Perception Using Fuzzy Reliability-Based Growing Region Method
Masaya Shoji (ROBOTIS Co., Ltd. & Advanced Institute of Industrial Technology / Tokyo Metropolitan University, Japan); Taichi Watanabe, Keisuke Nagashima and Ryohei Michikawa (ROBOTIS Japan, Japan); Naoyuki Kubota (Tokyo Metropolitan University, Japan)

9:00 Cognitive Modeling Based on Perceiving-Acting Cycle in Unilateral Spatial Neglect
Takenori Obo and Takuro Sekiguchi (Tokyo Metropolitan University, Japan); Tadamitsu Matsuda (Juntendo University, Japan); Naoyuki Kubota (Tokyo Metropolitan University, Japan)

9:20 A Self-Organizing Clustering System for Unsupervised Distribution Shift Detection
Sebastian Basterrech (Technical University of Denmark, Denmark); Line Clemmensen (DTU, Denmark); Gerardo Rubino (INRIA, France)

8:20 – 10:00
IJCNN S5_2 Special Session: Trustworthy and Explainable Federated Learning: Towards Security and Privacy Future 2
Conference: IJCNN
Room: 311+312
Session Chair(s): Annabel Latham

8:20 Fractal Augmented Pre-Training and Gaussian Virtual Feature Calibration for Tackling Data Heterogeneity in Federated Learning
Yan Zheng, Yanlong Zhai, Yanglin Liu and Li You (Beijing Institute of Technology, China)

8:40 STFL: Utilizing a Semi-Supervised, Transfer-Learning, Federated-Learning Approach to Detect Phishing URL Attacks
Ido Sakazi (Ben-Gurion University, Israel); Edita Grolman (Ben-Gurion University of the Negev, Israel); Yuval Elovici (Ben-Gurion University, Israel); Asaf Shabtai (Ben-Gurion University of the Negev, Israel)

9:00 Counterfactual Explanations of Black-Box Machine Learning Models Using Causal Discovery with Applications to Credit Rating

Daisuke Takahashi, Shohei Shimizu and Takuma Tanaka (Shiga University, Japan)

8:20 – 10:00
IJCNN S5_12 Special Session: Machine Learning and Signal Processing for Brain or Behavioral Analysis 2
Conference: IJCNN
Room: 313+314
Session Chair(s): Tomasz M Rutkowski

8:20 EEG-RegNet: Precise Understanding of Emotions in Continuous VAD Space via EEG Signal

Hyo Jin Jon, Hyuntaek Jung, Hyunseo Kim and Eun Yi Kim (Konkuk University, Korea (South))

8:40 A Novel Reservoir Architecture for Periodic Time Series Prediction

Zhongju Yuan (Ghent University, Belgium); Geraint Wiggins (Vrije Universiteit Brussel, Belgium); Dick Botteldooren (Ghent University, Belgium)

9:00 Large-Scale Synchronization Transients Serving as Neural Substrates of Consciousness

Robert Kozma (U of Memphis, USA)

9:20 Olfactory Paradigm for Reactive Brain-Computer Interface: EEG Response Spatial Visualization and Clustering

Hubert Kasprzak, Nina Niewinska and Tomasz Komendzinski (Nicolaus Copernicus University, Poland); Mihoko Otake-Matsuura (RIKEN, Japan); Tomasz M Rutkowski (RIKEN AIP, Japan)

8:20 – 10:00
IJCNN S5_15 Special Session: Deep Learning for Graphs 2
Conference: IJCNN
Room: 315
Session Chair(s): Nicolo Navarin

8:20 Inexact Graph Representation Learning

Yijun Duan (Kyoto Institute of Technology, Japan); Xin Liu (National Institute of Advanced Industrial Science and Technology, Japan); Adam Jatowt (University of Innsbruck, Austria); Haitao Yu (University of Tsukuba, Japan); Steven Lynden (National Institute of Advanced Industrial Science and Technology (AIST), Japan); Akiyoshi Matono (National Institute of Advanced Industrial Science and Technology, Japan)

8:40 Zero-Shot Heterogeneous Graph Embedding via Aggregating Metapath Semantically

Zhi chao Luo and Zheng Wang (Shanghai Jiao Tong University, China)

9:00 Integrating Social and Knowledge Graphs in GNN-Based Recommender Systems
Zengyi Yu, Yonggu Wang, Mengfang Hu and Zihan. Wang (Zhejiang University of Technology, China)

9:20 MUGI-MRI: Enhancing Breast Cancer Classification Through Multiplex Graph Neural Networks in DCE-MRI
Francesco Ceccarelli (University of Cambridge, UK (Great Britain)); Francesco Prinzi (University of Palermo, Italy); Pietro Lio (University of Cambridge, UK (Great Britain)); Salvatore Vitabile (University of Palermo, Italy); Sean Holden (University of Cambridge, UK (Great Britain))

9:40 Topological Message Passing for Higher - Order and Long - Range Interactions
Lorenzo Giusti (CERN, Switzerland); Teodora Reu (University of Oxford, UK (Great Britain)); Francesco Ceccarelli (University of Cambridge, UK (Great Britain)); Cristian Bodnar (Microsoft Research, UK (Great Britain)); Pietro Lio (University of Cambridge, UK (Great Britain))

8:20 – 10:00
IJCNN S5_10 Special Session: Machine Learning in Critical Infrastructure and Healthcare
Conference: IJCNN
Room: 411+412
Session Chair(s): Valerie Vaquet

8:20 Localizing of Anomalies in Critical Infrastructure Using Model-Based Drift Explanations
Valerie Vaquet, Fabian Hinder, Jonas Vaquet and Kathrin Lammers (Bielefeld University, Germany); Lars Quakernack (Hochschule Bielefeld, Germany); Barbara Hammer (Bielefeld University, Germany)

8:40 Toward a Reliable Network-Based Intrusion Detection Model for SCADA: A Classification with Reject Option Approach
Paulo Roberto de Oliveira (PUCPR, Brazil); Eduardo Viegas and Altair Santin (Pontifical Catholic University of Parana (PUCPR), Brazil); Pedro Horchulhack (PUCPR, Brazil); Everton de Matos (Technology Innovation Institute, United Arab Emirates)

9:00 Knowledge-Informed Auto-Penetration Testing Based on Reinforcement Learning with Reward Machine
Yuanliang Li, Hanzheng Dai and Jun Yan (Concordia University, Canada)

9:20 Replication of Impedance Identification Experiments on a Reinforcement-Learning-Controlled Digital Twin of Human Elbows
Hao Yu (University of Edinburgh & Heriot-Watt University, UK (Great Britain)); Zebin Huang (University of Edinburgh, UK (Great Britain)); Qingbo Liu (University of Hong Kong, Hong Kong); Ignacio Carlucho and Mustafa Suphi Erden (Heriot-Watt University, UK (Great Britain))

9:40 S-E Pipeline: A Vision Transformer (ViT) Based Resilient Classification Pipeline for Medical Imaging Against Adversarial Attacks

Neha A S (Indian Institute of Technology, Palakkad, India); Vivek Chaturvedi (IIT Palakkad, India); Muhammad Shafique (NYU Abu Dhabi, United Arab Emirates)

8:20 – 10:00
IJCNN S5_11: Computational Neuroscience and Cross-Disciplinary Topics
Conference: IJCNN
Room: 413
Session Chair(s): Patrick Stricker

8:20 Weight Perturbation and Competitive Hebbian Plasticity for Training Sparse Excitatory Neural Networks

Patrick Stricker (Department of Computer Science, Chemnitz University of Technology & KEIM Institute, Albstadt-Sigmaringen University); Florian Röhrbein (Chemnitz University of Technology, Germany); Andreas Knoblauch (KEIM Institute Albstadt-Sigmaringen University, Germany)

8:40 A Model of Motor Timing Volatility and Its Effect on Force Variability

Atsushi Takagi and Hiroaki Gomi (NTT Communication Science Laboratories, Japan)

9:00 Use of External Markers by Reactive Agents as an Easier Evolutionary Route Toward Memory

Shivashriganesh P Mahato and Shreyes Kaliyur (Texas A&M University); Ji Ryang Chung (Tilda Corp, Korea (South)); Yoonsuck Choe (Texas A&M University)

9:20 Exploring Graph Representations in Machine Learning for Network Robustness Evaluation

Yang Lou (National Yang Ming Chiao Tung University, Taiwan); Chengpei Wu (Sichuan Normal University, China); Bo-Yu Chen (National Yang Ming Chiao Tung University, Taiwan)

9:40 Motion Part-Level Interpolation and Manipulation over Automatic Symbolic Labanotation Annotation

Junkun Jiang, Ho Yin Au, Jie Chen, Jingyu Xiang and Mingyuan Chen (Hong Kong Baptist University, Hong Kong)

8:20 – 10:00
CEC WE1-R10: SS on Bilevel Optimization: Methods and Applications
Conference: CEC
Room: 414+415
Session Chair(s): Hemant K Singh

8:20 A Bi-level Evolutionary Model Tree Induction Approach for Regression
Safa Mahouachi (SMART Lab, ISG, University of Tunis, Tunisia); Maha Elarbi (SMART Lab, ISG-Tunis, University of Tunis, Tunisia); Khaled Sethom (SMART Lab ISG Tunis University of Tunis, Tunisia); Slim Bechikh (SMART Lab, University of Tunis, ISG, Tunisia); Carlos Coello Coello (Cinvestav, Mexico)

8:40 Decomposition of Difficulties in Complex Optimization Problems Using a Bilevel Approach
Ankur Sinha (Indian Institute of Management Ahmedabad, India); Dhaval Pujara (Indian Institute of Managment Ahmedabad, India); Hemant K Singh (The University of New South Wales, Australia)

9:00 Improving the Performance of Bilevel Evolutionary Algorithms using Variable Associations
Bing Wang (University of New South Wales, Australia); Hemant K Singh (The University of New South Wales, Australia); Tapabrata Ray (University of New South Wales at ADFA, Australia)

9:20 A Bi-Level Multi-Objective Energy Management System for Renewable Energy Self-Consumption
Thalis Papakyriakou, Andreas Pamboris and Andreas Konstantinidis (Frederick University, Cyprus)

9:40 A Nested Evolutionary Algorithm for Solving a Bilevel Competitive Location Problem: Optimistic vs. Pessimistic Approaches
José-Fernando Camacho-Vallejo (Tecnologico de Monterrey, Mexico); Carlos E. Corpus (Universidad de Nuevo Leon, Mexico)

8:20 – 10:00
CEC WE1-R11: SS on Nature-Inspired Constrained Optimization
Conference: CEC
Room: 416+417
Session Chair(s): Efrén Mezura-Montes

8:20 Natural Evolution Strategy for Black-Box Function Optimization with Implicit Constraint
Masato Nishikubo and Isao Ono (Tokyo Institute of Technology, Japan)

8:40 Chance Constrained Optimization for Wind Power Curve Fitting with Unclean Data
Xun Shen (Osaka University & Tokyo Institute of Technology, Japan)

9:00 Constraint Consensus for Solving Large-scale Constrained Optimization Problems
Noha Hamza (University of New South Wales Canberra, Australia); Sarker Amin Ruhul (University of New South Wales, Australia); Daryl Essam (University of New South Wales at the Australian Defence Force Academy UNSW@ADFA, Australia); Saber Elsayed (University of New South Wales, Australia)

9:20 An Improved Gradient-based Repair Method for Constrained Numerical Optimization
Jingyu Ji, Sen Yang, Kester Kwan Yeung Lee, Hon Wing Billy Chiu, Man Leung Wong and Sam Tak Wu Kwong (Lingnan University, Hong Kong)

8:20 – 10:00
CEC WE1-R12: J2C Paper Presentation I
Conference: CEC
Room: 418
Session Chair(s): Lie Meng Pang

8:20 Introducing Anti-Dominance Structures in Multi-objective Optimization
Kalyanmoy Deb (Michigan State University, USA); Mathias Ehrgott (Lancaster University, USA)

8:40 Multi-Objective Ensemble Learning for Product Quality Prediction in Iron and Steel Industry
Xianpeng Wang (Northeastern University, China); Lixin Tang (China); Yao Wang (Northeastern University, China); Qingfu Zhang (City University of Hong Kong, Mexico)

9:00 Mitigating Unfairness via Evolutionary Multi-objective Ensemble Learning
Qingquan Zhang and Jialin Liu (Southern University of Science and Technology, China); Zeqi Zhang (Huawei, China); Junyi Wen (Huawei Technologies, China); Bifei Mao (Huawei, China); Xin Yao (Lingnan University)

9:20 Hypervolume-Based Cooperative Coevolution with Two Reference Points for Multi-Objective Optimization
Lie Meng Pang, Hisao Ishibuchi, Linjun He, Ke Shang and Longcan Chen (Southern University of Science and Technology, China)

9:40 Quality Indicators for Preference-based Evolutionary Multi-objective Optimization Using a Reference Point: A Review and Analysis (J2C track in WCCI2024)
Ryoji Tanabe (Yokohama National University, Japan); Ke Li (University of Exeter, UK (Great Britain))

8:20 – 10:00
CEC WE1-R13: SS on Data-Driven Evolutionary Optimization of Computationally Expensive Problems
Conference: CEC
Room: 419
Session Chair(s): Chaoli Sun

8:20 Expensive Many-objective Optimization Assisted by Adaptive Modeling

Shufen Qin (Taiyuan University of Science and Technology, China); Chaoli Sun (Taiyuan University of Science and Technology, Hong Kong); Zongchao Xie (University of Melbourne, Australia)

8:40 Empirical Study on Averaging-based Noise-Tolerant Methods for Expensive Combinatorial Optimization

Shulei Liu and Handing Wang (Xidian University, China); Wen Yao and Wei Peng (Chinese Academy of Military Science, China); Jingjing Ma (Xidian University, China)

9:00 Analysis of the Impact of Prediction Accuracy on Search Performance in Surrogate-assisted Evolutionary Algorithms

Yuki Hanawa (Tokyo Metropolitan University, Japan); Tomohiro Harada (Saitama University, Japan); Yukiya Miura (Tokyo Metropolitan University, Japan)

9:20 Surrogate-Assisted Particle Swarm Optimization with Dual-Subspace Search for Large-Scale Expensive Optimization

Jiajia Zhang (Taiyuan University of Science and Technology, China); Chaoli Sun (Taiyuan University of Science and Technology, Hong Kong); Guochen Zhang, Jing Li and Hui Shi (Taiyuan University of Science and Technology, China); Zongchao Xie (University of Melbourne, Australia)

9:40 A Meta-Learning-Based Surrogate-Assisted Evolutionary Algorithm for Expensive Multi-Objective Optimization Problems

Liqun Wen and Hongfeng Wang (Northeastern University, China)

8:20 – 10:00
FUZZ WE1-R15: SS: Advancements in Handling Data Uncertainty with a Focus on Non-Singleton Fuzzy Logic Systems
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Direnc Pekaslan

8:20 Enhancing Interval Type-2 Fuzzy Logic Systems: Learning for Precision and Prediction Intervals

Ata Koklu, Yusuf Guven and Tufan Kumbasar (Istanbul Technical University, Turkey)

8:40 Zadeh's Type-2 Fuzzy Logic Systems: Precision and High-Quality Prediction Intervals
Yusuf Guven, Ata Koklu and Tufan Kumbasar (Istanbul Technical University, Turkey)

9:00 A Type-2 Fuzzy Logic-Based Explainable Artificial Intelligence for the Prediction of Enhancers
Khizra Maqsood and Hani Hagras (University of Essex, UK (Great Britain)); Nicolae Radu Zabet (Queen Mary University of London, UK (Great Britain))

9:20 A Type-2 Fuzzy Time Series Classification System with Optimized Time Period Selection
Ashish Bhatia and Hani Hagras (University of Essex, UK (Great Britain))

9:40 Interpreting Contrastive Embeddings in Specific Domains with Fuzzy Rules
Javier Fumanal Idocin, Mohammadreza Jamalifard and Javier Andreu-Perez (University of Essex, UK (Great Britain))

8:20 – 10:00
FUZZ WE1-R16: SS: Collaborative Learning of Trustworthy Computational Intelligence Systems
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Pietro Ducange

8:20 GLOR-FLEX: Local to Global Rule-based EXplanations for Federated Learning
Rami Haffar (Universitat Rovira i Virgili, Spain); Francesca Naretto (University of Pisa, Italy); David Sánchez (Universitat Rovira i Virgili, Spain); Anna Monreale (University of Pisa, Italy); Josep Domingo-Ferrer (Universitat Rovira i Virgili, Spain)

8:40 Defense Strategy against Byzantine Attacks in Federated Machine Learning: Developments towards Explainability
Nuria Rodríguez-Barroso (University of Granada, Spain); Javier Del Ser (TECNALIA, Spain); M. Victoria Luzón and Francisco Herrera (University of Granada, Spain)

9:00 Consistent Post-Hoc Explainability in Federated Learning through Federated Fuzzy Clustering
Pietro Ducange, Francesco Marcelloni, Alessandro Renda and Fabrizio Ruffini (University of Pisa, Italy)

9:20 DQFed: A Federated Learning Strategy for Non-IID Data based on a Quality-Driven perspective
Mario Luca Bernardi (2Research Centre on Software Technology (RCOST), University of Sannio, Italy); Marta Cimitile (Unitelma Sapienza University, Italy); Muhammad Usman (University of Sannio, Italy)

8:20 – 18:00
Exhibition
Room: 501+502

10:00 -10:20
Break

10:20 – 11:30
IEEE Frank Rosenblatt Award Ceremony and Recipient Plenary Talk by Bernadette Bouchon-Meunier
Room: 301+302+303+304
Session Chair(s): Yaochu Jin

Can intelligent systems be conscious?

Bernadette Bouchon-Meunier

CNRS-Sorbonne Université

The concept of consciousness is complex and takes various forms. The fact that an intelligent system can be conscious has long been discussed and the questions are getting louder as we see systems springing up everywhere that seem capable of dialoguing with humans in a very natural way. We propose to look at several facets of consciousness, from phenomenological consciousness linked to perceptions to access consciousness, which gives us information about one's actions. In 1982 already, Marvin Minsky 1 was considering that self-conscious systems could be done by providing machines with ways to examine their own mechanisms while they are working. Then Jacques Pitrat 2 in 2009 claimed that, for a conscious artificial being, the possibility of monitoring its own thought enables it to explain its decisions so that they can be accepted by others, which goes in the direction of eXplainable AI. A recent study 3 provides a list of indicator properties derived from scientific theories to assess consciousness for an intelligent system. We offer an overview of some interesting aspects of consciousness from the angle of intelligent systems, which can be different from human consciousness, and we wonder to what extent a present or a future system can have such a form of consciousness and what the advantages and drawbacks are.

11:30 – 13:00
Lunch Time

13:00 – 14:00
Networks Pioneer Award Keynote Talk by Johan Suykens
Conference: IJCNN
Room: 301+302
Session Chair(s): Robert Kozma

Least Squares Support Vector Machines and Deep Learning
Johan Suykens
Katholieke Universiteit Leuven

While powerful architectures have been proposed in deep learning, with support vector machines and kernel-based methods solid foundations have been obtained from the perspective of statistical learning theory and optimization. Simple core models were obtained within the least squares support vector machines framework, related to classification, regression, kernel principal component analysis, kernel canonical correlation analysis, kernel spectral clustering, recurrent models, approximate solutions to partial differential equations and optimal control problems, etc. The representations of the models are understood in terms of primal and dual representations, respectively related to feature maps and kernels. The insights have been exploited for tailoring representations to given data characteristics, both for high dimensional input data and large scale data sets. One can either work with explicit feature maps (such as e.g. convolutional feature maps) or implicit feature maps through the kernel functions.

Within this talk we will mainly focus on new insights connecting deep learning and least squares support vector machines. Related to Restricted Boltzmann machines and Deep Boltzmann machines we show how least squares support vector machine models can be transformed into so-called Restricted Kernel Machine representations. It enables to conceive new deep kernel machines, generative models, multi-view and tensor based models with latent space exploration, and obtain improved robustness and explainability. On most recent work, we will explain how the attention mechanism in transformers can be seen within the least squares support vector machine framework. More precisely it can be represented as an extension to asymmetric kernel singular value decomposition with primal and dual model representations, related to two feature maps (queries and keys) and an asymmetric kernel. In the resulting method of "Primal-Attention" a regularized loss is employed to achieve low-rank representations for efficient training in the primal.

Finally, these newly obtained synergies are very promising in order to obtain the bigger and unifying picture. Several future challenges will be outlined from this perspective.

13:00 – 14:00
Keynote talk by Mengjie Zhang
Conference: CEC
Room: 303+304
Session Chair(s): Sanaz Mostaghim

Evolutionary Machine Learning: 50 Years of Progress

Mengjie Zhang
Victoria University of Wellington

Evolutionary machine learning have been very popular over the recent years. In this talk, I will firstly provide a brief overview of the history of evolutionary machine learning with the major developments over the past 50 years, then focus on the main paradigms of evolutionary machine learning and their successes in classification, feature selection, regression, clustering, computer vision and image analysis, scheduling and combinatorial optimisation, deep learning, transfer learning and explainable/interpretable machine learning. The main applications, challenges and lessons as well as potential opportunities will be also discussed.

13:00 – 14:00
Keynote Talk by Jie Lu
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Marie-Jeanne Lesot

Fuzzy Machine learning

Jie Lu
University of Technology Sydney

The talk will present the concepts, methodologies, and algorithms of fuzzy machine learning, including fuzzy transfer learning, fuzzy concept drift detection and adaptation, and fuzzy recommender systems. It will also present how the fuzzy machine learning techniques can effectively support data-driven prediction and decision-making in uncertain, complex, and dynamic situations.

14:00 – 14:20
Break

14:20 – 16:20
IJCNN S6_26: Unsupervised learning and clustering, (including PCA, and ICA)
Conference: IJCNN
Room: 211+212
Session Chair(s): Ziyun Li

14:20 Otem-IGCD: An Optimal Transport-Based EM Framework for Imbalanced Generalized Category Discovery

Ziyun Li (Hasso Plattner Institute, Germany); Ben Dai (Chinese University of HongKong, Hong Kong); Christoph Meinel (Hasso-Plattner-Institute, Germany); Haojin Yang (Hasso Plattner Institute, Germany)

14:40 Autoencoder Optimization for Anomaly Detection: A Comparative Study with Shallow Algorithms

Vikas Kumar, Arindam Pal and Vishesh Srivastava (Technical University of Dortmund, Germany); Sadia Mahjabin (TU Dortmund University, Germany); Simon Klüttermann and Emmanuel Müller (TU Dortmund, Germany)

15:00 False Negative Masking for Debiasing in Contrastive Learning

Jen-Tzung Chien and Kuan Chen (National Yang Ming Chiao Tung University, Taiwan)

15:20 Clustering by Learning the Ordinal Relationships of Qualitative Attribute Values

Pengkai Wang, Yunfan Zhang and Yiqun Zhang (Guangdong University of Technology, China); Yang Lu (Xiamen University, China); Mengke Li (Shenzhen University & Guangming Lab, China); Yiu-ming Cheung (Hong Kong Baptist University, Hong Kong)

15:40 Fast k-Means with Stable Instance Sets

Ariel Basso Madjoukeng and Edith Belise Kenmogne (University of Dschang, Cameroon); Benoît Frénay (University of Namur, Belgium)

16:00 Self-Supervised Representation Learning for Sleep Stage Classification with Feature Space Augmentation and Temporal Prediction

Qijun Jiang and Lina Chen (Zhejiang Normal University, China); Hong Gao (University of Harbin Institute Technology, China); Fangyao Shen and Hongjie Guo (Zhejiang Normal University, China)

14:20 – 18:00
Workshop: Computational Intelligence in Human Informatics
Room: 213

14:20 – 16:20
Panel: Can AI Craft AI Inspired by the Brain?: Insights from the Fathers
Room: 301+302

14:20 – 16:20
IJCNN S6_27: Supervised and Unsupervised learning
Conference: IJCNN
Room: 303+304
Session Chair(s): Márcio Basgalupp

14:20 FR-NAS: Forward-And-Reverse Graph Predictor for Efficient Neural Architecture Search
Haoming Zhang and Ran Cheng (Southern University of Science and Technology, China)

14:40 Machine Learning and IoT for Predicting the Productivity of MRI Equipment
Péricles Miranda (Universidade Federal Rural de Pernambuco, Brazil); Leonardo Monte (UFRPE, Brazil); Jose Coelho (NESS, Brazil); André Nascimento (UFRPE, Brazil); Márcio Basgalupp (Universidade Federal de São Paulo, Brazil)

15:00 Are Bounded Support Vectors Harmful to Stable Classification?
Shigeo Abe (Kobe University, Japan)

15:20 Hierarchical Mutual Information Analysis: Towards Multi-View Clustering in the Wild
Jiatai Wang (Haihe Laboratory of Information Technology Application Innovation, China); Zhiwei Xu (Institute of Computing Technology, Chinese Academy of Sciences, China); Xuewen Yang (InnoPeak Technology, USA); Xin Wang (Stony Brook University, USA); Li Tao (Nankai University, China)

15:40 A Semi-Supervised Clustering Approach Using Nonlinear Canonical Correlation Analysis with t-SNE
Xia Hong (University of Reading, UK (Great Britain)); James Xiao (Independent Researcher, Canada); Hong Wei (University of Reading, UK (Great Britain))

16:00 Semantic Facial Features and Expression Manipulation Using Multi-Level IC-DGAN Framework
Fakhar Abbas and Araz Taeihagh (National University of Singapore & Centre for Trusted Internet and Community, Singapore)

14:20 – 16:20
IJCNN S6_28: Machine Learning: Supervised 2
Conference: IJCNN
Room: 311+312
Session Chair(s): Kleanthis Malialis

14:20 Incremental Learning with Concept Drift Detection and Prototype-Based Embeddings for Graph Stream Classification
Kleanthis Malialis, Jin Li, Christos Panayiotou and Marios Polycarpou (University of Cyprus, Cyprus)

14:40 Meta-Learning and Novelty Detection for Machine Learning with Reject Option
Patricia Drapal (Federal University of Pernambuco, Brazil); Telmo Silva-Filho (University of Bristol, European Union); Ricardo Prudencio (Federal University of Pernambuco, Brazil)

15:00 Lithium-Ion Battery Aging Estimation Through Deep Learning Techniques
Luan Lopes Santos, Natanael Nunes de Moura Junior and Robson Dias (Federal University of Rio de Janeiro, Brazil)

15:20 Network Intrusion Detection Using Machine Learning on Resource-Constrained Edge Devices
Pontus Lidholm (Westermo Network Technologies AB, Sweden); Tijana Markovic and Miguel Leon (Malardalen University, Sweden); Per Strandberg (Westermo Network Technologies AB, Sweden)

14:20 – 16:20
IJCNN S6_29: Machine Learning: Supervised 1
Conference: IJCNN
Room: 313+314
Session Chair(s): Giulia Tanoni

14:20 Explaining Supervisor Set for Machine Learning Methods
Andrzej Nowakowski (University of Lodz, Poland)

14:40 Addressing Intermediate Verification Latency in Online Learning Through Immediate Pseudo-Labeling and Oriented Synthetic Correction
Zixin Zhong (Southern University of Science and Technology, China); Liyan Song (Harbin Institute of Technology, China & Southern University of Science and Technology, China); Fengzhen Tang (Chinese Academy of Sciences, China); Bo Yuan (Southern University of Science and Technology, China)

15:00 Developing Incremental Learning Models with Prototypes
Li-Chiao Wang (National Tsing Hua University, Taiwan); Wei Liu (University of Technology Sydney, Australia); Chung-Shou Liao (National Tsing Hua University, Taiwan)

15:20 Optimizing BioTac Simulation for Realistic Tactile Perception

Wadhah Zai El Amri (L3S Research Center, Germany); Nicolás Navarro-Guerrero (Leibniz Universitaet Hannover, Germany)

15:40 Weakly Supervised Learners for Correction of AI Errors with Provable Performance Guarantees

Ivan Y Tyukin (King's College London, UK (Great Britain)); Tatiana Tyukina, Daniel Van Helden, Zedong Zheng and Evgeny Mirkes (University of Leicester, UK (Great Britain)); Oliver J Sutton and Qinghua Zhou (King's College London, UK (Great Britain)); Alexander Gorban and Penelope Allison (University of Leicester, UK (Great Britain))

16:00 On Post-Selection Misconduct in Artificial Intelligence

Juyang Weng (Brain-Mind Institute & GENISAMA LLC, USA)

14:20 – 16:20
IJCNN S6_30: Supervised and Reinforcement Learning, Statistical and pattern recognition algorithms
Conference: IJCNN
Room: 315
Session Chair(s): YuXing Lee

14:20 QMKD: A Two-Stage Approach to Enhance Multi-Teacher Knowledge Distillation

YuXing Lee (Inner Mongolia University); Wei Wu (Inner Mongolia University, China)

14:40 Self-Attention Guided Advice Distillation in Multi-Agent Deep Reinforcement Learning

Yang Li, Sihan Zhou, Yaqing Hou, Liran Zhou and Hongwei Ge, Jr. (Dalian University of Technology, China); Liang Feng and Siyu Wang (Chongqing University, China)

15:00 A Thompson Sampling Approach to User-Centric Selection Problems

Yanying Huang and Haoran Gu (Chongqing University, China); Hong Xie (University of Science and Technology of China, China); Mingqiang Zhou (Chongqing University, China)

15:20 Gated Transformer Representing Region Importance for Image Quality Assessment

Junyong You (Norwegian Research Centre, Norway); Yuan Lin (Kristiania University College, Norway); Jari Korhonen (University of Aberdeen, UK (Great Britain))

15:40 REMD: A Novel Hybrid Anomaly Detection Method Based on EMD and ARIMA

Jéssica Souza, Ellen Paixão, Fernando Fraga and Lais Baroni (CEFET/RJ, Brazil); Ronaldo Alves (Fiocruz, Brazil); Kele Belloze (CEFET/RJ, Brazil); Joel dos Santos (Federal Center for Technological Education of Rio de Janeiro, Brazil); Eduardo Bezerra (CEFET/RJ, Brazil); Fabio Porto (LNCC, Brazil); Eduardo Ogasawara (CEFET/RJ, Brazil)

16:00 Validation Loss Landscape Exploration with Deep Q-Learning

Enzhi Zhang, Rui Zhong and Masaharu Munetomo (Hokkaido University, Japan); Mohamed Wahib (Center for Computational Science, RIKEN, Japan)

14:20 – 16:20
IJCNN S6_31: Machine Learning - Probabilistic, Reinforcement and Recurrent
Conference: IJCNN
Room: 411+412
Session Chair(s):

14:20 PDDM: Poisson-Distribution Diffusion Model with Multi-Step Weighted Fusion for Medical Image Segmentation

Xingyu Chen and Junying Chen (South China University of Technology, China)

14:40 Time-Series Forecasting Coding: A New Processing Method Developed from Predictive Coding for Recurrent Neural Networks

Yuto Wakui, Junya Kato, Ryo Natsuaki and Akira Hirose (The University of Tokyo, Japan)

15:00 Consolidated Adaptive T-Soft Update for Deep Reinforcement Learning

Taisuke Kobayashi (National Institute of Informatics & The Graduate University for Advanced Studies, Japan)

15:20 Fast Learning for Multi-Agent with Combination of Imitation Learning and Model-Based Learning for Formation Change of Transport Robots

Keisuke Azetsu, Almira Budiyanto and Nobutomo Matsunaga (Kumamoto University, Japan)

15:40 Identifying Ordinary Differential Equations for Data-Efficient Model-Based Reinforcement Learning

Tobias Nagel (Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany); Marco Huber (University of Stuttgart & Fraunhofer IPA, Germany)

16:00 Observation-Time-Action Deep Stacking Strategy: Solving Partial Observability Problems with Visual Input

Keyang Jiang (Beijing Institute of Technology); Qiang Wang, Yahao Xu and Hongbin Deng (Beijing Institute of Technology, China)

IJCNN S6_32: Machine Learning Other topics
Conference: IJCNN
Room: 413
Session Chair(s): Ana C. Lorena

14:20 Rethinking Generalization of Classifiers in Separable Classes Scenarios and Over-Parameterized Regimes
Julius Martinetz (Technical University Berlin, Germany); Christoph Linse (University of Lübeck, Germany); Thomas Martinetz (Universität zu Lübeck, Germany)

14:40 Safe Screening for ℓ2-Penalized Unbalanced Optimal Transport Problem
Xun Su and Zhongxi Fang (Waseda University, Japan); Hiroyuki Kasai (WASEDA University, Japan)

15:00 Legal Document-Based, Domain-Driven Q&A System: LLMs in Perspective
Felipe Oliveira do Espírito Santo, Sarajane Marques Peres and Givanildo de Sousa Gramacho (Universidade de São Paulo, Brazil); Anarosa A. F. Brandão (Universidade de São Paulo & Escola Politécnica, Brazil); Fabio Gagliardi Cozman (Universidade de São Paulo, Brazil)

15:20 Semi-Supervised Learning Using Constrained Laplacian Regularized Least Squares
Celso A. R. Sousa (Kunumi, Brazil)

15:40 Pseudo-Label Learning with Calibrated Confidence Using an Energy-Based Model
Masahito Toba and Seiichi Uchida (Kyushu University, Japan); Hideaki Hayashi (Osaka University, Japan)

16:00 Measuring Latent Traits of Instance Hardness and Classifier Ability Using Boltzmann Machines
Eduardo Vargas Ferreira (Aeronautics Institute of Technology, Brazil & Federal University of Parana, Brazil); Ricardo Prudencio (Federal University of Pernambuco, Brazil); Ana C. Lorena (Instituto Tecnológico de Aeronáutica, Brazil)

14:20 – 16:20
CEC WE2-R10: SS on Explainable AI and Green Computing for Human-Centered EC
Conference: CEC
Room: 414+415
Session Chair(s): Guilherme N. DeSouza

14:20 Outlier Interpretation Using Regularized Auto Encoders and Genetic Algorithm
Seyed Mohamad Ali Tousi (University of Missouri - Columbia, USA); Guilherme N. DeSouza (University of Missouri-Columbia, USA)

14:40 Energy and Quality of Surrogate-Assisted Search Algorithms: a First Analysis

Tomohiro Harada (Saitama University, Japan); Enrique Alba (University of Malaga, Spain); Gabriel Luque (University of Málaga, Spain)

15:00 Prototype Generation with the sUpervised Classifier System on kNN Matching

Naoya Yatsu (The University of Electro-Communications, Japan); Hiroki Shiraishi (Yokohama National University, Japan); Hiroyuki Sato and Keiki Takadama (The University of Electro-Communications, Japan)

15:20 A Random Forest-Assisted Local Search for Expensive Permutation-based Combinatorial Optimization Problems

Takashi Ikeguchi and Shun Sudo (Yokohama National University, Japan); Yuji Koguma (IHI Corporation, Japan); Masaya Nakata (Yokohama National University, Japan)

15:40 A Dual Surrogate-based Evolutionary Algorithm for High-Dimensional Expensive Multiobjective Optimization Problems

Yuma Horaguchi and Masaya Nakata (Yokohama National University, Japan)

16:00 Oversampling-Guided Search for Evolutionary Multiobjective Optimization

Norihiro Kimoto, Yuma Horaguchi and Masaya Nakata (Yokohama National University, Japan)

14:20 – 16:20
CEC WE2-R11: SS on EC for Feature Selection, Extraction and Dimensionality Reduction
Conference: CEC
Room: 416+417
Session Chair(s): Bach Hoai Nguye

14:20 Dimensionality Reduction for Classification Using Divide-and-Conquer Based Genetic Programming

Peng Wang and Bing Xue (Victoria University of Wellington, New Zealand); Jing Liang (Zhengzhou University, China); Mengjie Zhang (VUW, New Zealand)

14:40 Measuring Structural Complexity of GP Models for Feature Engineering over the Generations

Joao Eduardo Batista (RIKEN-CCS, HPAIS, Japan); Adam Kotaro Pindur and Hitoshi Iba (University of Tokyo, Japan); Sara Silva (Universidade de Lisboa, Portugal)

15:00 Surrogate-Assisted Flip for Evolutionary High-Dimensional Multiobjective Feature Selection

Qi-Te Yang (South China University of Technology, China); Liu-Yue Luo (South China University of Techonlogy, China); Chunhua Chen (South China University of Technology & School of Computer Science and Engineering, South China University of Technology, China); Jian-Yu Li (Nankai University, China); Jinghui Zhong (South China University of Technology, China); Jun Zhang (SUN Yat-sen University, China); Zhi-Hui Zhan (Nankai University, China)

15:20 Computational Cost Reduction in Wrapper Approaches for Feature Selection: A Case of Study Using Permutational-Based Differential Evolution

Jesús-Arnulfo Barradas-Palmeros and Efrén Mezura-Montes (Universidad Veracruzana, Mexico); Rafael Rivera-Lopez (Tecnológico Nacional de Mexico. Instituto Tecnológico de Veracruz, Mexico); Héctor Gabriel Acosta Mesa (University of Veracruz, Mexico)

15:40 Evolutionary Label Selection for Multi-label Classification

Bach Hoai Nguyen and Bing Xue (Victoria University of Wellington, New Zealand); Mengjie Zhang (VUW, New Zealand)

14:20 – 16:20
CEC WE2-R12: J2C Paper Presentation II
Conference: CEC
Room: 418
Session Chair(s): Xiao-Fang Liu

14:20 A Steady-State Algorithm for Solving Expensive Multiobjective Optimization Problems With Nonparallelizable Evaluations

Kamrul Hasan Rahi (University of New South Wales, Australia); Hemant K Singh (The University of New South Wales, Australia); Tapabrata Ray (University of New South Wales at ADFA, Australia)

14:40 TinyTLA: Topological Landscape Analysis for Optimization Problem Classification in a Limited Sample Setting

Gašper Petelin and Gjorgjina Cenikj (Jožef Stefan Institute & Jožef Stefan International Postgraduate School, Slovenia); Tome Eftimov (Jožef Stefan Institute, Slovenia)

15:00 Transfer-Based Particle Swarm Optimization with Dynamic Differential Grouping for Large-Scale Dynamic Optimization Problems

Xiao-Fang Liu and Zhi-Hui Zhan (Nankai University, China); Jun Zhang (SUN Yat-sen University, China)

15:20 Evolutionary Multitask Multimodal Optimization Based on Distributed Knowledge Transfer

Gao Kailai (Northeastern University, China)

15:40 A Data-Driven Evolutionary Transfer Optimization for Expensive Problems in Dynamic Environments

Ke Li (University of Exeter, UK (Great Britain)); Xin Yao (University of Birmingham, UK (Great Britain)); Renzhi Chen (Tsinghua University, China)

14:20 – 16:20
CEC WE2-R13: Surrogate-Assisted Evolutionary Computation
Conference: CEC
Room: 419
Session Chair(s): Chaoli Sun and Cuie Yang

14:20 Infill Criterion Ensemble in Multi-Objective Evolutionary Algorithm for Mixed-Variable Problems

Yongcun Liu, Handing Wang and Jingjing Ma (Xidian University, China)

14:40 Surrogate Assisted Large-scale Expensive Optimization With Difference-based Infill Criterion

Wang Lu (Taiyuan University of Science and Technology, China); Chaoli Sun (Taiyuan University of Science and Technology, Hong Kong); Guochen Zhang, Kaili Zhao and Hui Shi (Taiyuan University of Science and Technology, China); Zongchao Xie (University of Melbourne, Australia)

15:00 Surrogate-Assisted Multi-Objective Optimization for Handling Objectives with Heterogeneous Evaluation Times: Unconstrained Problems

Balija Santoshkumar and Kalyanmoy Deb (Michigan State University, USA)

15:20 A Surrogate-Assisted Coevolutionary Algorithm for Expensive Constrained Multiobjective Optimization

Haofeng Wu, Qingda Chen, Cuie Yang and Jinliang Ding (Northeastern University, China); Yaochu Jin (Westlake University, China)

15:40 A Hybrid CMA-ES Method with Convex Hull Surrogate Model

Wenwen Liu, Shiu Yin Yuen and Chi Wan Sung (City University of Hong Kong, China)

14:20 – 16:20
Panel: Explainable Artificial Intelligence – Recent Developments and Future Aspirations
Conference: FUZZ-IEEE
Room: 503

14:20 – 16:20
FUZZ WE2-R16: SS: Recent Advances in Fuzzy Control System Design and Analysis/Fuzzy Control
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Tadanari Taniguchi

14:20 Modified architecture of an intuitionistic fuzzy neural network and its application to a blood glucose regulation for diabetic patients
Kuan-Ming Huang and Tsung-Chih Lin (Feng-Chia University, Taiwan)

14:40 Observer Designs for a General Class of Takagi-Sugeno Fuzzy System with Unmeasurable Premise Variables
Yuto Asai and Jun Yoneyama (Aoyama Gakuin University, Japan)

15:00 Piecewise Modeling Based on Particle Swarm Optimization Algorithm Using Numerical Data
Tadanari Taniguchi (Tokai University, Japan); Luka Eciolaza (IK4Lortek, Spain)

15:20 FUZZ-PPO: Fuzzy-Proximal Policy Optimisation for Assisted Surgical Robotic Control
Baljinder Kaur Sanghera, David Ada Adama and Ahmad Lotfi (Nottingham Trent University, UK (Great Britain))

14:20 – 16:40
Poster Session
Conference: IJCNN+CEC
Room: 501+502
Session Chair(s): Thomas Trappenberg and Hongyu Lin

1: Temporally Consistent Unpaired Multi-Domain Video Translation by Contrastive Learning
Ruiyang Fan, Qiyu Sun and Ruihao Xia (East China University of Science and Technology, China); Yang Tang (East China University of Science and Technology Shanghai, China)

2: SkelEx and BoundEx - Geometrical Framework for Interpretable ReLU Neural Networks
Pawel Pukowski (University of SHeffield, UK (Great Britain)); Joachim Spoerhase and Haiping Lu (University of Sheffield, UK (Great Britain))

3: From Pixels to Waveforms: Evaluating Pre-Trained Image Models for Few-Shot Audio Classification
Calum Heggan (University of Edinburgh & Thales UK, UK (Great Britain)); Tim Hospedales (University of Edinburgh, UK (Great Britain)); Sam Budgett (Thales UK, UK (Great Britain)); Mehrdad Yaghoobi (University of Edinburgh, UK (Great Britain))

4: Measuring Hallucination in Disentangled Representations

Hamed Benazha (École Centrale Marseille Aix Marseille University LIS, France); Thierry Artieres (Ecole Centrale de Marseille Aix-Marseille University LIS, France); Stéphane Ayache and Hachem Kadri (Aix-Marseille University LIS, France)

5: D-CAPTCHA++: A Study of Resilience of Deepfake CAPTCHA Under Transferable Imperceptible Adversarial Attack

Hong-Hanh Nguyen-Le (University College Dublin, Ireland); Van-Tuan Tran (Trinity College Dublin, Ireland); Thuc Nguyen (University of Science, HCM, Vietnam); Nhien-An Le-Khac (University College Dublin, Ireland)

6: PSCFNet: Prototype Learning and Spatial Consistent Feature Fusion for Efficient Salient Object Detection

Guozhen Liang and Fengxi Xie (Technical University of Berlin, Germany); Yongtao Sun (Beijing Benz Automotive Co., Ltd., China)

7: GaniX: Advancing GANimation Through ConvNeXt Features

Yicheng Jin (Zhengzhou University)

8: Enhancing Spatial-Temporal Neural Networks with Long-Term Temporal Features for Traffic Prediction

Hao Xia and Zhuang Ma (University of Science and Technology of China, China); Gang Chen (Yangtze River Delta Information Intelligence Innovation Research Institute, China)

9: A Diffusion Model for Inductive Knowledge Graph Completion

Zhiyu Chen, Guojiang Shen, Yuqi Shen, Zhi Liu and Xiangjie Kong (Zhejiang University of Technology, China)

10: Error Bound Based Noise Schedule Design in Diffusion Models

Liyuan Liu and Chun Yuan (Tsinghua University, China)

11: Noise Weighting Phased Prompt Image Editing

Guowei Xu, Zihan Zhong and Chun Yuan (Tsinghua University, China)

12: A Small-Footprint Keyword Spotting Modeling with Novel Data Augmentation Methods

Wei-Kai Huang and Kuan-Yu Chen (National Taiwan University of Science and Technology, Taiwan)

13: Instance Fusion for Addressing Imbalanced Camera and Radar Data

Haohui Zhu, Bin-jie Hu and Zhao Chen (South China University of Technology, China)

14: LR-DiffText: Low Resolution Scene Text Detection Based on Diffusion Probabilistic Model

Boyuan Chen (Xi'an Jiaotong University, China); Zichen Dang (Nanyang Technological University, Singapore)

15: Causal Feature Selection via Transfer Entropy

Paolo Bonetti, Alberto Maria Metelli and Marcello Restelli (Politecnico di Milano, Italy)

16: Classification of Inkjet Printers Based on Droplet Statistics

Patrick Takenaka (Stuttgart Media University, Germany); Manuel Eberhardinger (Stuttgart Media University & University of Tuebingen, Germany); Daniel Grießhaber and Johannes Maucher (Stuttgart Media University, Germany)

17: A Novel Confidence Score Exploiting Attacks on Classification Trees and Random Forest Classifiers

Batnyam Enkhtaivan (NEC Corporation, Japan); Isamu Teranishi (NEC, Japan)

18: FractalAD: A Simple Industrial Anomaly Detection Method Using Fractal Anomaly Generation and Backbone Knowledge Distillation

Xuan Xia (Shenzhen Institute of Artificial Intelligence and Robotics for Society, China); Weijie Lv (Nanjing University of Aeronautics and Astronautics, China); Xing He and Nan Li (Shenzhen Institute of Artificial Intelligence and Robotics for Society, China); Chuanqi Liu (Shanghai JiaoTong University, China); Ning Ding (Shenzhen Institute of Artificial Intelligence and Robotics for Society, China)

19: Personalized Federated Learning with Auction-Based Client Selection and Edge-Enhanced Model Accuracy

Kaiwei Mo (City University of Hong Kong, Hong Kong); Xianglong Li (Wuhan University, China); Wei Lin and Hong Xu (The Chinese University of Hong Kong, Hong Kong); Zongpeng Li (Tsinghua University, China); Chun Xue (City University of Hong Kong, Hong Kong)

20: Multi-Objective Molecular Design in Constrained Latent Space

Yiwei Liu, Yiping Liu, Jiahao Yang and Xinyi Zhang (Hunan University, China); Li Wang (University of Tsukuba, Japan); Xiangxiang Zeng (Hunan University, China)

21: Representation Space Maintenance: Against Forgetting in Continual Learning

Rui Niu (Tsinghua University, China); Zhiyong Wu (Graduate School at Shenzhen, Tsinghua University, China); Changhe Song (Tsinghua University, China)

22: Finding Local Dependent Regions in PDFs Using RKHS Uncertainty Moments and Optimal Transport

Rishabh Singh, Yaxin Ma and Jose Príncipe (University of Florida, USA)

23: Extraction and Transfer of General Deep Feature in Reinforcement Learning

Min Chen (Chinese Academy of Sciences & School of Artificial Intelligence, University of Chinese Academy of Sciences, China); Yi Pan and Zhiqiang Pu (Institute of Automation Chinese Academy of Sciences, China); Jianqiang Yi (Chinese Academy of Sciences, China); Shijie Wang (Chinese Academy of Sciences & School of Artificial Intelligence, University of Chinese Academy of Sciences, China); Boyin Liu (Institute of Automation Chinese Academy of Sciences, China)

24: Towards Zero-Shot Generalization: Mutual Information-Guided Hierarchical Multi-Agent Coordination

Qingyang Zhang (China); Bo Xu (Institute of Automation, Chinese Academy of Sciences, China)

25: Adaptive Skill Selection for Effective Exploration of Action Space
Haoke Zhang (Sun Yat-Sen University, China); Huang Yiyong, Wei Han and Dan Xiong (National Innovation Institute of Defense Technology, Academy of Military Science, China); Chuanfu Zhang (Sun Yat-Sen University, China); Yanjie Yang (National Innovation Institute of Defense Technology, Academy of Military Science, China)

26: Long Short-Term Reasoning Network with Theory of Mind for Efficient Multi-Agent Cooperation
Xiyun Li, Tielin Zhang, Chenghao Liu, Linghui Meng and Bo Xu (Institute of Automation, Chinese Academy of Sciences, Beijing, China)

27: Vertical Switching Algorithm of Fuzzy Logic Heterogeneous Networks Based on Reinforcement Learning Assistance
Kexin Zhou (Inner Mongolia University, China); Xiangyu Bai (Inner Mongolia University & Institute of Computing Technology, Chinese Academy of Sciences, China)

28: An Improved Spray and Wait Algorithm Based on Q-Learning in Delay Tolerant Network
Lei Yao (Inner Mongolia Nuniversity, China); Xiangyu Bai (Inner Mongolia University & Institute of Computing Technology, Chinese Academy of Sciences, China); Kexin Zhou (Inner Mongolia University, China)

29: Controlling the Estimation Bias of Deep Deterministic Policy Gradient by Screening for Preferential Critics
Yun peng Lyu (University of Shanxi, China); Lin Li, Wei Wei and Yujia Zhang (Shanxi University, China)

30: Absorb What You Need: Accelerating Exploration via Valuable Knowledge Extraction
You Wu (Nanjing University, China); Zhe Wu (Qiyuan Lab, China); Renye Yan (Peiking University, China); Pin Tao and Junliang Xing (Tsinghua University, China)

31: Improving Zero-Shot Coordination with Diversely Rewarded Partner Agents
Peilin Wu, Zhenhua Yang and Peng Yang (Southern University of Science and Technology, China)

32: Multi-Agent Self-Motivated Learning via Role Representation
Yuchao Jin and Quan Liu (Soochow University, China)

33: High-Quality Synthetic Data is Efficient for Model-Based Offline Reinforcement Learning
Qichao Zhang (Chinese Academy of Sciences, China); Xing Fang and Kaixuan Xu (Institute of Automation Chinese Academy of Sciences, China); Haoran Li (CASIA, China); Dongbin Zhao (Chinese Academy of Sciences, China)

34: Computationally Efficient Imitation Learning via K-Timestep Adaptive Action Approximation
Yuchen Liang (Xi'an Jiaotong University, China); Weiming Wu and Cong Wang (Shandong University, China); Yuehu Liu (Xi'an Jiaotong University, China)

35: Closed-Loop Action Repetition for Computationally-Efficient Imitation Learning
Yuchen Liang (Xi'an Jiaotong University, China)

36: Autoencoder Reconstruction Model for Long-Horizon Exploration
Renye Yan (Peking University, China); You Wu (Nanjing University, China); Yaozhong Gan (Qiyuan Lab, China); Yunfan Yang (Peking University, China); Zhaoke Yu (China); Zongxi Liu (Peking University, China); Xin Zhang (Xi'an Jiaotong University, China); Ling Liang (Peking University, China); Yimao Cai (Peking University, China)

37: SPIL: Fast Imitation Learning with Single-Person Game
Yuchen Liang (Xi'an Jiaotong University, China)

38: A Novel Weakly Supervised Semantic Segmentation Ensemble Framework for Medical Imaging
Erik Ostrowski (Vienna University of Technology, Austria); Bharath Srinivas Prabakaran (Technische Universität Wien, Austria); Muhammad Shafique (NYU Abu Dhabi, United Arab Emirates)

39: Cross-Domain Human Activity Recognition via Transfer Learning
Zhou Yong (China); Yilin Dong (Shanghai Maritime University, China)

40: Modeling Time Decay Effect in Temporal Knowledge Graphs via Multivariate Hawkes Process
Qianyu Li and Jiebin Chen (South China University of Technology, China); Xiaoli Tang (NTU, Singapore); Han Yu (Nanyang Technological University, Singapore); Hengjie Song (South China University of Technology, China)

41: Progressively Relaxed Knowledge Distillation
Xiaozhe Gu, Ran Jin and Mingliang Li (Zhejiang Wanli University, China)

42: Semi-Supervised Crowd Counting Based on Hard Pseudo-Labels
Hanxiao Li and Yonghong Song (Xi'an Jiaotong University, China); Tong Geng (Shandong University, China)

43: Deciphering the Complex Characterization of Coding LncRNA
Tianyuan Liu, Xiucai Ye and Tetsuya Sakurai (University of Tsukuba, Japan)

44: A Review of Mongolian Neural Machine Translation from the Perspective of Training
Yatu Ji, Huinuan Zhang, Qing-dao-er ji Ren and Bao Shi (Inner Mongolia University of Technology, China); Nier Wu (Inner Mongolia University of Technology & IMUT, China); Min Lu (Inner Mongolia University of Technology, China)

45: Instance-Level Data Augmentation for Multi-Person Pose Estimation: Improving Recognition of Individuals at Different Scales
Yangqi Liu and Guodong Wang (Qingdao University, China); Chenglizhao Chen (China University of Petroleum, China)

46: Myocardial Infarction Detection Using Video Frame Key-Point and Gradient Matching
Frank Cally A. Tabuco and Prospero C. Naval, Jr. (University of the Philippines, Philippines)

47: Functional Data Analysis as the Feature Representation for the Classification Problem in One or Two Dimensional Spaces
Wei Zhao, Xiao-Jun Zeng, Chengdong Shi and Ching-Hsun Tseng (University of Manchester, UK (Great Britain))

48: Adiabatic Replay for Continual Learning
Alexander Fabian Krawczyk and Alexander R.T. Gepperth (University of Applied Sciences Fulda, Germany)

49: Evaluating Anomaly Detection Algorithms: A Multi-Metric Analysis Across Variable Class Imbalances
Mohammad Sahadat Hossain and Mohammad Sakhawat Hossain (Technische Universität Dortmund, Germany); Simon Klüttermann and Emmanuel Müller (TU Dortmund, Germany)

50: Improved Attributed Graph Clustering with Representation and Structure Augmentation
Jipeng Guo, Tengxiao Yin and Tianxiang Zhao (Beijing University of Chemical Technology, China); Jiayi Zhao and Yanfeng Sun (Beijing University of Technology, China); Junbin Gao (The University of Sydney, Australia); Youqing Wang (Beijing University of Chemical Technology, China)

51: Anomaly Detection in Chest X-Ray Images with Adversarial Masked Autoencoder
Yehong Tong, Xing Wu, Zhongshi He and ChengLiang Wang (College of Computer Science, Chongqing University, Chongqing 400000, China); Haidong Wang (Department of Thoracic Surgery, Southwest Hospital of Army Medical University, Chongqing, China); Peng Wang (Medical big data center, Southwest Hospital of Army Medical University, Chongqing, China)

52: Dual-Branch Retinal OCT Anomaly Detection Based on Knowledge Distillation and Reconstruction
Minghui Zhai, Xing Wu, Zhongshi He and ChengLiang Wang (College of Computer Science, Chongqing University, Chongqing 400000, China); Haidong Wang (Department of Thoracic Surgery, Southwest Hospital of Army Medical University, Chongqing, China); Peng Wang (Medical big data center, Southwest Hospital of Army Medical University, Chongqing, China)

53: Low-Pass Filter Application for Anomaly Detection with Sparse Autoencoder
Maira Farias Andrade Lira (Federal University of Pernambuco & Advanced Institute of Technology and Innovation, Brazil); Elias Amancio Siqueira-Filho (Advanced Institute of Technology and Innovation, Brazil); Ricardo Prudencio (Federal University of Pernambuco, Brazil)

54: Cross-Modal Semantic Embedding Hashing for Unsupervised Retrieval
Zhibin Zhang and Yun-fei Chen (Central South University, China)

55: Multilingual Emotion Recognition: Discovering the Variations of Lexical Semantics Between Languages

Xulang Zhang, Rui Mao and Erik Cambria (Nanyang Technological University, Singapore)

56: Discrete Structure Aggregation and Global-Region Query-Located Network for Fine-Grained Visual Classification

Dong Ren (Three Gorges University, China); Wenlong Huang, Hang Sun, Yuan Yao and Shun Ren (China Three Gorges University, China)

57: A Hierarchical Korean-Chinese Machine Translation Model Based on Sentence Structure Segmentation

Fan Liu (Integration College, Yanbian Univerity, Yanji, China); Yahui Zhao and Guozhe Jin (Inst. of intelligent information processing, Yanbian University, Yanji, China); Xinghua Lu (Foreign Language College, Yanbian Univerity, Yanji, China); Zhejun Jin (Yanbian Univerity, unknown); Rongyi Cui (Inst. of intelligent information processing, Yanbian University, Yanji, China)

58: Adversarial Attack and Defense for Transductive Support Vector Machine

Li Liu, Haiyan Chen, Changchun Yin and Liming Fang (Nanjing University of Aeronautics and Astronautics, China)

59: Predictive control of a multi-energy building-integrated microgrid: a case study

Romain Mannini (University Perpignan via Domitia, France); Julien Eynard (University of Perpignan, France); Stéphane Grieu (University Perpignan via Domitia, France)

60: Nonlinear model-based predictive control of electric water heaters in individual dwellings

Laguili Oumaima (University of Perpignan & PROMES Laboratory, France); Julien Eynard (University of Perpignan, France); Stéphane Grieu (University Perpignan via Domitia, France)

61: Multiobjective Optimization Problems in Switching Power Converters with Photovoltaic Inputs

Ryunosuke Numata (HOSEI University, Japan); Toshimichi Saito (Hosei University, Japan)

62: The Constrained Niching Differential Evolution Algorithm for Satellite Layout Optimization Design

Zhongneng Zhang (National University of Defense Technology, China); Xianqi Chen (Chinese Academy of Military Science, China); Yufeng Xia (National University of Defense Technology, China); Wen Yao (Chinese Academy of Military Science, China); Weien Zhou (Chinese Academy of Military Sciences, China); Yu Li (Chinese Academy of Military Science, China); Bingxiao Du (National University of Defense Technology, China)

63: Multi-Agent Collaborative Search with Adaptive Heuristics and Weight Vectors for Aerospace Multi-objective Optimal Control Problems

Li Cao (China University of Geosciences (Wuhan) & University of Strathclyde, UK (Great Britain)); Maocai Wang (China University of Geosciences, China); Ben Parsonage and Christie Maddock (University of Strathclyde, UK (Great Britain)); Guangming Dai (China University of Geosciences, China)

64: An Evolutionary Algorithm with Feasibility Tracking Strategy for Constrained Multi-objective Optimization Problems

Lei Yang, Jinglin Tian, Jiale Cao, Kangshun Li and Chaoda Peng (South China Agricultural University, China)

65: A Scalable High-Dimensional Constrained Multiobjective Benchmark

Kangjia Qiao, Jing Liang, Kunjie Yu, Caitong Yue, Hongyu Lin and Dezheng Zhang (Zhengzhou University, China); Boyang Qu (Zhongyuan University of Technology, China)

66: Model Uncertainty in Evolutionary Optimization and Bayesian Optimization: A Comparative Analysis

Hao Hao and Xiaoqun Zhang (Shanghai Jiao Tong University, China); Aimin Zhou (East China Normal University, China)

67: Reference Vector Guided Variables Selection for Expensive Large-scale Multiobjective Optimization

Jianqing Lin, Cheng He, Xueming Liu and Linqiang Pan (Huazhong University of Science and Technology, China)

68: Balancing Convergence and Diversity in Meta-heuristics for Calibration of Instrument Transformers

Zihan Gao, Cheng He, Chuanji Zhang and Hongbin Li (Huazhong University of Science and Technology, China)

69: A Surrogate-Assisted Clustering-Based Evolutionary Algorithm for Expensive Optimization

Chunlong Hai, Jiazhen Wang and Liquan Mei (Xi'an Jiaotong University, China)

70: NSMD-NAS: Retinal Image Segmentation with Neural Architecture Search and Non-Subsampled Multiscale Decomposition

Hanyu Zhang, Lixin Tang, Xiangman Song and Te Xu (Northeastern University, China)

16:20 – 16:40
Break

364

16:40 – 18:00
IJCNN S4_2: Special Session: Machine Learning and Deep Learning Methods Applied to Vision and Robotics (MLDLMVR) 1
Conference: IJCNN
Room: 211+212
Session Chair(s): Xiongbiao Luo

16:40 Future Predictive Success-Or-Failure Classification for Long-Horizon Robotic Tasks
Naoya Sogi, Hiroyuki Oyama, Takashi Shibata and Makoto Terao (NEC Corporation, Japan)

17:00 HARTO: Human Activity Recognition Through Optical Flow Architecture
Luis-Jesus Marhuenda (University of Alicante, Spain); Francisco Gomez-Donoso (University Institute for Computing Research, Spain); Miguel Cazorla (University of Alicante, Spain)

17:20 UnrealFall: Overcoming Data Scarcity Through Generative Models
David Mulero-Pérez, Manuel Benavent-Lledo, David Ortiz-Perez and Jose Garcia-Rodriguez (University of Alicante, Spain)

17:40 Multimodal Fusion Strategies for Emotion Recognition
David Ortiz-Perez, Manuel Benavent-Lledo, David Mulero-Pérez, David Tomás and Jose Garcia-Rodriguez (University of Alicante, Spain)

16:40 – 18:00
IJCNN S4_9: Special Session: Self-Organizing Clustering for Continual Learning and Its Applications 1
Conference: IJCNN
Room: 301+302
Session Chair(s): Takeru Aoki

16:40 FCM-Induced Switching Reinforcement Learning for Collaborative Learning
Katsuhiro Honda, Taimu Yaotome, Seiki Ubukata and Akira Notsu (Osaka Metropolitan University, Japan)

17:00 A Growing Hierarchical Clustering Algorithm via Parameter-Free Adaptive Resonance Theory
Kazuki Tashiro, Naoki Masuyama and Yusuke Nojima (Osaka Metropolitan University, Japan)

17:20 Online Topological Mapping for Embedded Computers with Growing Neural Gas
Alfin Junaedy, Hiroyuki Masuta, Kei Sawai, Tatsuo Motoyoshi and Noboru Takagi (Toyama Prefectural University, Japan)

17:40 Multi-Layer Cortical Learning Algorithm for Forecasting Time-Series Data with Smoothly Changing Variation Patterns

Kazushi Fujino, Keiki Takadama and Hiroyuki Sato (The University of Electro-Communications, Japan)

16:40 – 18:00
IJCNN S4_5: Special Session: Intelligent Vehicles and Transportation Systems (IVTS) 2
Conference: IJCNN
Room: 303+304
Session Chair(s):

16:40 Cooperative Autonomous Driving Control Among Vehicles of Different Sizes Using DeepReinforcement Learning

Akito Takenaka (Tokyo Metropolitan University, Japan); Tomohiro Harada (Saitama University, Japan); Yukiya Miura (Tokyo Metropolitan University, Japan); Kiyohiko Hattori and Johei Matsuoka (Tokyo University of Technology, Japan)

17:00 A Study on the Effectiveness of GPT-4V in Classifying Driver Behavior Captured on Video Using Just a Few Frames per Video

João Felipe G. Calenzani (Universidade Federal do Espírito Santo, Brazil & Motora.ai Company, Brazil); Victor N Neves (Universidade Federal do Espírito Santo & Motora.ai Company, Brazil); Lucas T Ramos, Lauro J Lyrio and Luiz Claudio S Magnago (Motora.ai, Brazil); Claudine Badue (Universidade Federal do Espírito Santo, Brazil); Thiago Oliveira-Santos (Universidade Federal Do Espirito Santo, Brazil); Alberto F De Souza (Universidade Federal do Espírito Santo & Instituto de Inteligência Computacional Aplicada - I2CA, Brazil)

17:20 ESRA: A Neuro-Symbolic Relation Transformer for Autonomous Driving

Alessandro Russo, Lia Morra, Fabrizio Lamberti and Paolo Emmanuel Ilario Dimasi (Politecnico di Torino, Italy)

16:40 – 18:00
IJCNN S4_11: Special Session: Randomization-Based Deep and Shallow Learning Algorithms And/Or Biomedical Applications
Conference: IJCNN
Room: 311+312
Session Chair(s): M. Tanveer

16:40 Noise Elimination in Deep Random Vector Functional Link Network for Tabular Classification

Minghui Hu, Ruilin Li and Ruobin Gao (Nanyang Technological University, Singapore); Ponnuthurai Nagaratnam Suganthan (Qatar University, Qatar)

17:00 Balancing Performance, Efficiency and Robustness in Open-World Machine Learning via Evolutionary Multi-Objective Model Compression

Javier Del Ser and Aitor Martinez-Seras (TECNALIA, Spain); Miren Nekane Bilbao (University of the Basque Country, Spain); Jesus L Lobo (Basque Research and Technology Alliance, Spain); Ibai Laña (TECNALIA Research and Innovation Center, Spain); Francisco Herrera (University of Granada, Spain)

17:20 VisTAD: A Vision Transformer Pipeline for the Classification of Alzheimer's Disease

Noushath Shaffi (University of Technology and Applied Sciences, Oman); Vimbi Viswan (University of Technology and Applied Sciences - Suhar & College of Computing and Information Sciences, Oman); Mufti Mahmud (Nottingham Trent University, UK (Great Britain))

16:40 – 18:00
IJCNN S4_12: Special Session: Neural Network-Based Methods for Human-Centric Perception and Understanding
Conference: IJCNN
Room: 313+314
Session Chair(s): Min Jiang

16:40 Coarse-To-Fine Recurrently Aligned Transformer with Balance Tokens for Video Moment Retrieval and Highlight Detection

Yi Pan and Yujia Zhang (Chinese Academy of Sciences, China); Hui Chang and Shiying Sun (Institute of Automation, Chinese Academy of Sciences); Fei Hu Zhou (Chinese PLA General Hospital, China); Xiao-Guang Zhao (Institute of Automation, Chinese Academy of Sciences, China)

17:00 BonCC: A Lightweight TW3-Based Bone Age Assessment Coordinate Classification Model

Dongxu Zhang (Xiamen University, China)

17:20 House Layout Generation via Diffusion Model with Relative Room Area Ranking

Junbin Xiang, Boyu Hou, Xuefeng Chen, Hongtuo Qi, Liang Feng and Jiepeng Liu (Chongqing University, China); Xianneng Li (Dalian University of Technology, China)

17:40 The Social Stage of Responses: Social Intent Detection in Discussion Threads Using Deep Learning Model

Sheng-Wei Huang, Jheng-Long Wu and Yu-Hsuan Wu (Soochow University, Taiwan)

16:40 ENAO: Evolutionary Neural Architecture Optimization in the Approximate Continuous Latent Space of a Deep Generative Model

Zheng Li (Southern University of Science and Technology, China); Xuan Rao and Bo Zhao (Beijing Normal University, China); Shaojie Liu and Derong Liu (Southern University of Science and Technology, China)

17:00 Clustering-Based Multitasking Deep Neural Network for Solar Photovoltaics Power Generation Prediction

Hui Song and Zheng Miao (Hangzhou Dianzi University, China); Ali Babalhavaeji, Saman Mehrnia, Mahdi Jalili and Xinghuo Yu (RMIT University, Australia)

17:20 DFUSENAS: A Diffusion-Based Neural Architecture Search

Lotfi Abdelkrim Mecharbat (Université Polytechnique Hauts-De-France, France); Hadjer Benmeziane (Université Polytechnique Hauts-De-France, France & CNRS, France); Hamza Ouarnoughi (INSA Hauts-De-France, France); Smail Niar (INSA, Université Polytechnique Hauts-De-France, France); Kaoutar El Maghraoui (IBM T. J. Watson Research Center, USA)

17:40 Progressive Neural Predictor with Score-Based Sampling

Liwen Jiang and Yu Xue (Nanjing University of Information Science and Technology, China); Ferrante Neri (University of Surrey, UK (Great Britain)); Xiaoping Zhao (Nanjing University of Information Science & Technology, China); Mohamed Wahib (Center for Computational Science, RIKEN, Japan)

16:40 Active Learning for Graph Neural Networks Training in Catalyst Energy Prediction
Yasufumi Sakai and Naoki Matsumura (Fujitsu, Japan); Atsuki Inoue and Hiroshi Kawaguchi (Kobe University, Japan); Dang Thang (Fujitsu, Japan); Atsushi Ishikawa (Tokyo Institute of Technology, Japan); Árni Björn Höskuldsson and Egill Skúlason (Atmonia ehf., Iceland)

17:00 Factorized Models in Neural Architecture Search: Impact on Computational Costs and Performance

Unai Garciarena, Alexander Mendiburu and Roberto Santana (University of the Basque Country, Spain)

17:20 Learning a Strategy for Preference Elicitation in Conversational Recommender Systems

Aleksandra Makarova, Muhammad Shahzad, Xia Hong and Martin Lester (University of Reading, UK (Great Britain))

16:40 – 18:00
IJCNN S4_15 Special Session: Learning from Small Data: Techniques and Applications 1
Conference: IJCNN
Room:413
Session Chair(s): Alaa Othman

16:40 Progressive Self-Guided Hardness Distillation for Fine-Grained Visual Classification

Yangdi Wang (Beijing Institute of Technology & Beijing University of Posts and Telecommunications, China); Wenming Guo (Beijing University of Posts and Telecommunications & Xinjiang Institute of Engineering, China); Su Xiu Xu (Beijing Institute of Technology, China); Shuozhi Yuan (Beijing University of Posts and Telecommunications, China)

17:00 Video Deception Detection Through the Fusion of Multimodal Feature Extraction and Neural Networks

Yuanya Zhuo and Vishnu Monn Baskaran (Monash University, Malaysia); Lillian Yee Kiaw Wang (Monash University Malaysia, Malaysia); Raphael C.-W. Phan (Monash University, Malaysia)

17:20 Iterative Stacking Regression for Materials Properties Prediction

Petia Georgieva (University of Aveiro, DETI/IEETA & Institute of Electronics Engineering and Telematics of Aveiro (IEETA), Portugal)

17:40 Minimally Supervised Topological Projections of Self-Organizing Maps for Phase of Flight Identification

Zimeng Lyu and Pujan Thapa (Rochester Institute of Technology, USA); Travis Desell (University of North Dakota, USA)

16:40 – 18:00
CEC WE3-R10: SS on CI for Music, Art, and Creativity
Conference: CEC
Room:414+415
Session Chair(s): Arya Kumar Bhattacharya

16:40 Emotion Aligned Music Composition from Sound Fundamentals using Differential Evolution

Prafulla Kalapatapu, Ishaan Chigilli Palli, Ravi Teja Gangavarapu, Arya Kumar Bhattacharya and Nartkannai K (Mahindra University, India)

17:00 A Language-free Evolutionary Framework for Text-to-image Generation

Ming-You Ying (National Yang Ming Chiao Tung University, Taiwan); Rung-Tzuo Liaw (Fu Jen Catholic University, Taiwan)

17:20 SCAPE: Searching Conceptual Architecture Prompts using Evolution

Soo Ling Lim (University College London (UCL), UK (Great Britain)); Peter J Bentley (University College London (UCL) and Autodesk Research, UK (Great Britain)); Fuyuki Ishikawa (National Institute of Informatics, Japan)

17:40 Revisiting the Formation of Harmonic Progressions from the Perspective of Voice-Leading with Evolutionary Computation

Chun-yien Chang and Ying-ping Chen (National Yang Ming Chiao Tung University, Taiwan)

16:40 – 18:00
CEC WE3-R11: SS on CI with Human Factors
Conference: CEC
Room:416+417
Session Chair(s): Tadashi Onishi

16:40 Preference-Based Evolutionary Multi-Objective Optimization Using Non-Preference Information

Tadashi Onishi and Mamoru Doi (Mitsubishi Electric Corporation, Japan)

17:00 A Method for Revealing Implicit Emphasized Criteria for Decision Makers on Social Issues

Toshio Ito, Shizuko Matsuzoe, Tadashi Iwahashi, Hisatoshi Yamaoka and Miwa Ueki (Fujitsu Limited, Japan); Kota Nagakane, Hideaki Morozumi, Koki Ikeda and Isao Ono (Tokyo Institute of Technology, Japan)

17:20 Computational Study of Dream Interpretations: Psychoanalytic Human vs Artificial Analyses

Mayte H Laureano and Hiram Calvo (Instituto Politécnico Nacional, Mexico)

17:40 Model Editing-based Feedback for Interactive Machine Learning in Surrogative Digital Twin

Nurfadhlina Mohd Sharef and Anahita Ghazvini (Universiti Putra Malaysia, Malaysia)

16:40 – 18:00
CEC WE3-R12: J2C Paper Presentation III
Conference: CEC
Room:418
Session Chair(s): Zhi-Hui Zhan

16:40 Evolutionary GAN Compression for Image Translation

Yao Zhou and Zhang Yi (Sichuan University, China); Gary G Yen (Oklahoma State University, USA)

17:00 Learning Plus Evolution for Optimization Towards A New Artificial Intelligence Approach

Zhi-Hui Zhan and Jian-Yu Li (Nankai University, China); Sam Kwong (City University of Hong Kong, Hong Kong); Jun Zhang (SUN Yat-sen University, China)

17:20 Evolutionary multi-objective design of autoencoders for compact representation of pathology images

Shahryar Rahnamayan (Brock University, Canada)

16:40 – 18:00
CEC Competition Session 2
Room:419

16:40 – 18:00
FUZZ WE3-R15: SS: Quantum Computational Intelligence
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Giovanni Acampora

16:40 Using Quantum Fuzzy Inference Engines in Smart Cities

Giovanni Acampora (University of Naples Federico II & Istituto Nazionale di Fisica Nucleare, Italy); Roberto Schiattarella and Autilia Vitiello (University of Naples Federico II, Italy)

17:00 A Non-Iterative Quantum Computation for Karnik-Mendel Algorithms

Amir Pourabdollah (Nottingham Trent University, UK (Great Britain)); Jerry M Mendel (University of Southern California, USA)

16:40 – 18:00
FUZZ WE3-R16: SS: Computational Intelligence for Human-Machine Interaction/SS: Computational intelligence for interacting with data: modelling, querying, description, and mining
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Chang-Shing Lee

16:40 Transformer-based Semantic SBERT Robot with CI Mechanism for Students and Machine Co-Learning

Chang-Shing Lee (National University of Tainan & Dept. Computer Science and Information Engineering, Taiwan); Mei-Hui Wang, Chih-Yu Chen, Yu-Hsiang Lee, Guan-Ying Tseng and Sheng-Chi Yang (National University of Tainan, Taiwan); Marek Reformat (University of Alberta, Canada)

17:00 Count-based Flexible Queries Through RL-Instances

Nicolás Marín, Gustavo Rivas-Gervilla and Daniel Sánchez (University of Granada, Spain)

17:20 Quantum Computational Intelligence with Generative AI Image for Human-Machine Interaction

Chang-Shing Lee (National University of Tainan & Dept. Computer Science and Information Engineering, Taiwan); Mei-Hui Wang, Jun-Kui Chiang, Pei-Yu Wu, Szu-Chi Chiu and Sheng-Chi Yang (National University of Tainan, Taiwan); Naoyuki Kubota, Chyan Zheng Siow and Eri Sato-Shimokawara (Tokyo Metropolitan University, Japan); Yusuke Nojima (Osaka Metropolitan University, Japan); Giovanni Acampora (University of Naples Federico II & Istituto Nazionale di Fisica Nucleare, Italy)

18:30 – 21:30
WCCI 2024 Banquet
Room: Pacifico Yokohama North

8:30 – 10:10
IEEE WCCI2024 Young Professionals Session
Room: 211+212

8:30 – 10:10
Workshop: Privacy- Preserving and Fairness-Aware Optimization
Room: 213

8:30 – 10:10
IJCNN S5_8 Special Session: Neuromorphic Hardware for Edge Computing 2
Conference: IJCNN
Room: 301+302+303+304
Session Chair(s): Shigeo Sato

8:30 An Event-Driven Mixed Analog/Digital Spiking Neural Network Circuit Model for Hippocampal Spatiotemporal Context Learning and Memory

Takeru Tsuji, Takemori Orima and Yoshihiko Horio (Tohoku University, Japan)

8:50 Embedded Event Based Object Detection with Spiking Neural Network

Jonathan Courtois (Université Côte d'Azur (UniCA), France); Pierre-Emmanuel Novac (Université Côte d'Azur, LEAT, France); Edgar Lemaire (Université Cote d Azur LEAT France, France); Alain Pegatoquet (LEAT, France); Benoit Miramond (University Cote d'Azur / LEAT / CNRS UMR 7248, France)

9:10 Design of Mixed-Signal LSI with Analog Spiking Neural Network and Digital Inference Circuits for Reservoir Computing

Satoshi Moriya, Hideaki Yamamoto and Masaya Ishikawa (Tohoku University, Japan); Yasushi Yuminaka (Gunma University, Japan); Yoshihiko Horio (Tohoku University, Japan); Jordi Madrenas (Universitat Politècnica de Catalunya, Spain); Shigeo Sato (Tohoku University, Japan)

9:30 QFALT: Quantization and Fault Aware Loss for Training Enables Performance Recovery with Unreliable Weights

Anmol Biswas (IIT Bombay, India); Udayan Ganguly (Indian Institute of Technology Bombay, India)

9:50 Unsupervised Anomaly Detection for Automotive CAN Bus on the Intel Loihi

Rashedul Islam, Md Shahanur Alam, Chris Yakopcic and Nayim Rahman (University of Dayton, USA); Simon Khan (US Air Force Research Laboratory, USA); Tarek Taha (University of Dayton, USA

8:30 – 10:10
IJCNN S5_13 Special Session: Machine Learning and Signal Processing for Brain or Behavioral Analysis 1
Conference: IJCNN
Room: 311+312
Session Chair(s): Tomasz M Rutkowski

8:30 Depressive Disorders Recognition by Functional Connectivity Using Graph Convolutional Network Based on EEG Microstates
Yun Su, Qi Cai, Qi Chang and Yueyang Zhou (Northwest Normal University, China); Runhe Huang (Hosei University, Japan)

8:50 EEG-Based Emotion Recognition Using Temporal Convolutional Network and Vision Transformer
Yun Su, Yueyang Zhou, Xuan Li, Qi Cai and Yishan Liu (Northwest Normal University, China)

9:10 HyperGALE: ASD Classification via Hypergraph Gated Attention with Learnable Hyperedges
Mehul Arora and Chirag Jain (International Institute of Information Technology Hyderabad, India); Lalith Bharadwaj Baru (IIIT Hyderabad & Cognitive Science Lab, India); Kamalaker Dadi (International Institute of Information Technology Hyderabad, India); Raju Surampudi Bapi (International Institute of Information Technology, India)

9:30 Evaluating Fast Adaptability of Neural Networks for Brain-Computer Interface
Anupam Sharma (Indian Institute of Technology Gandhinagar, India); Krishna Miyapuram (IIT Gandhinagar, India)

9:50 MAIN-VC: Lightweight Speech Representation Disentanglement for One-Shot Voice Conversion
Pengcheng Li (University of Science and Technology of China, China); Jianzong Wang (Pingan, China); Xulong Zhang (Shangfeng Road NO. 1288 & Ping An Technology (Shenzhen) Co., Ltd., China); Yong Zhang (PingAn Technology, China); Jing Xiao (Ping An Insurance Company of China, Ltd., China); Ning Cheng (Pingan, China)

8:30 – 10:10
IJCNN S5_14 Special Session: Domain Adaptation for Complex Situations: Theories, Algorithms and Applications
Conference: IJCNN
Room: 313+314
Session Chair(s): Kuo Shi

8:30 A COVID-19 CXR Image Recognition Method Based on Deep Transfer Learning
Justin An, Nian Zhang, Wagdy Mahmoud and Max Denis (University of the District of Columbia, USA)

8:50 COMET: Contrastive Mean Teacher for Online Source-Free Universal Domain Adaptation
Pascal Schlachter and Bin Yang (University of Stuttgart, Germany)

9:10 CLIP-Enhanced Unsupervised Domain Adaptation with Consistency Regularization
Kuo Shi (University of Technology Sydney, Australia); Jie Lu (UTS, Australia); Zhen Fang (University of Techonology Sydney, Australia); Guangquan Zhang (University of Technology, Sydney, Australia)

9:30 Prompt-Based Memory Bank for Continual Test-Time Domain Adaptation in Vision-Language Models
Ran Wang and Hua Zuo (University of Technology Sydney, Australia); Zhen Fang (University of Techonology Sydney, Australia); Jie Lu (UTS, Australia)

9:50 Simple Domain Generalization Methods are Strong Baselines for Open Domain Generalization
Masashi Noguchi and Shinichi Shirakawa (Yokohama National University, Japan)

8:30 – 10:10
IJCNN S5_9 Special Session: Mixed:Autonomous Agents, Bayesian Neural Networks and Complex- and Hypercomplex-Valued Neural Networks
Conference: IJCNN
Room: 315
Session Chair(s):

8:30 Nonlinearity Enhancement in Spin-Wave Reservoir Computing with the Utilization of Coexisting Magnetostatic Modes
Zhuocheng Yang, Jiaxuan Chen and Akira Hirose (The University of Tokyo, Japan)

8:50 Spiking Neural Networks for Signal Classification with Digital and Analog Neuromorphic Systems: A Comparative Study
Leon Happek (Collins Aerospace, Ireland); Jen-Tse Huang (RWTH Aachen University, Germany); Alejandro Garcia Gener (Collins Aerospace, Ireland); Rainer Leupers and Melvin E. Galicia (RWTH Aachen University, Germany)

9:10 Design of a High-Speed and Low-Power Threshold Adjustment Unit for Battery-Free Edge Devices

Fangcen Zhong, Masanori Natsui and Takahiro Hanyu (Tohoku University, Japan)

9:30 Reservoir Computing-Based Model of Action Planning: Emulating Prefrontal Cortex Functions with Dynamic Synapses and Reward-Based Learning

Jin Nakamura and Yuichi Katori (Future University Hakodate, Japan)

9:50 Analysis of Learning Process of Synaptic Weights in Spatio-Temporal Learning Networks for Hardware Implementation

Takemori Orima, Yoshihiko Horio and Takeru Tsuji (Tohoku University, Japan)

8:30 – 10:10
IJCNN S5_16: Special Session on the Ethical, Legal and Social Implications of Computational Intelligence and Trustworthy AI
Conference: IJCNN
Room: 411+412
Session Chair(s): Keeley Crockett

8:30 Analysis of Bias in GPT Language Models Through Fine-Tuning Containing Divergent Data

Leandro Furlam Turi (Universidade Federal do Espírito Santo & Lume Robotics, Brazil); Athus Cavalini (Instituto Fe deral Do Espírito Santo & Universidade Federal Do Espírito Santo, Brazil); Giovanni Comarela (Universidade Federal do Espírito Santo, Brazil); Thiago Oliveira-Santos (Universidade Federal Do Espirito Santo, Brazil); Claudine Badue (Universidade Federal do Espírito Santo, Brazil); Alberto F De Souza (Universidade Federal do Espírito Santo & Instituto de Inteligência Computacional Aplicada - I2CA, Brazil)

8:50 FairBranch: Mitigating Bias Transfer in Fair Multi-Task Learning

Arjun Roy (Free University of Berlin & Reseach Institute Code, University of Federal Armed Forces, Munich, Germany); Christos Koutlis (Information and Telematics Institute, Greece); Symeon Papadopoulos (Informatics and Telematics Institute (ITI), Greece); Eirini Ntoutsi (Universität der Bundeswehr München, Germany)

9:10 PEAs in PODs: Co-Production of Community Based Public Engagement for Data and AI Research

Keeley Crockett (Manchester Metropolitan Iniversity, UK (Great Britain)); Edwin Colyer (Scientiascripta, UK (Great Britain)); Lauren Coulman (Noisy Cricket, UK (Great Britain)); Caitlin Nunn and Sarah Linn (Manchester Metropolitan University, UK (Great Britain))

9:30 Anchor Query Based Transformer for Lane Detection

Yu Xing and Jinhua Xu (East China Normal University, China)

9:50 MSGFusion: Muti-Scale Semantic Guided LiDAR-Camera Fusion for 3D Object Detection
Huming Zhu, Yiyu Xue, Xinyue Cheng and Biao Hou (Xidian University, China)

10:10 Towards Trustworthy AI: Raising Awareness in Marginalized Communities
Annabel Latham (The Manchester Metropolitan University, UK (Great Britain)); Keeley Crockett (Manchester Metropolitan Iniversity, UK (Great Britain))

8:30 – 10:10
IJCNN S5_17 Special Session: Adversarial Machine Learning and Cyber Security
Conference: IJCNN
Room: 413
Session Chair(s):

8:30 Instance-Level Trojan Attacks on Visual Question Answering via Adversarial Learning in Neuron Activation Space
Yuwei Sun (Araya Research & RIKEN AIP, Japan); Hideya Ochiai (The University of Tokyo, Japan); Jun Sakuma (Tokyo Institute of Technology & RIKEN)

8:50 UNICAD: A Unified Approach for Attack Detection, Noise Reduction and Novel Class Identification
Alvaro Lopez Pellicer, Kittipos Giatgong, Yi Li, Neeraj Suri and Plamen Angelov (Lancaster University, UK (Great Britain))

9:10 Sponge Backdoor Attack: Increasing the Latency of Object Detection Exploiting Non-Maximum Suppression
Yong Xiao, Jin Ma and Ping Yi (Shanghai Jiao Tong University, China); Xiuzhen Chen (Shanghai Jiaotong University, China)

9:30 GNNAE-AVSS: Graph Neural Network Based Autoencoders for Audio-Visual Speech Synthesis
Subhayu Ghosh and Nanda Dulal Jana (National Institute of Technology Durgapur, India)

9:50 VQStarGAN: An Unseen-To-Unseen, Zero-Shot, Non-Parallel, Unsupervised Voice Conversion
Hoyin Yue (The Hang Seng University of Hong Kong, China); Chuenhin Martin Lee, Tszyan Mak, Wingyin Lau and Keikwan Lam (The Hang Seng University of Hong Kong, Hong Kong)

8:30 – 10:10
CEC TH1-R10: SS on EC for Electric Vehicle Routing and Charging
Conference: CEC
Room: 414+415
Session Chair(s): Yahui Jia

8:30 A Bilevel Hybrid Genetic Algorithm for Capacitated Electric Vehicle Routing Problem
Chang-Tao Feng and Yahui Jia (South China University of Technology, China); Qiang Yang (Nanjing University of Information Science and Technology, China); Wei-Neng Chen and Huaiguang Jiang (South China University of Technology, China)

8:50 Improved methods for solving the electric vehicle charging scheduling problem to maximize the delive
Abdennour Azerine (Université de Haute-Alsace & IRIMAS, Mulhouse, France); Ammar Oulamara (LORIA Laboratory Universite de Lorraine, France); Michel Basset (University of Haute Alsace, France); Lhassane Idoumghar (University of Haute Alsace & IRIMAS Institute, France)

9:10 A Confidence-based Bilevel Memetic Algorithm with Adaptive Selection Scheme for Capacitated Electric Vehicle Routing Problem
Yinghao Qin and Jun Chen (Queen Mary University of London, UK (Great Britain))

9:30 Evolution-Assisted Deep Reinforcement Learning for Fast Charging Station Coordinated Operation
Xiaoying Yang (University of Nottingham Ningbo China, China); Yujing Gu (State Grid Nantong Power Supply Company, China); Fuhua Jia and Yiran Li (University of Nottingham Ningbo China, China); Hongru Wang (Southeast University, China); Nanjiang Du and Tianxiang Cui (University of Nottingham Ningbo China, China); Yujian Ye (Southeast University, China); Ruibin Bai (University of Nottingham Ningbo, China)

9:50 Adaptive NEH with constrained Nearest Neighbor subtours for the Electric Vehicle Routing Problem with Time Windows
Donald D Davendra and Andrew Struthers (Central Washington University, USA)

8:30 – 10:10
CEC TH1-R11: SS on Artificial Life
Conference: CEC
Room: 416+417
Session Chair(s): Hiroki Sayama

8:30 Non-Spatial Hash Chemistry as a Minimalistic Open-Ended Evolutionary System
Hiroki Sayama (Binghamton University, USA)

8:50 Exploration of reservoir properties in molecular computing systems
Nathanael Aubert-Kato (Ochanomizu University, Japan); Mika Ito (Nikkei Inc., Japan)

9:10 Automating Robot Design with Multi-Level Evolution
Geoff Nitschke and Bilal Aslan (University of Cape Town, South Africa)

9:30 An Open-Ended Approach to Understanding Local, Emergent Conservation Laws in Biological Evolution
Alyssa M Adams (Cross Labs & Cross Compass, Algorithmic Nature Lab, Japan); Eliott Jacopin (RIKEN, Japan); Praful Gagrani (University of Wisconsin-Madison, USA); Olaf Witkowski (University of Tokyo, Japan)

9:50 Evolution of developmental plasticity of soft virtual creatures in changing environments
Ryusnouke Higashinaka, Reiji Suzuki and Takaya Arita (Nagoya University, Japan)

8:30 – 10:10
CEC TH1-R12: SS on Evolutionary Optimization on Digital Economy Applications
Conference: CEC
Room: 418
Session Chair(s): Lingjie Li

8:30 Many Objectives Autonomous Robot Path Planning with Improved MOEA/D
Jin Zhou (University of Nottingham, China); David Chieng (University of Nottingham Ningbo China, China); Boon Giin Lee (University of Nottingham Ningbo China & Nottingham Ningbo China Beacons of Excellence Research and Innovation Institute, China); Junkai Ji and Jianqiang Li (Shenzhen University, China)

8:50 Deep Reinforcement Learning for Solving the Vehicle Routing Problem in Practical Logistics
Junchuang Cai, Xinzhi Zhang and Qiuzhen Lin (Shenzhen University, China); Lisha Dong (Shenzhen Institute of Information Technology, China); Wei-Neng Chen (South China University of Technoloqy, China); Zhong Ming (Shenzhen University, China)

9:10 Generative Evolution Attacks Portfolio Selection
Chen Li, Zidong Han, Jinrong Jiang, Lian Zhao, Yidi Bai and ZhongHua Lu (Computer Network Information Center, Chinese Academy of Sciences, China); Xuebin Chi (Computer Network Information Center, Chinese Academy of Sciences)

9:30 A cooperative co-evolution algorithm with variable-importance grouping for large-scale optimization
Yongfeng Li, Yuze Zhang, Lijia Ma and Junkai Ji (Shenzhen University, China); Dugang Liu (Guangdong Laboratory of Artificial Intelligence and Digital Economy, China); Victor C.M. Leung (Shenzhen University, China & The University of British Columbia, Canada); Jianqiang Li (Shenzhen University, China)

9:50 A Surrogate-assisted Evolutionary Algorithm for Expensive Dynamic Multimodal Optimzation

Xunfeng Wu, Songbai Liu, Junkai Ji and Lijia Ma (Shenzhen University, China); Victor C.M. Leung (Shenzhen University, China & The University of British Columbia, Canada)

8:30 A Two-stage Approach Using Genetic Algorithm and Genetic Programming for Remote Sensing Crop Classification

Jing Liang, Zexuan Yang, Tuo Zhang and Ying Bi (Zhengzhou University, China)

8:50 QRPatch: A Deceptive Texture-based Black-box Adversarial Attacks with Genetic Algorithm

Chao Li (Xidian University, China); Wen Yao (Chinese Academy of Military Science, China); Handing Wang (Xidian University, China); Tingsong Jiang (Chinese Academy of Military Science, China); Donghua Wang (Zhejiang University, China); Jialiang Sun (Chinese Academy of Military Science, China)

9:10 Exploring Genetic Programming Models in Computer-Aided Diagnosis of Skin Cancer Images

Qurrat Ul Ain, Harith Al-Sahaf and Bing Xue (Victoria University of Wellington, New Zealand); Mengjie Zhang (VUW, New Zealand)

9:30 Black-Box Optimization Based Adaptive Image Anonymization

Arcadi Llanza (University Paris Est Créteil, France); Nadiya Shvai (Cyclope.ai & National University of Kyiv-Mohyla Academy, France); Amir Nakib (University of Paris-Est Créteil, France)

9:50 ESC: Evolutionary Stitched Camera Calibration in the Wild

Grzegorz Rypeść (Warsaw University of Technology & Sports Algorithmics and Gaming, Poland); Grzegorz Kurzejamski (Sport Algorithmics and Gaming Sp. z o. o., Poland)

8:30 – 10:10
FUZZ TH1-R15: SS: Uncertainty Modeling for Engineering Applications
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Marek Reformat

8:30 On Solvability Degree of Systems of Partial Fuzzy Relational Equations
Nhung Cao (Institute for Research and Applications of Fuzzy Modeling, University of Ostrava, Czech Republic); Radek Valasek (Institute for Research and Applications of Fuzzy Modeling, Czech Republic)

8:50 Calibration of Evidential Mass Function for Trustworthy Information Processing in Scene Graph generation
Lucie Kunitomo-Jacquin and Ken Fukuda (AIST, Japan)

9:10 Prediction for Combustion States of Waste-to-Energy Plants with Fuzzy Relational Maps of Sensors
Akifumi Ise, Motohide Umano and Kiyotaka Kohigashi (Hitachi Zosen Corporation, Japan)

9:30 Incorporating Fuzzy Logic into System for Real-Time People Counting and Fever Detection
Patryk Żywica (Adam Mickiewicz University, Poznań, Poland); Joanna Siwek (Adam Mickiewicz University, Poland)

9:50 Utilizing Experience and Artificial Empathy in Decision Models: Navigating Imprecise Communication to Achieve Shared Goals in Multi-Agent Systems
Patryk Żywica (Adam Mickiewicz University, Poznań, Poland); Joanna Siwek (Adam Mickiewicz University, Poland)

8:20 – 18:40
Exhibition
Room: 501+502

10:10 – 10:30
Break

10:30 – 11:30
WCCI 2024 Plenary talk by Akira Oyama
Room: 301+302+303+304
Session Chair(s): Hisao Ishibuchi

Multiobjective evolutionary optimization in space engineering and spin-off to industry
Akira Oyama
Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency

Multiobjective evolutionary computation (MOEC) is getting popular in Japan because it has various advantages such as capability of finding wide variety of Pareto-optimal designs. In Japan Aerospace Exploration Agency (JAXA), I have been engaged in multiobjective design optimizations in space engineering such as rocket engine turbopump design, spacecraft trajectory design, reusable space transportation system design, spacecraft landing system design, selection of Moon landing site. In this talk, I will introduce some examples of these applications of MOEC in JAXA.

Then, I will introduce spinoff of the multiobjective design optimization technology to industry. Here, I will present the collaboration work with Mazda, Kobe University, and Hiroshima University for aerodynamic car shape design and the collaboration work with Central Japan Railway Company for aerodynamic and aeroacoustics design of superconducting maglev. Finally, I will discuss current issues in using MOEC for real-world design problems and our recent approaches to overcome these issues.

11:30 – 13:00
Lunch Time

13:00 – 14:00
Keynote talk by Yukie Nagai
Conference: IJCNN
Room: 301+302
Session Chair(s): Huajin Tang

Predictive Processing: Illuminating and Modeling Cognitive Development
Yukie Nagai
University of Tokyo

Cognitive development is an intricate and multifaceted process that has captivated researchers for decades. Human abilities related to perception and action continually evolve during development, exhibiting remarkable diversity among individuals.

This presentation explores the concept of predictive processing as a promising unified theory for illuminating and modeling cognitive development. Rooted in neuroscience, predictive processing offers a unique perspective for understanding how the brain constructs its perception of the world. The core idea posits that the brain continually generates internal models to predict the world and refines them in response to sensory input to minimize prediction errors. This dynamic process underlies the acquisition of cognitive abilities, from self-recognition to goal-directed actions, and even fosters the emergence of social behaviors like imitation and altruism, facilitated through multimodal predictions.

Moreover, this presentation sheds light on how disruptions in predictive processing lead to individual diversities, including developmental disorders. By emphasizing the concept of predictive processing and showcasing its practical application in robotic experiments, we aim to demonstrate its potential as a unifying framework for cognitive development. This presentation opens doors to exciting opportunities for creating more adaptive and intelligent systems.

13:00 – 14:00
Keynote talk by Jialin Liu
Conference: CEC
Room: 303+304
Session Chair(s): Carlos A. Coello Coello

Designing and playing games with computational intelligence
Jialin Liu
Southern University of Science and Technology (SUSTech)

Games provide an ideal playground for AI researchers to study, explore, evaluate, and experiment with different ideas in a controllable and safe environment. As an important application and product, games also involve complex decision-making and creative design tasks. Games have played important roles in the development of computational intelligence, while different computational intelligence methods have been widely applied to playing and designing games. In this talk, I will show how different computational intelligence methods (e.g., generative models, reinforcement learning and evolutionary computation) could be harnessed to procedurally generate new game contents, from game levels to accompanying music that correlates with game difficulties. In addition, I will also show how novel computational intelligence techniques, especially evolutionary reinforcement learning, could be used to play a range of different games. I will conclude the talk by discussing current challenges and potential research directions.

13:00 – 14:00
Keynote Talk by Jim Torresen
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Keeley Crockett

AI Ethics – Challenges and Opportunities
Jim Tørresen
University of Oslo

Artificial intelligence (AI) has entered an increasing number of different domains. A growing number of people – in the general public as well as in research – have started to consider a number of potential ethical challenges and legal issues related to the development and use of AI technologies. This keynote will give an overview of the most commonly expressed ethical challenges and ways being undertaken to reduce their negative impact.

Among the most important challenges are those related to privacy, fairness, transparency, safety and security. Countermeasures can be taken first at design time, second, when a user should decide where and when to apply a system and third, when a system is in use in its environment. In the latter case, there will be a need for the system by itself to perform some ethical reasoning if operating in an autonomous mode. This keynote will introduce some examples from our own and others´ work and how the challenges can be addressed both from a technical and human side with special attention to problems relevant when working with AI research and development. AI ethical issues should not be seen only as challenges but also as new research opportunities contributing to more sustainable, socially beneficial services and systems.

14:00 – 14:20
Break

14:20 – 18:40
Workshop: Workshop on Multimodal Optimization for Machine Learning
Room: 211+212

14:20 – 16:20
Workshop: Privacy-Preserving and Fairness-Aware Optimization
Room: 213

14:20 – 16:20
IJCNN S6_33: Machine Learning - Mixture models and other topics
Conference: IJCNN
Room: 301+302
Session Chair(s): Pedro Ilídio

14:20 Data-Driven Preference Sampling for Pareto Front Learning
Rongguang Ye (Southern University of Science and Technology, China); Lei Chen (Guangdong University of Technology, China); Weiduo Liao (Southern University of Science and Technology & City University of Hong Kong, China); Jinyuan Zhang and Hisao Ishibuchi (Southern University of Science and Technology, China)

14:40 Ensemble Methods for Selecting Single Nucleotide Polymorphisms Associated to Rice Phenotypes
Breno Osvaldo Funicheli (Universidade Federal de São Carlos, Brazil); Claudio Brondani and Rosana Pereira Vianello (Empresa Brasileira de Pesquisa Agropecuária, Brazil); Ricardo Cerri (University of Sao Paulo, Brazil)

15:00 Deep Forests with Tree-Embeddings and Label Imputation for Weak-Label Learning
Pedro Ilídio (KU Leuven, Belgium & Itec, Belgium); Ricardo Cerri (University of Sao Paulo, Brazil); Celine Vens and Felipe Kenji Nakano (KU Leuven, Belgium)

15:20 SG-RSRNN - Score Guided Robust Subspace Recovery-Based Neural Network for Network Intrusion Detection
Luís Gonçalves (Universidade Federal de Pernambuco & Centro de Informática (CIn), Brazil); Cleber Zanchettin (Universidade Federal de Pernambuco, Brazil)

15:40 Enhancing Adversarial Attacks: The Similar Target Method
Shuo Zhang, Ziruo Wang, Zikai Zhou, Jiyao Liu and Huanran Chen (Beijing Institute of Technology, China)

16:00 Quadripartite: Tackle Noisy Labels by Better Utilizing Uncertain Samples
Xiaoxuan Cui, Xuefeng Liang, Chang Cao, Guanghui Shi and Nesma El-haddar (Xidian University, China)

14:20 – 16:20
IJCNN S6_34: Machine Learning - Mixture models, Hybrid Learning and other topics
Conference: IJCNN
Room: 303+304
Session Chair(s): Kwun Ho Ngan

14:20 Symbolic Knowledge Extraction and Distillation into Convolutional Neural Networks to Improve Medical Image Classification
Kwun Ho Ngan (Fujitsu Research of Europe, UK (Great Britain)); James Phelan (City University of London, UK (Great Britain)); Joe Townsend (Fujitsu Research of Europe, UK (Great Britain)); Artur Garcez (City University of London, UK (Great Britain))

14:40 FashionFail: Addressing Failure Cases in Fashion Object Detection and Segmentation
Riza Velioglu, Robin Chan and Barbara Hammer (Bielefeld University, Germany)

15:00 A Medical Low-Back Pain Physical Rehabilitation Database for Human Body Movement Analysis
Sao Mai Nguyen (U2IS, Ensta, IP Paris & IMT Atlantique, France); Maxime Devanne (Université Haute-Alsace, France); Olivier Remy Neris and Mathieu Lempereur (CHRU de Brest, Hopital Morvan, France); Andre Thepaut (IMT Atlantique, France)

15:20 ETreeNet: Ensemble Model Fusing Decision Trees and Neural Networks for Small Tabular Data
Tsukasa Yamakura, Kazushi Kawamura, Masato Motomura and Thiem Chu (Tokyo Institute of Technology, Japan)

15:40 MLRS-PDS: A Meta-Learning Recommendation of Dynamic Ensemble Selection Pipelines
Hesam Jalalian (École de Technologie Supérieure, Canada); Rafael M. O. Cruz (École de Technologie Supérieure, Brazil)

16:00 A Multi-Objective Perspective Towards Improving Meta-Generalization
Weiduo Liao (Southern University of Science and Technology & City University of Hong Kong, China); Ying Wei (Nanyang Technological University, Singapore); Qirui Sun (City University of Hong Kong, Hong Kong); Qingfu Zhang (City University of Hong Kong, Mexico); Hisao Ishibuchi (Southern University of Science and Technology, China)

14:20 – 16:20
IJCNN S6_35: Deep learning and Evolutionary learning
Conference: IJCNN
Room: 311+312
Session Chair(s):

14:20 Efficient Routing in Sparse Mixture-Of-Experts
Masoumeh Zareapoor (Shanghai Jiao Tong University, China); Pourya Shamsolmoali (East China Normal University, China); Fateme Vesaghati (University of Tehran, Iran)

14:40 Decentralized Federated Learning Links for Biometric Recognition
Jian Guo and Hengyu Mu (Nanjing University of Posts and Telecommunications, China); Hengyi Ren (Nanjing Forestry University, China); Chong Han and Lijuan Sun (Nanjing University of Posts and Telecommunications, China)

15:00 Two-Stage Diffusion Model for 3D Medical Image Segmentation
Masaki Nishimura, Takaya Ueda, Eisuke Ito and Ikuko Nishikawa (Ritsumeikan University, Japan)

15:20 Federated Loss Exploration for Improved Convergence on Non-IID Data
Christian Internò (University of Bielefeld, Germany); Markus Olhofer (Honda Research Institute Europe, Germany); Yaochu Jin (Westlake University, China); Barbara Hammer (Bielefeld University, Germany)

15:40 Improving OPT-GAN by Smooth Scale Mapping and Adaptive Exploration
Bo Zhang (University of Jinan, China); Lin Wang (University of Jinan, China & Quan Cheng Laboratory, China); Bo Yang (University of Jinan, China)

16:00 DICO-NEEP: NEEP with Distance Information and Constant Optimization
Chen Liu and Chaoran Pang (University of Jinan, China); Lin Wang (University of Jinan, China & Quan Cheng Laboratory, China); Bo Yang (University of Jinan, China)

14:20 – 16:20
IJCNN S6_36: Deep Learning 7
Conference: IJCNN
Room: 313+314
Session Chair(s): Jingyao Wang

14:20 Skeleton-Based Action Recognition with Spatial-Structural Graph Convolution
Jingyao Wang (Université Clermont Auvergne, France); Issam Falih (Clermont Auvergne University, France); Emmanuel Bergeret (Université Clermont Auvergne, France)

14:40 MetaMask: Improving Few-Shot Semantic Segmentation via Multi-Mask Calibriation
Li Dinghang and Zongqing Lu (Tsinghua University, China); Zheng Weiliang (Shenzhen Institute of Information Technology, China); Qingmin Liao (Tsinghua University, China); Fan Lyu (CASIA, China)

15:00 A Contrastive Learning and Graph-Based Approach for Missing Modalities in Multimodal Federated Learning
Thu Hang Phung (Hanoi University of Science and Technology, Vietnam); Binh P. Nguyen (Victoria University of Wellington, New Zealand); Thanh-Hung Nguyen (Hanoi University of Science and Technology, Vietnam); Hung Nguyen (Griffith University, Australia); Phi Le Nguyen (Hanoi University of Science and Technology, Vietnam); Thanh Trung Huynh (Swiss Federal Institute of Technology Lausanne, Switzerland)

15:20 Tropical Neural Networks and Its Applications to Classifying Phylogenetic Trees
Ruriko Yoshida (Naval Postgraduate School, USA); Georgios Aliatimis (Lancaster University, UK (Great Britain)); Keiji Miura (Kwansei Gakuin University, Japan)

15:40 SoK: Behind the Accuracy of Complex Human Activity Recognition Using Deep Learning
Duc-Anh Nguyen and Nhien-An Le-Khac (University College Dublin, Ireland)

16:00 Adversarially Diversified Rehearsal Memory (ADRM): Mitigating Memory Overfitting Challenge in Continual Learning
Hikmat Khan (Rowan University, USA); Ghulam Rasool (Moffitt Cancer Center, USA); Nidhal Bouaynaya (Rowan University, USA)

14:20 – 16:20
IJCNN S6_37: Deep Learning 6
Conference: IJCNN
Room: 315
Session Chair(s):

14:20 CONTUNER: Singing Voice Beautifying with Pitch and Expressiveness Condition
Jianzong Wang (Pingan, China); Pengcheng Li (University of Science and Technology of China, China); Xulong Zhang (Shangfeng Road NO. 1288 & Ping An Technology (Shenzhen) Co., Ltd., China); Ning Cheng (Pingan, China); Jing Xiao (Ping An Insurance Company of China,   Ltd., China)

14:40 Self-Supervised Benchmark Lottery on ImageNet: Do Marginal Improvements Translate to Improvements on Similar Datasets?
Utku Ozbulak (Ghent University, Belgium); Esla Timothy Anzaku and Solha Kang (Ghent University, Korea (South)); Wesley De Neve (Ghent University, Belgium); Joris Vankerschaver (Ghent University Global Campus, Belgium)

15:00 LLM Diagnostic Toolkit: Evaluating LLMs for Ethical Issues

Mehdi Bahrami (Fujitsu Research of America, USA); Ryosuke Sonoda (Fujitsu Ltd., Japan); Ramya Srinivasan (Fujitsu Research of America, USA)

15:20 Hierarchical Multi-Label Classification with Missing Information for Benthic Habitat Imagery

Isaac Xu (Dalhousie University, Canada); Benjamin Misiuk (Memorial University of Newfoundland, Canada); Scott C. Lowe (Vector Institute, Canada); Martin Gillis, Thomas Trappenberg and Craig Brown (Dalhousie University, Canada)

15:40 ATV3D: 3D Object Detection from Attention-Based Three-View Representation

Yu Han (Chinese Academy of Sciences, China); Yaran Chen (Institute of Automation Chinese Academy of Sciences, China); Haoran Li (CASIA, China)

16:00 How Intermodal Interaction Affects the Performance of Deep Multimodal Fusion for Mixed-Type Time Series

Simon J Dietz, Thomas Altstidl, Dario Zanca, Bjoern M Eskofier and An Nguyen (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)

14:20 – 16:20
IJCNN S6_38: Deep Learning 5
Conference: IJCNN
Room: 411+412
Session Chair(s): Sadam Al-Azani

14:20 Model-Based Counterfactual Explanations Incorporating Feature Space Attributes for Tabular Data

Yuta Sumiya (The University of Electro-Communications & Fujitsu Ltd., Japan); Hayaru Shouno (University of Electro-Communications, Japan)

14:40 A Comprehensive Framework and Empirical Analysis for Evaluating Large Language Models in Arabic Dialect Identification

Sadam Al-Azani (King Fahd University of Petroleum and Minerals, Saudi Arabia); Nora Alturayeif (Imam Abdulrahman Bin Faisal University, Saudi Arabia); Haneen Abouelresh (Ain Shams University, Egypt); Alhanoof Alhunief (King Fahd University of Petroleum and Minerals, Saudi Arabia)

15:00 Periodicity Association Based Contrastive Learning for Time Series Anomaly Detection

JiaWei Xu (Central South University, China); ZhaoWei Zhu (Zhejiang Sci-Tech University, China); WeiWei Ye and Ning Gui (Central South University, China)

15:20 Enhance Training Objectives for Image Captioning with Decomposed Sequence-Level Metric

Yehuan Wang and Jiefeng Long (Nanjing University, China); Jian Hu (Nanjing University of Science and Technology, China); Lin Shang (Nanjing University, China)

15:40 Multi-Dimensional Attention on Cost Volume for Stereo Matching

Zhou Jiale (Tsinghua University, China); Wenqin Huang (Tsinghua Shenzhen International Graduate School, China); Qingmin Liao, Zongqing Lu and Xiaoqian Liu (Tsinghua University, China)

16:00 Towards Trustworthy Dataset Distillation: A Benchmark of Privacy, Fairness and Robustness

Zongxiong Chen (Fraunhofer FOKUS, Germany); Jiahui Geng (Mohamed Bin Zayed University of Artificial Intelligence, United Arab Emirates); Derui Zhu (Technical University of Munich, Germany); Qing Li (Mohamed Bin Zayed University of Artificial Intelligence, United Arab Emirates); Sonja Schimmler (Fraunhofer, Germany); Manfred Hauswirth (TU Berlin, Fraunhofer FOKUS, Germany)

14:20 – 16:20
IJCNN S6_39: Deep Learning 4
Conference: IJCNN
Room: 413
Session Chair(s):

14:20 Contrastive Meta Learning for Soft Prompts Using Dynamic Mixup

Jen-Tzung Chien and Hsin-Ti Wang (National Yang Ming Chiao Tung University, Taiwan); Ching-hsien Lee (Industrial Technology Research Institute, Taiwan)

14:40 Deep Multitask Neural Networks for Solving Some Stochastic Optimal Control Problems

Christian Yeo (Sorbonne University & Engie Global Markets, France)

15:00 Enhanced Reverse Distillation Guided Segmentation Network for Anomaly Detection

Li Xu, Xiang Ma, Jiahao Chen, Qinzhen Xu and Luxi Yang (Southeast University, China)

15:20 Novel Design Ideas That Improve Video-Understanding Networks with Transformers

Yaxin Hu (University of Luebeck & Pattern Recognition Company GmbH, Germany); Erhardt Barth (University of Luebeck, Germany)

15:40 DynaPP: A Dynamic Resolution Model with Patch Packing for Fast Online Video Detection

Changrok So, Simon Sungil Woo and Jong Hwan Ko (Sungkyunkwan University, Korea (South))

16:00 Multi-Channel Hypergraph Network for Sequential Diagnosis Prediction in Healthcare

Xin Zhang (Qilu University of Technology & Shandong Academy of Sciences, China); Zonglong Yuan (Shandong, China)

14:20 – 16:20
CEC TH2-R10: SS on EC and CI for Scheduling and Combinatorial Optimization I
Conference: CEC
Room: 414+415
Session Chair(s): Yi Mei

14:20 Learning Heuristics via Genetic Programming for Multi-mode Resource-constrained Project Scheduling

Yuan Tian and Yi Mei (Victoria University of Wellington, New Zealand); Mengjie Zhang (VUW, New Zealand)

14:40 Constructing ensembles of automatically designed relocation rules for the container relocation problem

Marko Đurasević (University of Zagreb, Croatia); Mateja Đumić (J. J. Strossmayer University Osijek, Croatia); Francisco Javier Gil-Gala (University of Oviedo, Spain)

15:00 On the Effects of Smoothing Rugged Landscape by Different Toy Problems: A Case Study on UBQP

Wei Wang (Xi'an Jiaotong University, China); Jialong Shi (Xi'an Jiaotong University, China & Sichuan Digital Economy Industry Development Research Institute, China); Jianyong Sun (Xi'an Jiaotong University, China); Arnaud Liefooghe (University of the Littoral Opal Coast, France); Qingfu Zhang (City University of Hong Kong, Mexico); Ye Fan (Northwestern Polytechnical University, China)

15:20 ACSLs for large-scale bounded single depot multiple travelling salesman problem
Shanu Verma and Millie Pant (Indian Institute of Technology Roorkee, India)

15:40 Large-scale Project Portfolio Selection and Scheduling Problem: A Comparison of Exact Solvers and Metaheuristics

Jing Liu and Saber Elsayed (University of New South Wales, Australia); Daryl Essam (University of New South Wales at the Australian Defence Force Academy UNSW@ADFA, Australia); Ruhul Sarker (University of New South Wales, Australia); Ivan Garanovich and Terence Weir (Defence Science and Technology Organisation, Australia)

16:00 Prediction of Distributed Ultrasound Simulation Execution Time Using Machine Learning
Jiri Jaros, Marta Jaros and Martin Buchta (Brno University of Technology, Czech Republic)

14:20 – 16:20
CEC TH2-R11: SS on Evolutionary Algorithms for Neural Architecture Search from Theory to Practice
Conference: CEC
Room: 416+417
Session Chair(s): Jesús Guillermo Falcón-Cardona

14:20 A novel surrogate model for variable-length encoding and its application in optimising deep learning architecture
Truong Dang (National Subsea Centre, UK (Great Britain)); Tien Thanh Nguyen and John McCall (Robert Gordon University, UK (Great Britain)); Kate Han (Unviersity of Salford, UK (Great Britain)); Alan Wee-Chung Liew (Griffith University, Australia)

14:40 Image segmentation enhanced by heuristic assistance for retinal vessels case
Katarzyna Prokop and Dawid Polap (Silesian University of Technology, Poland)

15:00 A Lightweight Training-Free Method for Neural Architecture Search
Jhih-Cian Lin (National Sun Yat-Sen University, Taiwan); Chun-Wei Tsai (National Sun Yat-sen University, Taiwan)

15:20 Chaotic Map-Coded Evolutionary Algorithms for Dendritic Neuron Model Optimization
Haichuan Yang (Tokushima University, Japan); Yifei Yang (Hirosaki University, Japan); Yuxin Zhang (Wesoft Company Ltd., Japan); Cheng Tang (Kyushu University, Japan); Koichi Hashimoto (Tohoku University, Japan); Yuichi Nagata (Tokushima University, Japan)

15:40 Towards evolution of Deep Neural Networks through contrastive Self-Supervised learning
Adriano Vinhas (University of Coimbra, Portugal); João Correia (University of Coimbra CISUC LASI, Portugal); Penousal Machado (University of Coimbra, Portugal)

16:00 NeuroLGP-SM: Scalable Surrogate-Assisted Neuroevolution for Deep Neural Networks
Fergal Stapleton and Edgar Galvan (Maynooth University, Ireland)

14:20 – 16:20
CEC TH2-R12: Uncertain and Dynamic Environments
Conference: CEC
Room: 418
Session Chair(s): Marde Helbig and Michalis Mavrovouniotis

14:20 Dynamic Multi-Task Interactive Evolutionary Optimization Algorithm with Search Space Alignment
WeiDong Wu, Xiaoyan Sun and Yong Zhang (China University of Mining and Technology, China); Wei Song (Jiangnan University, China)

14:40 Multi-Object Tracking as Continuous Dynamic Environment and its Exploration by Particle Swarm Optimization

Ryo Takano (Toyama Prefectural University, Japan)

15:00 Generate a Single Heuristic for Multiple Dynamic Flexible Job Shop Scheduling Tasks by Genetic Programming

Jiayin Chen and Yahui Jia (South China University of Technology, China); Ying Bi (Zhengzhou University, China); Wei-Neng Chen (South China University of Technology, China)

15:20 Exchange Strategies for Multi-Colony Ant Algorithms in Dynamic Environments

Michalis Mavrovouniotis (Eratosthenes Centre of Excellence & Cyprus University of Technology, Cyprus); Changhe Li (Anhui University of Sciences & Technology, China); Danial Yazdani (University of Technology Sydney, Australia); Diofantos Hadjimitsis (Cyprus University of Technology, Cyprus)

15:40 Dynamic NSGA-III with KRR-ANOVA Kernel Predictor for In-Motion Sonar Image Segmentation

Aakansha Agarwal and Satyasai Jagannath Nanda (Malaviya National Institute of Technology Jaipur, India)

16:00 Dynamic Multi-objective Optimisation Problems with Changes of Varying Frequency and Severity

Marde Helbig (Griffith University, Australia)

14:20 – 16:20
CEC TH2-R13: SS on CI in Space and Aerospace I
Conference: CEC
Room: 419
Session Chair(s): Victor Rodriguez

14:20 Robust Classification with Belief Functions and Deep Learning Applied to STM
Luis Sanchez (University of Strathclyde, UK (Great Britain)); Victor Rodriguez (UPM, Spain); Massimiliano Vasile (University of Strathclyde, UK (Great Britain))

14:40 Satellite Collision Avoidance Maneuver Planning in Low Earth Orbit using Proximal Policy Optimization
Sajjad Kazemi, Nasser L Azad and Katharine Andrea Scott (University of Waterloo, Canada); Haroon B. Oqab and George B. Dietrich (Columbiad Launch Services Inc., Canada)

15:00 Deep Learning based Nonlinear Dimensionality Reduction for Emulators of Numerical Thermosphere Densi
Richard Licata and Piyush M Mehta (West Virginia University, USA)

15:20 Clustering of Earth–Moon transfers in Sun-perturbed environment
Claudio Toquinho Campana and Francesco Topputo (Politecnico di Milano, Italy)

15:40 Path Planning in a dynamic environment using Spherical Particle Swarm Optimization
Mohssen Elshaar (King Fahd University of Petroleum and Minerals & KFUPM - Aerosapce Engineering, Saudi Arabia); Mohammed Reda Elbalshy (King Fahd University of Petroleum and Minerals, Saudi Arabia); Mohammad A. Abido and Alaa El-Din Hussein (KFUPM, Saudi Arabia)

16:00 A Learning Classifier System Approach to Time-Critical Decision-Making in Dynamic Alternate Airport Selection
Boris Djartov (FL-SEG BS - Systemergonomie, Germany); Sanaz Mostaghim (Otto von Guericke University Magdeburg, Germany); Anne Papenfuss (German Aerospace Center, Germany); Matthias Wies (German Aerospace Center (DLR), Germany)

14:20 – 16:20
FUZZ TH2-R15: SS: Uncertainty Modeling for Engineering Applications/SS: Fuzzy System for Renewable Power Generation and Smart Grid/ Fuzzy Pattern Recognition
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Marek Reformat

14:20 Coherent Design of Wind Turbine Controllers Considering Transitions between Operating Regions using Fuzzy Membership Functions
Horst Schulte (University of Applied Sciences HTW Berlin, Germany)

14:40 A Grey Wolf-Driven Refinement of Fuzzy-based Controller for Enhanced DC Microgrid Operation
Syeda Shafia Zehra and Syed Hassan Ahmed (Politecnico di Milano, Italy); Iftikhar Ahmad Rana (School of Electrical Engineering and Computer Science, NUST, Pakistan); Francesco Grimaccia, Alessandro Niccolai and Marco Mussetta (Politecnico di Milano, Italy)

15:00 Uncertainty-permeable Analytics for the Next Release Problem through Fuzzy Mathematical Programming and Possibility Theory
Carlos Antonio Casanova Pietroboni, Esteban Alejandro Schab and Lucas Martín Prado (National Technological University, Argentina)

15:20 Federated learning with the Choquet integral as aggregation method
Barbara Pękala (University of Rzeszow, Poland); Anna Wilbik (Maastricht University, The Netherlands); Jarosław Szkoła (Iniversity of Rzeszów, Poland); Krzysztof Dyczkowski (Adam Mickiewicz University, Poland); Patryk Żywica (Adam Mickiewicz University, Poznań, Poland)

15:40 Fuzzy-Enhanced Analysis of Streaming Clustering: Exploring Drift and Growth of Clusters
Daphne Zou (University of Missouri, USA); Omar A Ibrahim (Tikrit University, Iraq); James Keller (University of Missouri, USA)

16:00 On the Choice of the Scheduling Variables for Dynamic Local Model Networks with Local Regularized FIR Models
Christopher Illg, Tarek Kösters and Oliver Nelles (University of Siegen, Germany)

14:20 – 16:40
Poster Session
Conference: IJCNN+CEC
Room: 501+502
Session Chair(s): Zeng-Guang Hou and Caitong Yue

1: Aspect-Based Sentiment Analysis via Knowledge Enhancement
Yupeng Li (Guangdong University of Foreign Studies South China Business School, China); Zilu Su (South China Business School of Guangdong University of Foreign Studies and Trade, China); Ke Chen (Nanjing Audit University, China); Kexin Jiang (South China Business School of Guangdong University of Foreign Studies and Trade, China)

2: Multiscale Residual Network with Dynamic Depthwise Convolution for Multi-Label 12-Lead ECG Classification
Linhai Xie and Yilei Man (University of Chinese Academy of Sciences, China); Delong Shang (Nanjing Institute of Intelligent Technology, China)

3: Real Underwater Image Restoration from a Unified Perspective
Zhenqiang Zhang (Qilu University of Technology,China); Jidong Huo, Chuantao Li, Zhigang Zhao, Chunxiao Wang and Jialiang Lv (Qilu University of Technology, China)

4: Can We Build a Generative Model Without Back Propagation Training?
Ke Wang, Ziqi Zhao and Binghong Liu (Zhengzhou University, China); Ping Guo (Beijing Normal University, China); Yazhou Hu (Zhengzhou University, China)

5: Sample Mining Loss Based on Noise Label and Low-Quality Sample for Face Recognition
Ye Lu, Lei Chen and Hai-Lin Liu (Guangdong University of Technology, China)

6: STDC: A Traffic Prediction Model Based on Spatial-Temporal Deep Crossing
ZheDian Zheng (Shanghai Maritime University, China)

7: An Efficient Sparse Blocks Inference Method for Image Editing Based on Diffusion Models
Zhuochao Yang and Jingjing Liu (Shanghai University, China); Guo Aiying (chool of Mechanical Engineering and Automation, Shanghai University, China); Jianhua Zhang (Shanghai University, China)

8: EViTIB: Efficient Vision Transformer via Inductive Bias Exploration for Image Super-Resolution

Anni Yu, Zhong-Han Niu, Jia-Xin Xie, Qing-Long Zhang and Yu-Bin Yang (Nanjing University, China)

9: OB-YOLO: A UAV Image Detection Model for Reducing Computational Resource Consumption

Rui Liu, Yuan Zhu, Yanqiang Wang and Zhecong Xing (Inner Mongolia University, China)

10: Chain-Of-Program Prompting with Open-Source Large Language Models for Text-To-SQL

Bo Xu and Shufei Li (Donghua University, China); YiFei Wu (DongHua University, China); Shouang Wei, Ming Du, Hongya Wang and Hui Song (Donghua University, China)

11: A Decomposition Framework for Class Incremental Text Classification with Dual Prompt Tuning

Bo Xu (Donghua University, China); YiFei Wu (DongHua University, China); Shufei Li, Hui Song, Ming Du and Hongya Wang (Donghua University, China)

12: Enhance Large Language Models for Multilingual Sentence Embedding with Knowledge Graph

Zhenyu Wang (Donghua University, China); YiFei Wu (DongHua University, China)

13: SITD-NMT: Synchronous Inference NMT with Turing Re-Translation Detection

Nier Wu (Inner Mongolia University of Technology & IMUT, China); Xufei Zhuang, Hao Xing and Yatu Ji (Inner Mongolia University of Technology, China); Yang Liu (Inner Mongolia Autonomous Region Big Data Center, China); Qing-dao-er ji Ren and Bao Shi (Inner Mongolia University of Technology, China)

14: Multi-Dimensional Search with Strip Convolution and R-Squared Loss for Lane Detection

Zijun Lin, Peng Ye, Tao Chen and Shengji Tang (Fudan University, China)

15: Concept Visualization: Explaining the CLIP Multi-Modal Embedding Using WordNet

Loris Giulivi and Giacomo Boracchi (Politecnico di Milano, Italy)

16: Enhancing Alignment and Uniformity of Contrastive Learning for Knowledge-Based Recommendation

Zuxiang Xie and Junyi Li (Hunan University, China); Ning Wu (Buaa, China)

17: Is Translation Helpful? An Exploration of Cross-Lingual Transfer in Low-Resource Dialog Generation

Lei Shen (GEB, China); Shuai Yu (Donghua University, China); Xiaoyu Shen (Eastern Institute for Advanced Study, China)

18: ADNet: A Neural Network for Accelerometer Signals Denoising

Fengling Zheng and Wei Li (Jiangnan University, China); Chuntao Ding (Beijing Jiaotong University, China); Xiaohui Cui (Wuhan University, China)

19: Comprehensive-Teacher-Based Multi-Task Model Train Using a Small Amount of Data
Zhu Yuchang (South China University of Techology); Nanfeng Xiao (South China University of Technology, China)

20: Self Decoupling-Reconstruction Network for Facial Expression Recognition
Linhuang Wang (Tokushima University, Japan); Xin Kang (University of Tokushima, Japan); Fei Ding (Tokushima University, Japan); Hai-tao Yu (University of Tsukuba, Japan); Yunong Wu (Dataa Robotics, China); Kazuyuki Matsumoto (University of Tokushima, Japan); Satoshi Nakagawa (The University of Tokyo, Japan); Fuji Ren (University of Electronic Science and Technology of China, China)

21: Language-Agnostic Zero-Shot Machine Translation with Language-Specific Modeling
Xiao Chen and Chirui Zhang (University of Chinese Academy of Sciences, China)

22: Game Perception Assessment Algorithm Based on Cumulative Link Ordered Regression
Xianxing Zhu (XinJiangUniversity, China); Yuan Jia (Renmin University of China, China); Gang Zhou, Fei Shi, Xiaohui Huang and Jiajia Wang (Xinjiang University, China)

23: PICLAnony: Anonymous Face Generation with Controllable Attributes Based on Parametric Imitative Contrastive Learning
Ji Hong Ling (ChangZhou University, China); Hao Liu and Jiu Zhen Liang (Changzhou University, China)

24: High-Performance Spatio-Temporal Information Mixer for Traffic Forecasting
Yaunpei Huang and Nanfeng Xiao (South China University of Technology, China)

25: Cross-Aggregation Based Information Re-Enhancement for Recommendation
Fangfei Li (Shenzhen University, China); Zenghao Chen (Beijing University of Posts and Telecommunications, China)

26: Scene-Based Graph Convolutional Networks for Federated Multi-Label Classification
Shaocong Xue (Harbin Institute of Technology, Shenzhen, China); Wenjian Luo (Harbin Institute of Technology, China); Yongkang Luo and Zeping Yin (Harbin Institute of Technology, Shenzhen, China); Jiahao Gu (China University of Mining & Technology-Beijing, China)

27: TrajGraph: A Dual-View Graph Transformer Model for Effective Next Location Recommendation
Jiafeng Zhao and Hao Ni (Zhejiang University of Technology & Hangzhou City University, China); Canghong Jin, Tongya Zheng and Longxiang Shi (Hangzhou City University, China); Xiaoliang Wang (China Mobile (Zhejiang) Innovation Research Institute Co., Ltd, China)

28: ESSDB-GCN: Enhanced Syntactic and Semantic Dual-Branch Graph Convolutional Network for Aspect Sentiment Triple Extraction
Chao Yang, Jiajie Xing, Susu Wei and Xianguo Zhang (Inner Mongolia University, China)

29: Time-Decay Dynamic Graph Neural Network for Multivariate Time Series Forecasting

Yi Luo, Baoyi Wang, Yutong Luo, Ruijuan Yin, Yueyang Wang and Qingyu Xiong (Chongqing University, China)

30: Lane Detection Method Based on Deformable Linear Convolution

Zhu Yuchang (South China University of Technology, China.); Nanfeng Xiao (South China University of Technology, China)

31: Defying Forgetting in Continual Relation Extraction via Batch Spectral Norm Regularization

Rundong Gao (Peking University, China); Wenkai Yang (Renmin University of China, China); Xu Sun (Peking University, China)

32: Modeling Logical Content and Pattern Information for Contextual Reasoning

Peiqi Guo and Ping Jian (Beijing Institute of Technology, China); Xuewen Shi (Dongbei University of Finance and Economics, China)

33: Enhanced Object Detection Method with Decoupled Direction Prediction and Fusion Strategy

Hongwei Zheng and Nanfeng Xiao (South China University of Technology, China)

34: GAN Doctor: Diagnosing and Treating Inherent Semantic Errors

Chengji Shen, Zunlei Feng and Zhongle Xie (Zhejiang University, China); Jie Lei (Zhejiang University of Technology, China); Huiqiong Wang and Mingli Song (Zhejiang University, China)

35: AdaFSNet: Time Series Classification Based on Convolutional Network with a Adaptive and Effective Kernel Size Configuration

Haoxiao Wang, Bo Peng, Jianhua Zhang and Xu Cheng (Tianjin University of Technology, China)

36: G2Vec: Spatial-Temporal Trajectory Generation Network Based on Multi-Resolution Feature Correlation

Zeyun Zhao (College of Computer Science and Technology, China); Changjian Wang and Zhen Huang (National University of Defense Technology, China); Yongheng Li and Gaojin He (College of Computer Science and Technology, China)

37: RTFormer: Re-Parameter TSBN Spiking Transformer

Hongzhi Wang and Xiubo Liang (Zhejiang University, China); Mengjian Li (Zhejiang Lab, China); Tao Zhang (Zhejiang University, China)

38: Group IF Units with Membrane Potential Sharing for High-Accuracy Low-Latency Spiking Neural Networks

Zhenxiong Ye (Guangdong University of Technology, China); Weiming Zeng (Hong Kong Baptist University, Hong Kong); Yunhua Chen and Ling Zhang (Guangdong University of Technology, China); Jinsheng Xiao (Wuhan University, China); Irwin King (The Chinese University of Hong Kong, Hong Kong)

39: Multi-Scale Harmonic Mean Time Surfaces for Event-Based Object Classification

Panpan Yang (Zhejiang University of Technology, China); Ziming Wang and Huajin Tang (Zhejiang University, China); Rui Yan (Zhejiang University of Technology, China)

40: STDP-Based Associative Memory Model on Spiking Neural Networks

Wenwu Jiang and Lei Wang (Zhejiang University of Technology, China); Lang Qin (Zhejiang University, China); Rui Yan (Zhejiang University of Technology, China)

41: An Event-Based Feature Representation Method for Event Stream Classification Using Deep Spiking Neural Networks

Limei Liang (Zhejiang University of Technology, China); Runhao Jiang and Huajin Tang (Zhejiang University, China); Rui Yan (Zhejiang University of Technology, China)

42: A Time-Surface Enhancement Model for Event-Based Spatiotemporal Feature Extraction

Haohui Ding, Jiaqiang Jiang and Rui Yan (Zhejiang University of Technology, China)

43: Analysis of Motor Imagery EEG Signals Based on Multi-Modal Spatio-Temporal Contrastive Learning

Qiaoli Zhou, Yongqiang Shi and Xiyuan Ye (Shenyang Aerospace University, China)

44: MAGAT-HOS: A Multi-Attention Graph Neural Network for Fake Review Detection by Incorporating High-Order Semantic Information

Yuanshuai Yao and Lirong Chen (Inner Mongolia University, China); Dongsong Zhang (The University of North Carolina at Charlotte, USA); Liuyang Qin (Inner Mongolia University, China)

45: LMGAN: A Progressive End-To-End Chinese Landscape Painting Generation Model

Yingqian Zhang, ShaoMin Xie and Xiangrong Liu (Xiamen University, China); Nian Zhang (Xiamen University of Technology, China)

46: Occlusion-Aware Visual-Language Model for Occluded Facial Expression Recognition

Ding Wang, Yu Gu, Liang Luo and Fuji Ren (University of Electronic Science and Technology of China, China)

47: FASN: Feature Aggregate Side-Network for Open-Vocabulary Semantic Segmentation

Daixi Jia, Lipeng Chen, Xingzhe Su, Fengge Wu and Junsuo Zhao (Chinese Academy of Sciences, China)

48: An Adaptive Spatio-Temporal Graph Structure Learning Model for Lithium-Ion Battery Pack State of Health Estimation

Canxing Lai and Xiaotong Tu (Xiamen University, China); Andreas Jakobsson (Lund University, Sweden); Xinghao Ding and Yue Huang (Xiamen University, China)

49: Rethinking Self-Supervised Learning for Cross-Domain Adversarial Sample Recovery

Yi Li, Plamen Angelov and Neeraj Suri (Lancaster University, UK (Great Britain))

50: Ensemble Adversarial Defense via Integration of Multiple Dispersed Low Curvature Models
KaiKang Zhao (SouthEast University, China); Xi Chen (PLA Information Engineering University, China); Wei Huang (Purple Mountain Laboratories, China); Liuxin Ding (Southeast University, China); XiangLong Kong (Purple Mountain Laboratories, China); Fan Zhang (National Digital Switching System and Engineering Technological Research Center, China)

51: OCGEC: One-Class Graph Embedding Classification for DNN Backdoor Detection
Haoyu Jiang, Haiyang Yu, Nan Li and Ping Yi (Shanghai Jiao Tong University, China)

52: Multiview Consistent Physical Adversarial Camouflage Generation Through Semantic Guidance
Heran Zhu (Wuhan University, China); Dazhong Rong (Zhejiang University, China)

53: Traffic Flow Estimation Methods During Highway Reconstruction
Yuanfu Guo (Southwest Jiaotong University-China, China)

54: T-Agent: A Term-Aware Agent for Medical Dialogue Generation
Zefa Hu (Institute of Automation, Chinese Academy of Sciences, China); Haozhi Zhao (University of Chinese Academy of Sciences, USA); Yuan yuan Zhao (CASIA, China); Shuang Xu (The Institute of Automation of the Chinese Academy of Sciences, China); Bo Xu (Institute of Automation, Chinese Academy of Sciences, China)

55: Dynamic Continual Learning: Harnessing Parameter Uncertainty for Improved Network Adaptation
Christopher Angelini and Nidhal Bouaynaya (Rowan University, USA)

56: Unsupervised Replay Strategies for Continual Learning with Limited Data
Anthony Anthony Bazhenov and Pahan Dewasurendra (Del Norte High School, USA); Giri Krishnan and Jean Erik Delanois (University of California San Diego, USA)

57: Adaptive Multi-Level Firing for Direct Training Deep Spiking Neural Networks
Haosong Qi and Shuang Lian (Zhejiang University, China); Xu Li (Central South University, China); Huajin Tang (Zhejiang University, China)

58: Efficient Online Learning for Networks of Two-Compartment Spiking Neurons
Yujia Yin, Xinyi Chen, Chenxiang Ma, Jibin Wu and Kay Chen Tan (The Hong Kong Polytechnic University, Hong Kong)

59: Complex Recurrent Variational Autoencoder for Speech Resynthesis and Enhancement
Yuying Xie, Thomas Arildsen and Zheng-Hua Tan (Aalborg University, Denmark)

60: Revitalizing Nash Equilibrium in GANs for Human Face Image Generation`
Ghazaleh Khodabandelou (University of Paris-Est Créteil, France); Chibani Abdelghani (UPEC University, France); Yacine Amirat (LISSI Laboratory, France)

61: Multipopulation evolutionary algorithm via seed transfer for multitasking traveling salesman problem

Haoyuan Lv, Ruochen Liu and Handing Wang (Xidian University, China)

62: Improved Discrete Fireworks Algorithm for Large Scale Knapsack Problem

Yifan Liu and Ying Tan (Peking University, China)

63: Multimodal Multi-objective Flexible Job Shop Scheduling: A preliminary study

Caitong Yue, Liming Liu, Jing Liang, Gongping Li, Ying Bi and Mingyuan Yu (Zhengzhou University, China)

64: A Historical Evolution Learning based Framework for Dynamic Multiobjective Optimization

Dezheng Zhang, Kunjie Yu and Jing Liang (Zhengzhou University, China); Boyang Qu (Zhongyuan University of Technology, China); Caitong Yue (Zhengzhou University, China); Ling Wang (Tsinghua University, China); Ke Chen (Zhengzhou University & School of Electrical and Information Engineering, China); Mengnan Liu (YTO Group Corporation, China)

65: A Cooperative Coevolutionary Approach to Designing Acceptance Tests for Jobs With Weakly Hard Real-Time Constraints

Karla Salamun and Hrvoje Džapo (University of Zagreb, Croatia)

66: Reliability-aware Network Slicing based on Multi-objective Optimization

Qiqi Xia (Southern University of Science and Technology, China); Jin Wang (Huawei Technologies Co. Ltd, China); Chengqiang Huang (Huawei, China); Xin Yao (Southern University of Science and Technology, China)

67: Multi-objective Optimization for Joint Communication and Computing Resource Allocation in NOMA-based MEC System

Hongzhe Wang and Lixin Tang (Northeastern University, China); Min Xiao (Xinyu Iron and Steel Co Ltd, China); Qingxin Guo (Northeastern University, China)

68: Evolutionary Dynamic Optimization-Based Calibration Framework for Agent-Based Financial Market Simulators

Zhenhua Yang, Muyao Zhong and Peng Yang (Southern University of Science and Technology, China)

69: Schizophrenia Detection using EEG: A Study on Frequency Relevance

Luís Alexandre (University of Beira Interior, Portugal); Wlodzislaw Duch (Nicolaus Copernicus University, Poland)

70: Brain Storm Optimization Based Swarm Learning for Diabetic Retinopathy Image Classification

Liang Qu (The University of Queensland, Australia); Cunze Wang (Fujian Medical University, China); Yuhui Shi (Southern University of Science and Technology, China)

71: NMT vs MLM: Which is the best paradigm for APR?

Chen YiHeng (Xidian University, China); Kai Huang (University of Chinese Academy of Sciences, China); He Wang and Zhang Yu qing (Xidian University, China)

72: Evolving Continuous Filter Convolutional Network Based on a Novel Multi-Objective Optimization Algorithm for Molecular Property Prediction

Yaguo Dong, Meiling Xu and Lixin Tang (Northeastern University, China)

16:20 – 16:40
Break

16:40 – 18:40
IJCNN S6_40: Deep Learning 3
Conference: IJCNN
Room: 301+302
Session Chair(s):

16:40 Enhancing Spatial-Temporal Awareness via Graph Convolutional Networks and Transformers for Traffic Flow Forecasting

Daoming Lu (South China Universuty of Technology, China)

17:00 Mining Oriented Information for Semi-Supervised Object Detection in Remote Sensing Images

Yuhao Wang (Beihang University, China); Lifan Yao, Xinye Zhang and Jiayun Song (Qingdao Research Institute of Beihang University, China); Haopeng Zhang (Beihang University, China)

17:20 Burst Super-Resolution with Diffusion Models for Improving Perceptual Quality

Kyotaro Tokoro, Kazutoshi Akita and Norimichi Ukita (Toyota Technological Institute, Japan)

17:40 Can Shape-Infused Joint Embeddings Improve Image-Conditioned 3D Diffusion?

Cristian Sbrolli, Paolo Cudrano and Matteo Matteucci (Politecnico di Milano, Italy)

18:00 ProDepDet: Out-Of-Domain Knowledge Transfer of Pre-Trained Large Language Models for Depression Detection in Text-Based Multi-Party Conversations

Yapa Hetti Pathirannahalage Prasan Priyadarshana (Kyoto University of Advanced Science, Japan); Zilu Liang (Kyoto University of Advanced Science & The University of Tokyo, Japan); Ian Piumarta (Kyoto University of Advanced Science, Japan)

18:20 Mask Consistency and Contrast Regularization for Prompt-Based Learning

Jen-Tzung Chien and Chien-Ching Chen (National Yang Ming Chiao Tung University, Taiwan)

16:40 – 18:40
IJCNN S6_41: Deep Learning 2
Conference: IJCNN
Room: 303+304
Session Chair(s): Yuansan Liu

16:40 Time Series Representation Learning with Supervised Contrastive Temporal Transformer
Yuansan Liu, Sudanthi Wijewickrema, Christofer Bester and Stephen O'Leary (University of Melbourne, Australia); James Bailey (The University of Melbourne, Australia)

17:00 D2GAN: A Dual-Domain Generative Adversarial Network for High-Quality PET Image Reconstruction
Li Jiang, Jiaqi Cui, Yuanyuan Xu, Yan Binyu, Jiliu Zhou and Yan Wang (Sichuan University, China); Dinggang Shen (ShanghaiTech University, China)

17:20 The Phenomenon of Correlated Representations in Contrastive Learning
Simon Klüttermann (TU Dortmund, Germany); Jérôme Rutinowski (TU Dortmund University, Germany); Emmanuel Müller (TU Dortmund, Germany)

17:40 Graph-Enhanced Knowledge Transfer Learning for Fashion Sequential Recommendation
Rucong Xu, Ming Li and Xin Liang (University of Electronic Science and Technology of China, China); Yun Li (University of Electronic Science and Technology of China, UK (Great Britain))

18:00 Leaky ReLUs That Differ in Forward and Backward Pass Facilitate Activation Maximization in Deep Neural Networks
Christoph Linse (University of Lübeck, Germany); Erhardt Barth (University of Luebeck, Germany); Thomas Martinetz (Universität zu Lübeck, Germany)

18:20 MLAAD: The Multi-Language Audio Anti-Spoofing Dataset
Nicolas Müller (Fraunhofer AISEC, Germany); Piotr Kawa (Wroclaw University of Science and Technology, Poland); Wei Herng Choong (Fraunhofer Institute for Applied and Integrated Security, Germany); Edresson Casanova and Eren Gölge (Coqui.ai, Germany); Thorsten Müller (Thorsten-Voice, Germany); Piotr Syga (Wroclaw University of Science and Technology, Poland); Philip Sperl (Fraunhofer AISEC, Germany); Konstantin Böttinger (Fraunhofer Research Institution AISEC, Germany)

16:40 – 18:40
IJCNN S6_42: Deep Learning 1
Conference: IJCNN
Room: 311+312
Session Chair(s): Junbin Gao

16:40 TMMM: Transformer in Multimodal Sentiment Analysis Under Missing Modalities
Huanyu Wu, Siyang Li and D. Wu (Huazhong University of Science and Technology, China)

17:00 Speed-Up Implicit Graph Neural Diffusion Model: A Simplified and Robust Strategy
Pengqing Shi and Junbin Gao (The University of Sydney, Australia)

17:20 CCSPNet-Joint: Efficient Joint Training Method for Traffic Sign Detection Under Extreme Conditions
Haoqin Hong, Yue Zhou, Xiangyu Shu and Xiaofang Hu (Southwest University, China)

17:40 Representing Knowledge Graph Triples Through Siamese Line Graph Sampling
Alexander Kalinowski and Yuan An (Drexel University, USA)

18:00 Hierarchical Fusion Framework for Multimodal Dialogue Response Generation
Qi Deng and Lijun Wu (University of Electronic Science and Technology of China, China); Kaile Su (Griffith University, Australia); Wei Wu (Central South University, China); Zhiyuan Li and Weiwei Duan (University of Electronic Science and Technology of China, China)

18:20 GADformer: A Transparent Transformer Model for Group Anomaly Detection on Trajectories
Andreas Lohrer, Darpan Malik, Claudius Zelenka and Peer Kröger (Kiel University, Germany)

16:40 – 18:40
IJCNN S6_43: Cross-Disciplinary Topics 2
Conference: IJCNN
Room: 313+314
Session Chair(s):

16:40 Enhancing Flow Embedding Through Trace: A Novel Self-Supervised Approach for Encrypted Traffic Classification
ZeFei Luo and Yu Li (Harbin Institute of Technology, Shenzhen, China); Shuaishuai Tan (Guangdong University of Technology, China); Daojing He (Harbin Institute of Technology, Shenzhen, China)

17:00 Spatial-Temporal Graph Representation Learning for Tactical Networks Future State Prediction
Junhua Liu and Justin Albrethsen (Singapore University of Technology and Design, Singapore); Lincoln Goh (Singapore Polytechnic, Singapore); David Yau and Kwan Hui Lim (Singapore University of Technology and Design, Singapore)

17:20 Cardinality and Bounding Constrained Portfolio Optimization Using Safe Reinforcement Learning

Yiran Li, Nanjiang Du, Xingke Song, Xiaoying Yang, Tianxiang Cui and Ning Xue (University of Nottingham Ningbo China, China); Amin Farjudian (University of Birmingham, UK (Great Britain)); Jianfeng Ren and Wooi Ping Cheah (University of Nottingham Ningbo China, China)

17:40 DM-BDD: Real-Time Vessel Trajectory Prediction Based on Diffusion Probability Model Balancing Diversity and Determinacy

Kun Ma, Qilong Han and Jingzheng Yao (Harbin Engineering University, China); Yuntao Zhang (Harbin Engineering University,China)

18:00 Indoor Surveillance Robot with Person Following and Re-Identification

Snehasis Banerjee, Abhijit Kumar and Apoorv Shekhar (TCS Research, India)

18:20 Iterative Filter Pruning for Concatenation-Based CNN Architectures

Svetlana Pavlitska (FZI Research Center for Information Technology & Karlsruhe Institute of Technology, Germany); Oliver Bagge (Karlsruhe Institute of Technology, Germany); Federico Peccia (FZI Research Center for Information Technology, Germany); Toghrul Mammadov (Karlsruhe Institute of Technology, Germany); J. Marius Zöllner (FZI Research Center for Information Technology, Germany)

16:40 – 18:40 **IJCNN S6_44:** Cross-Disciplinary Topics 1 **Conference:** IJCNN **Room:** 315 **Session Chair(s):**

16:40 Robust Imagined Speech Production from Electrocorticography with Adaptive Frequency Enhancement

Xu Xu (Northeastern University & Dalian University of Technology, China); Chong Fu (Northeastern University, China); Junxin Chen (Dalian University of Technology, China); Gwanggil Jeon (Incheon National University, Korea (South)); David Camacho (Universidad Politecnica de Madrid, Spain)

17:00 Unifying Global and Local Scene Entities Modelling for Precise Action Spotting

Kim Hoang Tran (FPT Software AI Center & VNUHCM-University of Science, Vietnam); Phuc Vuong Do (University of Science & Naver Vietnam Company, Vietnam); Ngoc Quoc Ly (VNUHCM-University of Science, Vietnam); Ngan Le (University of Arkansas, USA)

17:20 A Combination of LERT and CNN-BILSTM Models for Chinese Music Named Entity Recognition
Chaoguo Wang (Shandong Normal University, China); Liang Zhang (Shandong University, China); Wei Yan (Shandong Normal University, China)

17:40 Harmonizing Tradition with Technology: Using AI in Traditional Music Preservation
Tiexin Yu (Xiamen University, China); Xinxia Wang (UCSI University, Malaysia); Xu Xiao and Rongshan Yu (Xiamen University, China)

18:00 Correlated Equilibrium Based Online Real-Time Distributed Dynamic Task Scheduler for Multi-Agent Systems
Lokesh Kumar (TCS Research, India); Arup Kumar Sadhu (Tata Consultancy Services (TCS) & TCS Research, India); Ranjan Dasgupta (Tata Consultancy Services Ltd, India)

18:20 Self-Supervised Feature Representation Distillation for Esophageal Cancer Screening
Xiaoyu Yan, Yao Zhou and Zhang Yi (Sichuan University, China)

16:40 – 18:40
IJCNN S6_45: Applications 6
Conference: IJCNN
Room: 411+412
Session Chair(s): Savvas Papaioannou

16:40 Synergising Human-Like Responses and Machine Intelligence for Planning in Disaster Response
Savvas Papaioannou (KIOS CoE, University of Cyprus, Cyprus); Panayiotis Kolios, Christos Panayiotou and Marios Polycarpou (University of Cyprus, Cyprus)

17:00 RRdE: A Decision Making Framework for Language Agents in Interactive Environments
Xufeng Zhou (Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Linjing Li (Institute of Automation, China); Daniel Dajun Zeng (Chinese Academy of Sciences & School of Artificial Intelligence, University of Chinese Academy of Sciences, China)

17:20 AI-Augmented Framework to Enable Process Awareness in Collaborative Teams
Minh Khoi Nguyen (Institut de Recherche En Informatique de Toulouse, France); Hanh-Nhi Tran (University of Toulouse Paul Sabatier, France & Saint-Cyr Coetquidan Military Academy, CReC Saint-Cyr, France); Ileana Ober (IRIT - University of Toulouse, France); Razan S Abualsaud (IRIT, France)

17:40 Lightweight DenseNet Model with A Hybrid Attention Mechanism and A Cross-Module Channel Reuse Strategy for Edge Computing
Qun Liu and Junying Chen (South China University of Technology, China)

18:00 Mitigating the Curse of Dimensionality in Heart-Disease Risk Prediction Through the Use of Different Feature-Engineering Techniques
Sushree Chinmayee Patra (Amrita School of Computing-Bengaluru-India, India); Uma Maheswari B (Amrita School of Computing, Bengaluru, India); Rocío Pérez de Prado (University of Jaen, Spain)

18:20 High-Level Network-Based Detection of Oral Cancer from ATR-FTIR Spectroscopy
Ricardo B. Lima-Filho and Janayna M. Fernandes (Federal University of Uberlândia, Brazil); Donghong Ji (Wuhan University, China); Liang Zhao (University of Sao Paulo, Brazil); Robinson Sabino-Silva and Murillo G. Carneiro (Federal University of Uberlândia, Brazil)

16:40 – 18:40
IJCNN S6_46: Applications - SVM, Unsupervised learning and clustering, (including PCA, and ICA)
Conference: IJCNN
Room: 413
Session Chair(s): Keiji Tatsumi

16:40 Multiclass Piecewise-Linear SVMs Based on Division of Data Space for Determining the Reinforcement Degrees of Large-Scale Structures
Keiji Tatsumi (Osaka University, Japan)

17:00 HyperSR: A Hypernetwork Based Framework for Image Super-Resolution
Divya Mishra and Ofek Finkelstein (Ben Gurion University, Israel); Ofer Hadar (Ben Gurion University of the Negev, Israel)

17:20 Deep Root Cause Analysis: Unveiling Anomalies and Enhancing Fault Detection in Industrial Time Series
Hao Huang (GE Vernova Research, USA); Tapan Shah (GE Global Research, USA); John Karigiannis (GE Research, Canada); Scott C. Evans (GE Research, USA)

17:40 Deep Clustering for scRNA-Seq Analysis via Graph Attention Networks and Variational Autoencoders
Yufei Gao, Wenbo Zhang, Zhihua Xue, Lei Shi and Dandan Zhang (Zhengzhou University, China)

18:00 RecVAE-GBRT: Memory-Fused XGBoost for Time-Series Forecasting
Xiao Zheng, Saeed Asadi Bagloee and Majid Sarvi (The University of Melbourne, Australia)

18:20 Benchmarking Sentence Embeddings in Textual Stream Clustering with Applications to Campaign Detection
Lucas Stampe and Janina Susanne Lütke Stockdiek (University of Münster, Germany); Britta Grimme (Paderborn University, Germany); Christian Grimme (University of Münster, Germany)

16:40 – 18:40
CEC TH3-R10: SS on EC and CI for Scheduling and Combinatorial Optimization II
Conference: CEC
Room: 414+415
Session Chair(s): Fangfang Zhang

16:40 Multi-Objective Genetic-Programming Hyper-Heuristic for Evolving Interpretable Flexible Job Shop Scheduling Rules
Junwei Pang and Yi Mei (Victoria University of Wellington, New Zealand); Mengjie Zhang (VUW, New Zealand)

17:00 Crossover Operators Between Multiple Scheduling Heuristics with Genetic Programming for Dynamic Flexible Job Shop Scheduling
Luyao Zhu (Zhengzhou University, China); Fangfang Zhang (Victoria University of Wellington, New Zealand); Mengyuan Feng (China); Ke Chen (Zhengzhou University & School of Electrical and Information Engineering, China); Xiaodong Zhu (Zhengzhou University, China); Mengjie Zhang (VUW, New Zealand)

17:20 Designing Relocation Rules with Genetic Programming for the Online Container Relocation Problem
Marko Đurasević (University of Zagreb, Croatia); Mateja Đumić (J. J. Strossmayer University Osijek, Croatia); Francisco Javier Gil-Gala (University of Oviedo, Spain)

17:40 The Vehicle Routing Problem with Drones and Flexibility Demands
Hue Thi Tran (Banking Academy of Vietnam & Hanoi University of Science and Technology, Vietnam); Nguyen Ngoc Bao, Nguyen Tran Nhat Quoc, Pham Phu Manh, Nguyen Khanh Phuong, Huynh Thi Thanh Binh and Dang Quang Thang (Hanoi University of Science and Technology, Vietnam)

18:00 A Deep Reinforcement Learning Assisted Heuristic for Solving Traveling Salesman Problems
Ye Tian, Qinghui Zhu, Shuai Shao, Langchun Si and Xingyi Zhang (Anhui University, China)

18:20 An Interior-point Genetic Algorithm with Restarts for Flexible Job Shop Scheduling Problems
David Hutter (University of Applied Sciences Vorarlberg, Austria); Michael Hellwig and Thomas Steinberger (Vorarlberg University of Applied Sciences, Austria)

16:40 – 18:40
CEC TH3-R11: SS on Evolutionary Multi-Objective Machine Learning
Conference: CEC
Room: 416+417
Session Chair(s):

16:40 Recombination Operators for the Multi-objective Team Formation Problem in Social Networks

Julio Antonio Juárez (Tecnologico de Monterrey, Mexico); Carlos Brizuela (CICESE RESEARCH CENTER, Mexico); Hugo Terashima-Marín (Tecnologico de Monterrey, Mexico); Carlos Coello Coello (Cinvestav, Mexico)

17:00 Multiobjective Optimization with Mating Restriction via Wasserstein Generative Adversarial Networks

Honglei Cheng and Gai-Ge Wang (Ocean University of China, China); Ying Tian (College of Information Technology, China)

17:20 Enhanced Soil Property Estimations from Earth Observation Data with Differential Evolution-based Mul

Nikolaos L. Tsakiridis, Nikiforos Samarinas, Eleni Kalopesa, John Theocharis and George C Zalidis (Aristotle University of Thessaloniki, Greece)

17:40 Opposition-based Multi-objective ADAM Optimizer (OMAdam) for Training ANNs

Farzaneh Nikbakhtsarvestani (University of Ontario Institute of Technology, Canada); Shahryar Rahnamayan (Brock University, Canada); Mehran Ebrahimi (University of Ontario Institute of Technology, Canada)

18:00 A Multiobjective Particle Swarm Optimizer based Localized Feature Selection for Imbalanced Fault Diagnosis

Lin Gao, Yu Zhou and Hainan Guo (Shenzhen University, China); Sam Tak Wu Kwong (Lingnan University, Hong Kong)

16:40 – 18:40
CEC TH3-R12: SS on Numerical Optimization
Conference: CEC
Room: 418
Session Chair(s): Ponnuthurai Nagaratnam Suganthan

16:40 Performance of Beta Mutation on CEC 2017 and CEC 2022 Benchmarks
Yogesh Kumar and Kusum Deep (Indian Institute of Technology Roorkee, India)

17:00 Confidence Bands Based on Rating Demonstrated on the CEC 2021 Competition Results
Miha Ravber and Marjan Mernik (University of Maribor, Slovenia); Shih-Hsi Liu (California State University, USA); Marko Šmid and Matej Črepinšek (University of Maribor, Slovenia)

17:20 Differential Evolution with Success Rate-based adaptation CL-SRDE for Constrained Optimization
Vladimir Stanovov and Eugene Semenkin (Siberian State Aerospace University, Russia)

17:40 A modified EACOP implementation for Real-Parameter Single Objective Optimization Problems
Andrea Tangherloni (Bocconi University, Italy); Vasco Coelho (University of Milano-Bicocca, Italy); Francesca M. Buffa (Bocconi University, Italy); Paolo Cazzaniga (University of Bergamo, Italy)

18:00 Random and Chaotic Sequences, and the Effect of their Distributions on PSO Performance
Hendrik Richter and Paul M Nörenberg (HTWK Leipzig University of Applied Sciences, Germany)

18:20 Success Rate-based Adaptive Differential Evolution L-SRTDE for CEC 2024 Competition
Vladimir Stanovov and Eugene Semenkin (Siberian State Aerospace University, Russia)

16:40 – 18:40
CEC TH3-R13: SS on CI in Space and Aerospace II
Conference: CEC
Room: 419
Session Chair(s): Josy John

16:40 Multi-Objective Optimisation strategy for On-Orbit Fault-Tolerant Decision Making
Robert Cowlishaw, Ashwin Arulselvan and Annalisa Riccardi (University of Strathclyde, UK (Great Britain))

17:00 FlexKalmanNet: A Modular AI-Enhanced Kalman Filter Framework Applied to Spacecraft Motion Estimation
Moritz Duarte Pinheiro-Torres Vogt, Markus Huwald, Mohamed Khalil Ben-Larbi and Enrico Stoll (TU Berlin, Germany)

17:20 Neural Network-based Synchronisation of Free-Floating Space Manipulator's Joint Motion and Mother Spacecraft's Attitude for Active Debris Removal
Shabadini Sampath and Jinglang Feng (University of Strathclyde, UK (Great Britain))

17:40 A Neural Network Symbolic Approach to Structural Health Monitoring in Aerospace Applications
Federica Angeletti, Federico Succetti and Massimo Panella (University of Rome "La Sapienza", Italy); Antonello Rosato (Universita di Roma "La Sapienza", Italy)

18:00 Precise and Efficient Orbit Prediction in LEO with Machine Learning using Exogenous Variables

Francisco M. Caldas (NOVA University, Portugal); Cláudia Soares (NOVA University of Lisbon, Portugal)

18:20 Genetic Algorithm-based Routing and Scheduling for Wildfire Suppression using a Team of UAVs

Josy John and V Sundaram Suresh (Indian Institute of Science, India)

16:40 – 18:40
FUZZ TH3-R15: SS: Fuzzy machine learning
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Jie Lu

16:40 A Wide Fuzzy Apriori Classifier with Triple Diversity Guarantee from Feature, Sample and Rule Levels

Shitong Wang and Runshan Xie (Jiangnan University, China)

17:00 Enhancing Vision-Language Models Incorporating TSK Fuzzy System for Domain Adaptation

Kuo Shi (University of Technology Sydney, Australia); Jie Lu (UTS, Australia); Zhen Fang (University of Techonology Sydney, Australia); Guangquan Zhang (University of Technology, Sydney, Australia)

17:20 Detecting fake images using neuro-fuzzy inference systems: a brief comparative analysis

Tayasan Milinda Hewadaunda Gedara (Scuola IMT Alti Studi Lucca, Italy); Vincenzo Loia (University of Salerno, Italy); Stefania Tomasiello (University of Tartu, Canada)

17:40 eFedGauss: A Federated Approach to Fuzzy Multivariate Gaussian Clustering

Miha Ožbot (University of Ljubljana, Slovenia); Seiichi Ozawa (Kobe University, Japan); Igor Skrjanc (Slovenia)

18:00 Generalized Deep Embedded Fuzzy C-Means for Clustering High-Dimensional Data

Omar Ibrahim, Jianxi Wang, Marek Reformat and Petr Musilek (University of Alberta, Canada); James C. Bezdek (University of Melbourne, Australia)

18:20 Towards Unsupervised Sudden Data Drift Detection in Federated Learning with Fuzzy Clustering

Morris Stallmann, Anna Wilbik and Gerhard Weiss (Maastricht University, The Netherlands)

July 5, 2024

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8:30 – 10:10
IJCNN S5_6 Special Session: Neuromorphic/Brainmorphic AI Models, Hardware and Applications 2
Conference: IJCNN
Room: 211+212
Session Chair(s): Ninnart Fuengfusin

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8:30 Multi-Task and Continual-Learning Capabilities of Reservoir Computing Applied to Speech Recognition

Masahiko Ando (Hitachi Ltd., Japan)

8:50 CMOS Digital-Analog Mixed Signal VLSI Implementation of a Hippocampus-Inspired Model

Yuka Shishido, Osamu Nomura, Katsumi Tateno, Hakaru Tamukoh and Takashi Morie (Kyushu Institute of Technology, Japan)

9:10 Self-Aware Hierarchical Neuromorphic Architecture

Zilu Wang (Harbin Institute of Technology (Shenzhen), China); Xin Yao (Southern University of Science and Technology, China)

9:30 Robust Binary Encoding for Ternary Neural Networks Toward Deployment on Emerging Memory

Ninnart Fuengfusin, Hakaru Tamukoh, Osamu Nomura and Takashi Morie (Kyushu Institute of Technology, Japan)

9:50 Atrial Fibrillation Detector from ECG on Wearable Edge Devices Using Spiking Neural Networks

Dighanchal Banerjee (Tata Consultancy Services, India); Sounak Dey (TCS, India); Arpan Pal (Tata Consultancy Services, India)

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8:30 – 10:10
IJCNN S5_19: Large-scale Neural Networks
Conference: IJCNN
Room: 301+302+303+304
Session Chair(s): Jun Gao

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8:30 Guiding ChatGPT to Generate Salient Domain Summaries

Jun Gao, Ziqiang Cao, Shaoyao Huang, Luozheng Qin and Chunhui Ai (Soochow University, China)

July 5, 2024

8:50 HGSVerb: Improving Zero-Shot Text Classification via Hierarchical Generative Semantic-Aware Verbalizer

Zifeng Liu, Xu Huang, Weipeng Chen and Jin Liu (School of Computer Science, Wuhan University, China)

9:10 MEFold: Memory-Efficient Optimization for Protein Language Models via Chunk and Quantization

Yanfeng Jiang (Nankai University, China); Ning Sun (Zhejiang Lab, China); Zhengxian Lu (Nankai University, China); Shuang Peng, Yi Zhang and Fei Yang (Zhejiang Lab, China); Li Tao (Nankai University, China)

9:30 Disfluency Detection for Real-World Scenarios

Jianbang Ding, Suiyun Zhang and Dandan Tu (Huawei Technologies Co., Ltd, China)

9:50 Ship in Sight: Diffusion Models for Ship-Image Super Resolution

Luigi Sigillo and Riccardo Fosco Gramaccioni (Sapienza University of Rome, Italy); Alessandro Nicolosi (Leonardo Labs, Italy); Danilo Comminiello (Sapienza University of Rome, Italy)

8:30 – 10:10
IJCNN S5_20: Feature selection, extraction, and aggregation
Conference: IJCNN
Room: 311+312
Session Chair(s):

8:30 A Cross-Age Face Recognition Method Utilizing Nonlinear Decoupling of Multi-Level Features

Wentao Duan (China); Min Zhi (Inner Mongolia Normal University, China); Yanjun Yin (Nanjing University of Science and Technology & Inner Mongolia Normal University, China); Xiangwei Ge, Xuanhao Qi, Sr. and Wei Hu (Inner Mongolia Normal University, China)

8:50 LDCFormer: A Lightweight Approach to Spectral Channel Image Recognition

Xuanhao Qi, Sr. (Inner Mongolia Normal University, China); Yanjun Yin (Nanjing University of Science and Technology & Inner Mongolia Normal University, China); Min Zhi and Xiangwei Ge (Inner Mongolia Normal University, China); Qiaozhi Xu (Inner Mongolia University & Inner Mongolia Normal University, China); Wentao Duan (Inner Mongolia Normal University, China)

9:10 A Multi-Attention Network with Multi-Level Spatial-Spectral Feature Fusion Based on Band Selection for Hyperspectral Image Classification

Yujie Yan, Yi Liu, Yafeng Wang and Caihong Mu (Xidian University, China)

9:30 Towards Total Dynamicity of a Feature Selection Method Based on the Pareto Front

Anne Canuto (Federal University of RN, Brazil); Jhoseph Kelvin Lopes de Jesus and Daniel Araújo (Federal University of Rio Grande do Norte, Brazil)

414

8:30 – 10:10
IJCNN S5_21 Special Session: Machine Learning from Wearable Devices
Conference: IJCNN
Room: 313+314
Session Chair(s): Daniel Peralta

8:30 A Wearable Eye-Tracking Approach for Early Autism Detection with Machine Learning: Unravelling Challenges and Opportunities
Javier Lopez-Martinez, Purificación Checa, Jose Manuel Soto-Hidalgo, Isaac Triguero and Alberto Fernandez (University of Granada, Spain)

8:50 Improved Deep Learning Based ECG Classification Through Automated Feature Selection and Weighted Loss Function
Timo De Waele (Ghent University, Belgium); Daniel Peralta (Ghent University - Imec, Belgium); Eli De Poorter (Ghent University & Imec, Belgium); Adnan Shahid (Gent University - imec, Belgium)

9:10 Hierarchical Federated Learning Based on Ordinal Patterns for Detecting Sedentary Behavior
Pedro H Barros (Ufmg, Brazil); Judy C. Guevara and Leandro Villas (University of Campinas, Brazil); Daniel Guidoni (Universidade Federal de Ouro Preto, Brazil); Nelson L. S. da Fonseca (State University of Campinas, Brazil); Heitor S Ramos (Universidade Federal de Minas Gerais, Brazil)

9:30 Enhancing Control Strategies for Hand Exoskeletons Through Modeling and Electromyogram-Based Control
Norafizah Abas and Kalaiyarasan Ganasegaran (Universiti Teknikal Malaysia Melaka, Malaysia); Nor Maniha Abdul Ghani (Universiti Malaysia Pahang, Malaysia); Anuar Bin Mohamed Kassim (Universiti Teknikal Malaysia Melaka, Malaysia); Azman Abas (Universiti Kebangsaan Malaysia (UKM), Malaysia)

9:50 A Survey on Wearable Human Activity Recognition: Innovative Pipeline Development for Enhanced Research and Practice
Yiran Huang, Yexu Zhou, Haibin Zhao and Till Riedel (Karlsruhe Institute of Technology, Germany); Michael Beigl (KIT & TECO, Germany)

8:30 – 10:10
IJCNN S5_22: Applications
Conference: IJCNN
Room: 315
Session Chair(s): Héctor Alberto Fernández Bobadilla

8:30 GAN-Based Data Augmentation of Railway Track Irregularities for Fault Diagnosis
Héctor Alberto Fernández Bobadilla and Ullrich Martin (University of Stuttgart, Germany)

8:50 An Open-Source Cross-Industry and Cloud-Agnostic Generative AI Platform
Abbas Raza Ali (Citi & Bournemouth University, UK (Great Britain))

9:10 Two-Dimensional Seismic Velocity Inversion via Enhanced Multi-View Convolutional Neural Networks for Regression
Chuang Pan (Nanjing Normal University, China); Yiran Huang (Boston University, USA); Qingzhen Wang (CNOOC Research Institute Ltd, China); Jun Li and Jianhua Xu (Nanjing Normal University, China)

9:30 Neural Fractional Order PID Controller Embedded in an 8-Bit Microcontroller for Neonatal Incubator
Igor Rocha de Sousa (Federal University of Ceará, Brazil); Guilherme A. Barreto (Universidade Federal do Ceará, Brazil)

9:50 Improving the Performance of an Insect-Inspired Navigation Model Using Directional Selective Collision Detection
Luyu Feng, Xuelong Sun, Qinbing Fu, Jigen Peng and Haiyang Li (Guangzhou University, China)

8:30 – 10:10
IJCNN S5_23: Applications - Feedforward Neural Networks - 1
Conference: IJCNN
Room: 411+412
Session Chair(s): Fangfang Wang

8:30 Combining Pruning Strategies to Generate Efficient Inpainting Networks
Walber de Macedo Rodrigues and Felipe Nunes Walmsley (CIn/Samsung Research and Development Lab, Brazil); Jonysberg Quintino (Federal University of Pernambuco - UFPE, Brazil); Helder de Sousa Pinho (SiDi, Brazil); George D. C. Cavalcanti (Federal University of Pernambuco, Brazil)

8:50 BSSIC: Stereo Image Compression Based on Block Shift
Ya Qiao, Yongqi Zhai and Ronggang Wang (Peking University, China)

8:30 – 10:10
CEC FR1-R10: SS on Automating CI Systems: Trends, Challenges, and Future Directions I
Conference: CEC
Room: 414+415
Session Chair(s): Nelishia Pillay

8:30 Beyond `Novel' Metaphor-based Metaheuristics: An Interactive Algorithm Design Software
Diego Acosta-Ugalde, Jorge Mario Cruz-Duarte, Santiago Enrique Conant-Pablos and Jesús Guillermo Falcón-Cardona (Tecnologico de Monterrey, Mexico)

8:50 Impact of Scaling in ELA Feature Calculation on Algorithm Selection Cross-Benchmark Transferability
Gjorgjina Cenikj and Gašper Petelin (Jožef Stefan Institute & Jožef Stefan International Postgraduate School, Slovenia); Tome Eftimov (Jožef Stefan Institute, Slovenia)

9:10 Tailoring Metaheuristics for Designing Thermodynamic-Optimal Cooling Devices for Microelectronic Thermal Management Applications
Guillermo Perez-Espinosa, Jorge Mario Cruz-Duarte, Ivan Amaya, Jose Carlos Ortiz-Bayliss and Hugo Terashima-Marín (Tecnologico de Monterrey, Mexico); Nelishia Pillay (University of Pretoria, South Africa)

9:30 Dynamic Function Generation for Text Classification
Mia Gerber (University of Pretoria, South Africa); Nelishia Pillay (University of Pretoria, USA)

9:50 Dynamic Algorithm Composition for Image Segmentation
Mia Gerber (University of Pretoria, South Africa); Nelishia Pillay (University of Pretoria, USA)

8:30 – 10:10
CEC FR1-R11: Intelligent Network Systems and Cyber Security
Conference: CEC
Room: 416+417
Session Chair(s): Antonio M. Mora

8:30 Two-level Software Obfuscation with Cooperative Co-evolutionary Algorithms
José Miguel Aragón-Jurado, Javier Jareño, Juan Carlos de la Torre and Patricia Ruiz (University of Cádiz, Spain); Bernabe Dorronsoro (Universidad de Cádiz, Spain)

8:50 Differential Evolution Algorithm for Battlefield Surveillance Sensor Placement
Ehab Elfeky (University of New South Wales, Australia); Gregory D Sherman (DST Edinburgh, Australia); Saber Elsayed (University of New South Wales, Australia); Md Hedayetul Islam Shovon and Riley Lodge (DST Edinbrugh, Australia); Benjamin Campbell (Defence Science and Technology Group, Australia); Daryl Essam and Ruhul Sarker (University of New South Wales, Australia)

9:10 Applying Evolutionary Algorithms for Service Function Chaining in 5G Networks
Antonio M. Mora, Javier Victoria Mohammed and Nuria Medina Medina (University of Granada, Spain); Juan Valenzuela-Valdés (Universidad de Granada, Spain)

9:30 Application of a Bi-objective EA for RAN Resources Optimization in a Dynamic Scenario
Markus Rothkoetter (Otto-Von-Guericke University Magdeburg, Germany); Niklas Kluge (Otto Von Guericke University Magdeburg, Germany); Sanaz Mostaghim (Otto von Guericke University Magdeburg, Germany)

8:30 – 10:10
CEC FR1-R12: Late Breaking I
Conference: CEC
Room: 418
Session Chair(s): Raul de Celis

8:30 Generalized Carrier Phase Ambiguity Resolution for Precise Attitude Estimation Using Neural Networks and GNSS Sensors
Raul de Celis (Aerospace Systems and Transport Research Group, Spain)

8:50 Hyper-Heuristics for a Two-Echelon Location-Routing Problem with Different Intermediate Facilities
Rebecca M Hamm (Lancaster University (Lancaster), UK (Great Britain)); Ahmed Kheiri and Burak Boyaci (Lancaster University, UK (Great Britain))

9:10 Advanced Transformer-Based Model for Phishing Attack Detection using Tokenization and Fine-Tuning
Rachana Potpelwar (Shri Guru Gobind Singhji Institute of Engineering and Technolog, India)

9:30 Computational Intelligence for Automatically Labeling Human Somatosensory Types and Decoding Human Somatosensory Sensitivity
Li-Wei Ko, Congying He, Cheng-Hua Su, Hao-Yuan Lin and Li-Ling Hope Pan (National Yang Ming Chiao Tung University, Taiwan); Shuu-Jiun Wang (Taipei Veterans General Hospital, Taiwan)

8:30 – 10:10
CEC FR1-R13: Late Breaking II
Conference: CEC
Room: 419
Session Chair(s):

8:30 Towards Generalization of Multi-Objective Optimization for Flux Balance Analysis Problems in Genome Scale Metabolic Models
Carlos Felipe Coello Castillo (UAM Cuajimalpa, Mexico); Carlos Coello Coello (Cinvestav, Mexico)

8:50 A Multi-Objective Evolutionary Learning Method for Bearing Fault Diagnosis
Dan Wang (Northeastern University & National Frontiers Science Center for Industrial Intelligence and Systems Optimization, China); Chang Liu and Lixin Tang (Northeastern University, China)

9:10 Realising chiller plant optimisation via Artificial Neural Networks and hybrid Genetic Algorithm and Particle Swarm Optimisation Algorithm
Kam Chun Lam (Electrical and Mechanical Services Department, HKSAR, Hong Kong); Wai Leuk Chiu and Wing Hung Lam (Electrical and Mechanical Services Department, Hong Kong); Wing Kwan Yu (Electrical and Mechanical Services Department, Hong Kong Special Administrative Region Government, Hong Kong); Tsz Yan Ip (Electrical and Mechanical Services Department, Hong Kong)

9:30 Evolutionary Multi-Objective Optimization and Pareto Solution Trade-Off Strategy for Edge Computing Task Offloading
Yingying Sun (Northeastern University, China)

8:30 – 10:10
FUZZ FR1-R15: SS: Human Symbiotic Systems Part 1
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Tsuyoshi Nakamura

8:30 Impression Effect of Educational Support Robots that Facilitating Improvement in the Number of Problems Based on Politeness Theory
Hiroki Kaede and Felix Jimenez (Aichi Prefectural University, Japan); Tomoki Miyamoto (The University of Electro-Communications, Japan)

8:50 Continuous Person Recognition on Balloon Robot using TSK Fuzzy Classifier with Face and Body Regions for Social Distance Purposes
Chyan Zheng Siow, WeiHao Wang, Takenori Obo and Naoyuki Kubota (Tokyo Metropolitan University, Japan)

9:10 Psychological Effects of Agents Having Complementary Relationships with People
Tomoyoshi Fukawa and Masayoshi Kanoh (Chukyo University, Japan)

9:30 Fundamental Consideration on Intelligence Tests Training Robot
Ikue Ishikawa and Felix Jimenez (Aichi Prefectural University, Japan); Mayu Mitani (Nagoya University, Japan); Takahiro Nakajima (Nagoya University of Arts and Sciences, Japan); Shoko Yoshida (Japanese Red Cross Aichi Medical Center Nagoya Daiichi Hospital, Japan)

8:30 – 10:10
FUZZ FR1-R16: Fuzzy Set theory, Fuzzy measures, fuzzy integrals
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Marie-Jeanne Lesot

8:30 Generalized intuitionistic fuzzy programming for non-linear multiobjective optimization using t-norms and t-conorms
Abhishek Chauhan and Sumati Mahajan (Punjab Engineering College, Chandigarh, India)

8:50 Grouping Indices: definition, properties and construction methods
Graçaliz Dimuro (Federal University of Rio Grande, Brazil); Helida Salles Santos (Universidade Federal do Rio Grande, Brazil); Asier Urio-Larrea (Universidad Publica de Navarra, Spain); Tiago Asmus (Universidade Federal do Rio Grande, Brazil); Giancarlo Lucca (Universidade Federal do Rio Grande - FURG, Brazil); Maria Eugenia Parodi (Universidade Federal do Rio Grande, Brazil); Heloisa Camargo (Universidade Federal de São Carlos, Brazil); Humberto Bustince (Universidad Publica de Navarra, Spain)

9:10 Application of the Fuzzy Finite Pointset Method to the numerical modeling of tissue laser irradiation
Anna Korczak (Silesian University of Technology, Poland)

9:30 Upper Boundary Algebra for Modeling the Missing Values Is a Residuated Lattice
Nhung Cao (Institute for Research and Applications of Fuzzy Modeling, University of Ostrava, Czech Republic); Martin Štěpnička (University of Ostrava, Czech Republic)

9:50 A Maximin Approach to Elicit Gödel Integral in an XAI Context
Agnès Rico (University Claude Bernard, France); Marie-Jeanne Lesot (LIP6, Sorbonne Université, France); Christophe Marsala (Sorbonne Universite & LIP6, France)

8:20 – 17:00
Exhibition
Room: 501+502

10:10 – 10:30
Break

10:30 – 11:30
WCCI 2024 Plenary talk by Saori Tanaka
Room: 301+302+303+304
Session Chair(s): Kazushi Ikeda

Utilization of large-scale brain image database for digitalization of psychiatric and neurological disorders
Saori Tanaka
NAIST, ATR

In recent years, neuroimaging databases for psychiatric and neurological disorders have enabled users to find common and disease-specific features and redefine disease spectra using data-driven approaches. In the Brain/MINDs beyond (2018-2023), the neuroimaging database projects have established the multiple sites, multiple disorders MRI database.

A remarkable feature of this database is the traveling-subjects dataset; each participant was scanned at each multisite. This led to the development of a harmonization method to reduce site differences and the development of a generalizable diagnostic marker with brain networks of major depressive disorder (Yamashita, et al., 2020). This database has expanded to 14 disorders and over 16 sites, and over 5,000 MRI data will be collected by the end of the project. This will be the largest MRI database of multiple neurological and psychiatric disorders from multiple sites. In addition, this database includes longitudinal patient data, allowing for the evaluation of treatment effects. This database is expected to lead to the stratification and the development of new treatment methods. Here, as a potential use of the database, I will suggest an integration with approaches based on the computational theory of the brain in addition to data-driven approaches. Computational neuroscience studies understanding the brain mathematically focused on the neural mechanisms of information processing. In recent years, these approaches have been applied to understanding psychiatric disorders. I will show some previous studies using large-scale behavioral data and computational models of psychiatric disorders and demonstrate possibilities of fusion with computational models and neuro-behavioral databases.

11:30 – 13:00
Lunch Time

13:00 – 14:00
Keynote talk by Divyashree-Shivakumar Sreepathihalli
Conference: IJCNN
Room: 301+302
Session Chair(s): Seiichi Ozawa

Keras, A shortcut to master AI
Divyashree-Shivakumar Sreepathihalli
Google

Discover the transformative capabilities of the Keras 3 API. Delve into deep learning best practices, where you'll gain insights into crafting uncomplicated models and executing them with your preferred backend—be it PyTorch, TensorFlow, or JAX. Explore the dynamic potentials of KerasNLP and KerasCV modules, unveiling the art of constructing powerful AI applications. Witness the seamless creation of generative image and language models, empowering you to achieve remarkable feats with just a few lines of code.

13:00 – 14:00
Keynote talk by Tobias Rodemann
Conference: CEC
Room: 303+304
Session Chair(s): Bing Xue

Trust in Optimization Algorithms – The End User Perspective
Tobias Rodemann
Honda Research Institute Europe

Evolutionary Algorithms have a potentially wide-spread usage. They can deal with various types of design parameters, constraints and objectives; non-linear, discontinuous, noisy fitness landscapes and many, even conflicting objectives can be handled. There are numerous open-source software packages for quickly applying EA methods on various problems. In practice, however, EAs are not used as frequently as we would hope. In this talk I would like to provide some insights from industrial projects and focus especially on the perspective of the end user. I will argue that hot topics in ML like trust, transparency and explainability, also need to be considered in Computational Intelligence.

13:00 – 14:00
Keynote Talk by Gabriella Pasi
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Annabel Latham

Large Language models: contextual knowledge matter
Gabriella Pasi
University of Milano Bicocca

The last few years have witnessed an increasing development of generative AI and its applications, which culminated in the large-scale sharing of ChatGPT on the Web, with its related potentials, risks and limitations. Large Language Models are one of the possible technologies at the basis of generative AI; they are nowadays successfully applied to a variety of NLP tasks, among which are machine translation, conversational agents, and several others. Despite this, LLMs are affected by some limitations, among which a lack in accounting for contextual knowledge related to the task at hand. A research trend is to inject such knowledge (in-context) into LLMs via prompting techniques. A more recent and promising research direction is to make use of neuro-symbolic approaches, to better model and control the process. In this talk, after a short introduction to LLMs, I will present some possible approaches finalized to this latter aim. I will also present the research issue of defining personal language models, i.e. LLMs tailored on the language of specific users or groups of users.

14:00 – 14:20
Break

14:20 – 16:20
IJCNN S6_47: Applications - Supervised learning 5
Conference: IJCNN
Room: 211+212
Session Chair(s): Gaurab Bhattacharya

14:20 Memory-Facilitated Joint-Space Shift Adaptation in Traffic Forecasting
Ye Wei (Loughborough University & The Alan Turing Institute, UK (Great Britain)); He Haitao and Gerald Schaefer (Loughborough University, UK (Great Britain)); Zhigang Ji (Shanghai Jiao Tong University, China); Yifan Wang and Hui Fang (Loughborough University, UK (Great Britain))

14:40 Exomoon Localization in Simulations Using YOLO

Alejandra Fernández (University of Concepción, Chile); Guillermo Cabrera (University of Chile, Chile); Cristóbal Donoso (University of Concepción, Chile); Alice Zurlo (Universidad Diego Portales, Chile); Cecilia Lazzoni (University of Exeter, UK (Great Britain)); Pedro Nogueira and Trisha Bhowmik (Universidad Diego Portales, Chile)

15:00 Location-Aware Fashion Attribute Recognition and Retrieval

Gaurab Bhattacharya, B S Vivek, Parvatam Rajith Bhargav and Jayavardhana Gubbi (TCS Research, India); Bagya Lakshmi V and Arpan Pal (Tata Consultancy Services, India)

15:20 Human Behavior Modeling in Speech Transcribing Process via Pretrained Speech Recognition Models

Thang Ta (Viettel Cyberspace Center, Viettel Group, Vietnam); Minh Khang Pham (Viettel Group, Vietnam); Nhat Minh Le (Viettel Cyberspace Center, Viettel Group, Vietnam); Van Hai Do (Viettel Group, Singapore)

15:40 A Knowledge Distillation-Driven Lightweight CNN Model for Detecting Malicious Encrypted Network Traffic

Yuecheng Wen, Xiaohui Han, Wenbo Zuo and Weihua Liu (Qilu University of Technology, China)

16:00 Fine-Grained Depth Knowledge Distillation for Cloth-Changing Person Re-Identification

Yuhan Yao, Jiawei Feng and Ancong Wu (Sun Yat-Sen University, China); Jiangqun Ni and Wei-Shi Zheng (Sun Yat-sen University, China)

14:20 – 16:20
IJCNN S6_48: Applications - Supervised learning 4
Conference: IJCNN
Room: 301+302
Session Chair(s): Qingchao Kong

14:20 Generating Relevant Article Comments via Variational Multi-Layer Fusion

Hanyi Zou (Chinese Academy of Sciences, China); Huifang Xu (China Electric Power Research Institute, China); Qingchao Kong and Yilin Cao (Chinese Academy of Sciences, China); Wenji Mao (Chinese Academy of Sicences, China)

14:40 Enhancing DreamBooth with LoRA for Generating Unlimited Characters with Stable Diffusion

Rubén Pascual (Universidad Pública de Navarra, Spain); Adrian Maiza (Universidad Publica de Navarra, Spain); Mikel Sesma-Sara (Public University of Navarre, Spain); Daniel Paternain (Universidad Publica de Navarra, Spain); Mikel Galar (Public University of Navarre, Spain)

15:00 OSRNet: Online Signature Recognition Network Utilising Spatio-Temporal Features Extracted from Signature Video

Anurag Pandey and Pushap Deep Singh (IIT Mandi, India); Divya Acharya (HCLTech, India); Arnav Bhavsar and Aditya Nigam (IIT Mandi, India)

15:20 Can an Image Tell the Tale: Looking Beyond the Haze to Determine PM2.5 Concentration

Sagarnil Chakraborty (Indian Statistical Institute, India); Sarbani Palit (Indian Statistical Institute, Calcutta, West Bengal, India); Harsh Bhandari (Indian Statistical Institute, India)

15:40 Automated Measurement of Brainstem-Vermis and Brainstem-Tentorium Angles in Fetal MRI Images Based on Landmark Detection

Xiaosong Wei, Lei Zhang, Wei Huang, Jiayan She, Jiaxi Wang and Gang Ning (Sichuan University, China)

16:00 Comparative Evaluation of Continual Learning Methods in Financial and Industrial Time-Series Data

Reshawn J Ramjattan, Daniele Atzeni and Daniele Mazzei (University of Pisa, Italy)

14:20 – 16:20
IJCNN S6_49: Applications - Supervised Learning 3
Conference: IJCNN
Room: 303+304
Session Chair(s):

14:20 ReconGait: Giant Panda Gait Recognition Based on Spatio-Temporal Feature Reconstruction

Peng Min and Han Su (Sichuan Normal University, China); Mengnan He, Rong Hou, Pinjia Que and Peng Chen (Chengdu Research Base of Giant Panda Breeding, China)

14:40 Identifying the Determinants of Infant and Youth Mortality in Portugal: A Machine Learning Approach

Beatriz Pereira Lourenço (IDMEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Miguel Santos Loureiro, Filipe Miguel Pereira Santos, Rodrigo Saragoça Boal Ventura and Ricardo Miguel Alves Magalhães (IDMEC - Instituto Superior Técnico - Universidade de Lisboa, Portugal); Vera Dantas and Matilde Valente Rosa (Social Data Lab, Portugal); Cristina Bárbara (Faculdade de Medicina - Universidade de Lisboa, Portugal); João Sousa (IDMEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Susana Vieira (Universidade de Lisboa - Instituto Superior Técnico, Portugal)

15:00 Online Event Detection in Streaming Time Series: Novel Metrics and Practical Insights
Janio Lima (Federal Center for Technological Education of Rio de Janeiro, Brazil); Lucas Tavares (CEFET/RJ, Brazil); Esther Pacitti (INRIA - University of Montpellier, France); Joao Ferreira (Instituto de Matemática e Estatística, Brazil); Ismael Santos (Petrobras/CENPES, Brazil); Isabela Guimarães Siqueira (Petrobras, Brazil); Diego Carvalho (Federal Centre for Engineering Studies and Technological Education - CEFET/RJ, Brazil); Fabio Porto (LNCC, Brazil); Rafaelli de Carvalho Coutinho (Centro Federal de Educação Tecnológica Celso Suckow da Fonseca, Brazil); Eduardo Ogasawara (CEFET/RJ, Brazil)

15:20 CRTGAN: Controllable Road Network Graphs Generation via Transformer Based GAN
Tao Li, Ruihang Li and Shanding Ye (Zhejiang University, China); Zehua Zhang (Zejiang University, China); Zhe Yin, Shijian Li and Zhijie Pan (Zhejiang University, China)

15:40 Uncertainty-Aware Multi-View Arrhythmia Classification from ECG
Mohd Ashhad, Sana Rahmani, Mohammed Fayiz, Ali Etemad and Javad Hashemi (Queen's University, Canada)

16:00 Semantic Fusion Based Graph Network for Video Scene Detection
Ye Tian, Yang Liu, Mengyu Yang and Zhang Lanshan (Beijing University of Posts and Telecommunications, China); Zhigang Li (Zhengzhou University of Light Industry, China)

14:20 – 16:20
IJCNN S6_50: Applications - Supervised learning 2
Conference: IJCNN
Room: 311+312
Session Chair(s): Xinliang Zhang

14:20 KSAG-Net:: Kernel-Size Attention Guidance Dual-Branch Network for Coronary Artery Segmentation
Xiuquan Du and Weijian Gao (Anhui University, China)

14:40 Sribble Supervised Multimodal Medical Image Segmentation
Zheng Wang, Xinliang Zhang and Junkun Zhao (Tianjin University, China)

15:00 Hierarchical Linear Symbolized Tree-Structured Neural Processes
Jinyang Tai (Shanghai University, China); Guo Yike (The Hong Kong University of Science and Technology, China)

15:20 Coddora: CO2-Based Occupancy Detection Model Trained via Domain Randomization
Manuel Weber (Munich University of Applied Sciences, Germany); Farzan Banihashemi (Technical University of Munich, Germany); Davor Stjelja (Aalto University, Finland); Peter Mandl (Munich University of Applied Sciences, Germany); Ruben Mayer (University of Bayreuth, Germany); Hans-Arno Jacobsen (University of Toronto, Canada)

15:40 A Word and Local Feature Aware Network for Chinese Spoken Language Understanding
Na Xu (Southern University of Science and Technology & Huawei, China); Yuwei Yin (Huawei, China); Yulong Ding (Southern University of Science and Technology, China); Shuang-Hua Yang (University of Reading, UK (Great Britain) & Southern University of Science and Technology, UK (Great Britain))

16:00 Multi-Label Defect Classification of Large Concrete Structures Using Vision Graph Neural Network with Edge Convolution
MD Sazzad Hossen and Avimanyu Sahoo (University of Alabama in Huntsville, USA); Wang Huaxia (Rowan University, USA)

14:20 − 16:20
IJCNN S6_51: Applications - Supervised learning 1
Conference: IJCNN
Room: 313+314
Session Chair(s): Kelvin Du

14:20 A Dynamic Dual-Graph Neural Network for Stock Price Movement Prediction
Kelvin Du and Rui Mao (Nanyang Technological University, Singapore); Frank Xing (National University of Singapore, Singapore); Erik Cambria (Nanyang Technological University, Singapore)

14:40 MSMFNet: Multi-Modal Fusion Gesture Recognition Network with Multi-Scale Integration of AUS and sEMG
Jiayu Pan and Jiacheng Chen (Zhejiang University of Technology, China); Sheng Wei (Zhejiang University, China); Jie Pan (Zhejiang University of Technology, China); Zheng Wang (Hangzhou City University, China)

15:00 Mask Focal Modulation Network for Gastric Intestinal Metaplasia Segmentation
Yu-Ting Chen (National Chung Hsing University, Taiwan); Er-Hsiang Yang (National Cheng Kung University Hospital, Taiwan); Wei-Lun Chang (National Cheng Kung University, Taiwan); Jason Lin (National Chung Hsing University, Taiwan); Hsiu-Chi Cheng (National Cheng Kung University, Taiwan); Chun-Rong Huang (National Chung-Hsing University, Taiwan)

15:20 RoMATer: An End-To-End Robust Multiaircraft Tracker with Transformer
Xujie He, Jing Jin, Duo Chen, Cangtian Zhou, Jiale Jiang and Yuhan Chen (Harbin Institute of Technology, China)

15:40 Integrating Pretrained CNNs with One-Class Classifiers for Fault-Agnostic Electrical Submersible Pumps Anomaly Detection
Nilo Garcia Monteiro, Luciano Henrique Peixoto da Silva and Alexandre Loureiros Rodrigues (Universidade Federal do Espírito Santo, Brazil); Flávio Varejão (Universidade Federal do Espirito Santo, Brazil); Marcos Pellegrini Ribeiro (Petrobras, Brazil); Thiago Oliveira-Santos (Universidade Federal Do Espirito Santo, Brazil)

16:00 Inpainting-Driven Mask Optimization for Object Removal
Kodai Shimosato and Norimichi Ukita (Toyota Technological Institute, Japan)

14:20 – 16:20
IJCNN S6_52: Applications - Supervised learning, Reinforcement learning and SOM
Conference: IJCNN
Room: 315
Session Chair(s):

14:20 Flow-Aware Scheduling with Graph Neural Network Routing for Resource Efficiency in Time-Sensitive Networking
Xinyi Hong, Yuhao Xi and Peng Liu (Zhejiang University, China)

14:40 A Multi-Agent Deep Reinforcement Learning Framework for the Stable Landing of a Flexibly Connected Three-Node Space Probe
Kang Fu (Beijing Institute of Technology, China); Qingjie Zhao (School of Computer Science, Beijing Institute of Technology, China)

15:00 CuriousRL: Curiosity-Driven Reinforcement Learning for Adaptive Locomotion in Quadruped Robots
Sushil Bohara and Muhammad Abdullah Hanif (New York University Abu Dhabi, United Arab Emirates); Muhammad Shafique (NYU Abu Dhabi, United Arab Emirates)

15:20 Heteroassociative Mapping with Self-Organizing Maps for Probabilistic Multi-Output Prediction
Rewbenio A. Frota (Pontifical Catholic University of Rio de Janeiro (PUC-Rio) & PETROBRAS, Brazil); Marley Vellasco (Pontifícia Universidade Católica do Rio de Janeiro, Brazil); Guilherme A. Barreto (Universidade Federal do Ceará, Brazil); Candida Menezes de Jesus (PETROBRAS, Brazil)

15:40 A ROS-Based Data-Driven Motion Self-Recognition System Using Deep-Learning Convolutional Neural Networks in a Military Unmanned Ground Vehicle
Fendy Santoso (AI and Cyber Futures Institute, Charles Sturt University, Australia); Anthony Finn (Uni SA, Australia)

16:00 RSZero-CSAT: Zero-Shot Scene Classification in Remote Sensing Imagery Using a Cross Semantic Attribute-Guided Transformer

Damalla Rambabu and Swetha G (Indian Institute of Technology Hyderabad, India); Datla Rajesh Reddy (ADRIN, India); Vishnu Chalavadi (IIT Tirupati, India); C Krishna Mohan (IIT Hyderabad, India)

14:20 – 16:20
IJCNN S6_53: Applications - Recurrent and Reinforcement Learning
Conference: IJCNN
Room: 411+412
Session Chair(s):

14:20 Temporal Stamp Classifier: Classifying Short Sequences of Astronomical Alerts

Daniel A. Neira (Universidad de Chile, Chile); Pablo A Estévez (University of Chile, Chile); Francisco Förster (Universidad de Chile, Chile)

14:40 Joint Extraction of Entities and Relationships from Cyber Threat Intelligence Based on Task-Specific Fourier Network

Haiqing Lv, Xiaohui Han, Hui Cui, Peipei Wang, Wenbo Zuo and Yang Zhou (Qilu University of Technology, China)

15:00 Multi-AUV Assisted Seamless Underwater Target Tracking Relying on Deep Learning and Reinforcement Learning

Jingzehua Xu (Tsinghua University & Tsinghua Shenzhen International Graduate School, China); Yimian Ding (Zhejiang University, China); Zekai Zhang (Tsinghua University, China); Guanwen Xie (Zhejiang University, China); Ziyuan Wang (Tsinghua University, China); Yongming Zeng and Gang Li (Zhejiang University, China)

15:20 Knowledge-Guided Reinforcement Learning for Low-Resource Unsupervised Syllabification

Wenjun Wang, Ling Dong, Zhengtao Yu, Yuxin Huang, Junjun Guo and Shengxiang Gao (Kunming University of Science and Technology, China)

15:40 The Power of Hybrid Learning in Industrial Robotics: Efficient Grasping Strategies with Supervised-Driven Reinforcement Learning

Vincenzo De Paola (Politecnico di Milano & Siemens SPA, Italy); Giuseppe Calcagno, Alberto Maria Metelli and Marcello Restelli (Politecnico di Milano, Italy)

16:00 Advancing Pandemic Preparedness Through a Data-Driven Hybrid Simulation Model

Shaon Bhatta Shuvo (University of Windsor, Canada); Jyoti Das (University of Alberta, Canada); Ziad Kobti and Narayan Kar (University of Windsor, Canada)

14:20 Time-Series Initialization and Conditioning for Video-Agnostic Stabilization of Video Super-Resolution Using Recurrent Networks

Hiroshi Mori and Norimichi Ukita (Toyota Technological Institute, Japan)

14:40 A Bio-Inspired and Solely Vision-Based Model for Autonomous Navigation

Tingtao Chen, Xuelong Sun, Qinbing Fu, Ziyan Qin and Jigen Peng (Guangzhou University, China)

15:00 Automated Patient-Specific C1-C2 Posterior Cervical Fusion Screw Trajectory Planning Using 3D Deep Learning

Yau-Zen Chang and Sanny Kumar Sahani (Chang Gung University, Taiwan); Chieh-Tsai Wu (Linkou Chang Gung Memorial Hospital, Taiwan)

15:20 Deep Learning Methodology for the Identification of Wood Species Using High-Resolution Macroscopic Images

David Herrera-Poyatos, Andrés Herrera Poyatos and Rosa Ana Montes Soldado (University of Granada, Spain); Paloma De Palacios, Luis García Esteban, Alberto García Iruela and Francisco García Fernández (Technical University of Madrid, Spain); Francisco Herrera (University of Granada, Spain)

15:40 A Fuzzy Convolutional Neural Network for the Classification of Aerosol Particle Mass Spectral Patterns Generated by Single-Particle Mass Spectrometry

Guanzhong Wang (University of the Bundeswehr Munich, Germany); Heinrich Ruser (Bundeswehr University Munich, Germany); Julian Schade (University of the Bundeswehr Munich, Germany); Johannes Passig and Ralf Zimmermann (University of Rostock, Germany); Günther Dollinger and Thomas Adam (University of the Bundeswehr Munich, Germany)

16:00 MI-Dropout: Enhancing Feature Learning Capabilities in Neural Networks

Zi Chen Song (Lanzhou University & Huaibei People's Hospital, China); Zi Yang Chen (Dalian University of Technology, China)

14:20 – 16:20
CEC FR2-R10: SS on Automating CI Systems: Trends, Challenges, and Future Directions II
Conference: CEC
Room: 414+415
Session Chair(s): Jorge Mario Cruz-Duarte

14:20 Neural Combinatorial Optimization by means of Partial Solution Strategies
Andoni Irazusta Garmendia (University of the Basque Country, Canada); Josu Ceberio (UPV/EHU, Spain); Alexander Mendiburu (University of the Basque Country, Spain)

14:40 Beyond Traditional Tuning: Unveiling Metaheuristic Operator Trends in PID Control Tuning for Automatic Voltage Regulation
Daniel Fernando Zambrano-Gutierrez, Jorge Mario Cruz-Duarte, Jose Carlos Ortiz-Bayliss and Ivan Amaya (Tecnologico de Monterrey, Mexico); Gabriel Aviña-Cervantes (Universidad de Guanajuato, Mexico)

15:00 An Experimental Analysis on Automated Machine Learning for Software Defect Prediction
Márcio Basgalupp (Universidade Federal de São Paulo, Brazil); Rodrigo C Barros (PUCRS, Brazil & Teia Labs, Brazil); Tiago Silva (Universidade Federal de São Paulo, Brazil); Fábio Silveira (Federal University of Sao Paulo, Brazil); Péricles Miranda (Universidade Federal Rural de Pernambuco, Brazil); Ferrante Neri (University of Surrey, UK (Great Britain))

15:20 Evolving Benchmark Functions to Compare Evolutionary Algorithms via Genetic Programming
Yifan He (Zhejiang University of Finance and Economics, China); Claus Aranha (University of Tsukuba, Japan)

15:40 Generalization Ability of Feature-based Performance Prediction Models: A Statistical Analysis across Benchmarks
Ana Nikolikj and Ana Kostovska (Jožef Stefan Institute, Slovenia); Gjorgjina Cenikj (Jožef Stefan Institute & Jožef Stefan International Postgraduate School, Slovenia); Carola Doerr (Sorbonne University, France); Tome Eftimov (Jožef Stefan Institute, Slovenia)

14:20 – 16:20
CEC FR2-R11: SS on Games
Conference: CEC
Room: 416+417
Session Chair(s): Zehua Jiang

14:20 Improving Generalization in Game Agents with Data Augmentation in Imitation Learning
Derek Yadgaroff (Uppsala University, Sweden); Alessandro Sestini and Konrad Tollmar (SEED - Electronic Arts, Sweden); Ayca Ozcelikkale (Uppsala University, Sweden); Linus Gisslen (SEED - Electronic Arts, Sweden)

14:40 GEEvo: Game Economy Generation and Balancing with Evolutionary Algorithms
Florian Rupp and Kai Eckert (University of Applied Sciences Mannheim, Germany)

15:00 Amorphous Fortress: Exploring Emergent Behavior and Complexity in Multi-Agent 0-Player Games
M Charity and Sam Earle (New York University, USA); Dipika Rajesh (Independent Researcher, India); Mayu Wilson (Independent Researcher, USA); Julian Togelius (NYU, USA)

15:20 Capitalizing on the Opponent's Uncertainty in Reconnaissance Blind Chess
Jacek Czupyt, Mikołaj Małkiński and Jacek Mańdziuk (Warsaw University of Technology, Poland)

15:40 Extended Generative Adversarial Imitation Learning for Autonomous Agents in Minecraft Game
Hyung-Jun Moon (University of Computing & Yonsei University, Korea (South)); Sung-Bae Cho (Yonsei University, Korea (South))

16:00 Fuzzy Utility AI for Handling Uncertainty in Video Game Bots Implementation
Maciej Swiechowski (QED Games & Information Technologies for Psychiatry Foundation, Poland)

14:20 – 16:20
CEC FR2-R12: SS on Machine Learning assisted Heuristics for Combinatorial Optimization
Conference: CEC
Room: 418
Session Chair(s): Xiangyu Wang

14:20 A Graph Neural Network Assisted Evolutionary Algorithm for Expensive Multi-objective Optimization
Xiangyu Wang and Xilu Wang (Bielefeld University, Germany); Yaochu Jin (Westlake University, China); Ulrich Rückert (Bielefeld University, Germany)

14:40 Cluster-centric Local Search Strategies for Enhanced Multi-Objective Logistics Optimization

Wei Liu, Thomas Bäck and Yingjie Fan (Leiden University, The Netherlands)

15:00 Learning-based Problem Reduction for Large-scale Uncapacitated Facility Location Problems

Shuaixiang Zhang, Yixuan Yang, Hao Tong and Xin Yao (Southern University of Science and Technology, China)

15:20 Surrogate-Assisted Evolutionary Computation for Distributed Simulation-Based Inventory Optimization in Serial Supply Chains

Ziang Liu and Tatsushi Nishi (Okayama University, Japan)

15:40 Efficient Hyperparameter Optimization Using Deep Q-Network and BRKGA

Kosei Kobayashi and Masayoshi Aritsugi (Kumamoto University, Japan); Pedro Henrique González (Federal University of Rio de Janeiro, Brazil); Israel Mendonca (Kumamoto University, Japan)

16:00 ACO with Reinforcement Learning applied to Rescues Operations on Urban Forests

Claudio Andre da Silva Alves (Federal University of Rio de Janeiro, Brazil); Israel Mendonca (Kumamoto University, Japan); Vanessa de Almeida Guimaraes and Pedro Henrique González (Federal University of Rio de Janeiro, Brazil)

14:20 – 16:20
CEC FR2-R13: Machine Learning for Evolutionary Computation
Conference: CEC
Room: 419
Session Chair(s): Vojtech Uher

14:20 Fitness Landscape k-Nearest Neighbors Classification Based on Fitness Values Distribution

Vojtech Uher and Pavel Kromer (VSB - Technical University of Ostrava, Czech Republic)

14:40 A Data-Driven Optimization Method for Strongly Non-Separable Mixed-Integer Problems

Takahiro Sato (Muroran Institute of Technology, Japan)

15:00 A Reinforcement Learning Method Based on Natural Evolution Strategies

Koki Kimura and Isao Ono (Tokyo Institute of Technology, Japan)

15:20 VISTA: A Variable Length Genetic Algorithm and LSTM-Based Surrogate Assisted Ensemble Selection algorithm in Multiple Layers Ensemble System

Kate Han (Unviersity of Salford, UK (Great Britain)); Truong Thanh Nguyen and Viet Anh Vu (School of ICT, Vietnam); Alan Wee-Chung Liew (Griffith University, Australia); Truong Dang and Tien Thanh Nguyen (National Subsea Centre, Robert Gordon University)

15:40 Exploring Self-Adaptive Genetic Algorithms to Combine Compact Sets of Rules
Michael Heider, Maximilian Krischan, Roman Sraj and Jörg Hähner (University of Augsburg, Germany)

16:00 Legal Text Retrieval with Contrastive Representation Learning and Evolutionary Data Augmentation
Youhua Zhou (South China University of Technology, China); Xueming Yan (Guangdong University of Foreign Studies, China); Han Huang, Haowen Yan and Minghao Chen (South China University of Technology, China)

14:20 – 16:20
FUZZ FR2-R15: SS: Human Symbiotic Systems Part 2/Fuzzy Approaches in the Social Sciences
Conference: FUZZ-IEEE
Room: 503
Session Chair(s): Jiaqi Wen and Akihiro Yorita

14:20 Autonomous Cornering Control based on Sense of Circular Vision Model
Ren Degoshi, Hiroyuki Masuta, Yotaro Fuse, Tatsuo Motoyoshi and Kei Sawai (Toyama Prefectural University, Japan); Myagmardulam Bilguunmaa (Toyama Prefecture University, Japan); Noboru Takagi (Toyama Prefectural University, Japan)

14:40 Analysis of the acoustic characteristics of Takarazuka revue member names
Tsuyoshi Nakamura and Takuya Miura (Chubu University, Japan)

15:00 Digital Trail Making Test: Proposal of the age estimation model using multi-task learning neural network for evaluation of attention
Haruto Mukai (Tokyo Metropolitan University, Japan); Akihiro Yorita (Kwansei Gakuin University, Japan); Kojiro Mekata (Shijonawate Gakuen University, Japan); Shigeru Aomura, Takenori Obo and Naoyuki Kubota (Tokyo Metropolitan University, Japan)

15:20 Evaluation of Sound Guidance Methods for Evacuation Guidance by Sound Stimulation
Tetsuya Miyoshi (Hannan University, Japan)

15:40 Fuzzy Feature Representation for Digital Twin-Oriented Social Network Simulators
Jiaqi Wen, Bogdan Gabrys and Katarzyna Musial (University of Technology Sydney, Australia)

16:00 Application of Fuzzy Discount Factors in Behavioural Decision-Making for Financial Market Modelling
Joanna Siwek (Adam Mickiewicz University, Poland)

14:20 – 16:20
FUZZ FR2-R16: Fuzzy image, speech and signal processing, vision and multimedia data/Fuzzy Applications
Conference: FUZZ-IEEE
Room: 511+512
Session Chair(s): Annabel Latham

14:20 Automatic building of granular fuzzy color spaces
Míriam Mengíbar-Rodríguez and Jesus Chamorro (University of Granada, Spain)

14:40 Bi-capacity Choquet Integral for Sensor Fusion with Label Uncertainty
Hersh B Vakharia and Xiaoxiao Du (University of Michigan, USA)

15:00 Multicluster Kernel Intuitionistic Fuzzy C-Means and State Transition Algorithm: Framework for Low Light Segmentation Imaging of Tuberculosis Bacilli Base of Semisupervised Approach
Sari Ayu Wulandari (Institut Teknologi Sepuluh Nopember); I Ketut Purnama and Eko Mulyanto Yuniarno (Institut Teknologi Sepuluh Nopember, Indonesia); Mauridhi Hery Purnomo (Institut of Technology Sepuluh Nopember, Indonesia)

15:20 Fuzzy Approach for Aesthetic Preference Prediction in Interior Design
Ayana Adilova and Pakizar Shamoi (Kazakh-British Technical University, Kazakhstan)

15:40 Optimal Location of Hubs over Networks with Demand Uncertainty: A Fundamental Mathematical Model
Alfredo Cuzzocrea and Carmine Gallo (iDEA Lab, University of Calabria); Giulia Fornari and Vittorio Gatto (ISIRES)

14:20 – 16:40
Poster Session
Conference: IJCNN+CEC
Room: 501+502
Session Chair(s): Seiichi Ozawa and Bing Xue

1: LogTIW: A Log Anomaly Detection Model Based on TF-IDF Weighted Semantic Features
Jia Kang, Junfeng Zhao and Zhengxin Li (Inner Mongolia University, China)

2: A Novel Exponential Dynamic Inertia Weight for Particle Swarm Optimization
Zhiyang Li, Wentao Ding, Xiujin Wang and Wuyungerile Li (Inner Mongolia University, China); Winston K.G. Seah (Victoria University of Wellington, New Zealand)

3: Automatic Epidermis Segmentation in Fluorescence Images Based on a U-Shaped Network Model

Herng-Hua Chang and Yu-Xuan Chou (National Taiwan University, Taiwan); Chi-Chao Chao and Sung-Tsang Hsieh (National Taiwan University Hospital, Taiwan)

4: Personal Identification and Authentication in Multi-Task EEG Database Using EEGNet and Siamese Network

Rui Ouyang, Xiaopei Wu and Zhao Lv (Anhui University, China)

5: RevPose: A Multi-Stage Reversible Networks for Human Pose Estimation

Annan Wang, Yue Niu, Xuewu Wang and Shengxi Wu (East China University of Science and Technology, China)

6: Dual-Encoding Y-ResNet for Generating a Lens Flare Effect in Images

Dawid Polap and Antoni Jaszcz (Silesian University of Technology, Poland); Gautam Srivastava (Brandon University & China Medical University, Canada)

7: Generating Synthetic Data Using GANs Fusion in the Digital Twins Model for Sonars

Dawid Polap, Antoni Jaszcz and Katarzyna Prokop (Silesian University of Technology, Poland)

8: ChemAlgebra: Algebraic Reasoning on Chemical Reactions

Andrea Valenti (Università di Pisa, Italy); Davide Bacciu (University of Pisa, Italy); Antonio Vergari (University of Edinburgh, UK (Great Britain))

9: A Structure-Aware Graph Representation Learning Optimization

Ping Li and Shuhan Song (Institute of Computing Technology, China); Huawei Cao (Chinese Academy of Sciences, China); Yuan Zhang (Institute of Computing Technology, China); Zhimin Tang and Xiaochun Ye (Chinese Academy of Sciences, China)

10: Multi-Neighborhood Aggregation Network and Multi-Level Contrastive Learning for Knowledge-Aware Recommendation

Yupeng Wu (Peiking University, Hong Kong); Wen Zhao (National Engineering Research Center for Software Engineering Peking University China, China)

11: NRAdapt: Noise-Robust Adaptive Text to Speech Using Untranscribed Data

Ming Cheng, Shun Lei, Dongyang Dai and Zhiyong Wu (Tsinghua University, China); Dading Chong (Peking University, China)

12: Enhancing Vulnerable Class Robustness in Adversarial Machine Learning

Minal Suresh Patil (Umea University, Sweden)

13: Class Incremental Aerial Scene Recognition Under Long-Tailed Distribution

Gang Yang, Haizhou Ding, Xiaotong Tu, Lexing Huang, Yue Huang and Xinghao Ding (Xiamen University, China)

14: S3AHI: Source-Free Domain Adaptive Small Object Detection with Slicing Aided Hyper Inference

Haizhou Ding, Gang Yang, Xiaotong Tu, Yue Huang and Xinghao Ding (Xiamen University, China)

15: Unsupervised Domain Adaptation for Cross-Scene Hyperspectral Image Classification Based on Decoupled Contrastive Learning

Jiaxin Zhang, Mingyang Zhang, Maoguo Gong, Fenlong Jiang, Xiangming Jiang and Yu Zhou (Xidian University, China); Dan Feng (Xi'an University of Posts and Telecommunications, China)

16: Confidence-Guided Source Label Refinement and Class-Aware Pseudo-Label Thresholding for Domain-Adaptive Semantic Segmentation

Hongwei Chu, Meng Shen, Jiawen Peng and Jinhua Ma (Sun Yat-Sen University, China)

17: From Static to Dynamic: A Deeper, Faster, and Adaptive Language Modeling Approach

Jiajia Li, Qiwei Li and Ping Wang (Wuhan University, China)

18: Self-Growing Distillation: A Model Self-Growing Knowledge Distillation Method

Li Rongzhi (CAFUC, China); Yue Liang (Beijing Jiaotong University, Japan)

19: Patch Trajectories for Visual Odometry in Dynamic Scenes

Lijian Zhuang and Song-Zhi Su (Xiamen University, China)

20: Transformer-Based Few-Shot Object Detection with Enhanced Fine-Tuning Stability

Zuyu Chen, Ya-Li Li and Shengjin Wang (Tsinghua University, China)

21: Multi-Axis Frequency Domain Residual UNet for Pore Identification in Deep Shale Scanning Electron Microscopy Images

Xingpeng Zhang, Zheng Li, Bin Xiao and Bing Wang (Southwest Petroleum University, China)

22: Semi-Supervised Graph Anomaly Detection via Multi-View Contrastive Learning

Hengji Dong (Harbin Institute of Technology & Shanghai Pudong Development Bank, China); Jing Zhao, Hongwei Yang and Hui He (Harbin Institute of Technology, China); Jun Zhou, Yunqing Feng, Yangyiye Jin, Rui Liu and Mengge Wang (Shanghai Pudong Development Bank, China)

23: Delve into Cosine: Few-Shot Object Detection via Adaptive Norm-Cutting Scale

Yanan Zhang (University of Chinese Academy of Sciences, unknown); Yifan Jin (University of Chinese Academy of Sciences, China); Rui Wang (Institute of Software Chinese Academy of Sciences, China); Lixiang Liu (Chinese Academy of Sciences, China)

24: Real-Time Spike Sorting Using an Optimized STDP Spiking Neural Network on FPGA

Jérémy Cheslet (University of Bordeaux, France); Marie Bernert (Université de Grenoble-Alpes, France); Romain Beaubois (Université de Bordeaux, France); Blaise Yvert (INSERM, France); Timothée Levi (IMS Laboratory - University Bordeaux, France)

25: A Novel Parameter-Free Attention-Based Multiscale Convolution Prototype Networks for P300 Brain-Computer Interface

Jiahang Wang and Fei Wang (South China Normal University, China); Huanchang Yan (Sun Yat-Sen University, China); Zekun Zheng (South China Normal University, China)

26: M2KD: Multi-Teacher Multi-Modal Knowledge Distillation for Aerial View Object Classification

Zhen Lan, Zixing Li, Chao Yan, Xiaojia Xiang, Dengqing Tang and Han Zhou (National University of Defense Technology, China)

27: Clustering-Based Augmentation for Effective Self-Supervised Learning in Sleep Staging

Pavel Tsoi, Young-Seok Kweon and Seong Whan Lee (Korea University, Korea (South))

28: Classification of Schizophrenia EEG Recording Using Homological Features

Simone Poetto (Nicolaus Copernicus University in Torun, Poland & Centai S.p.a., Italy)

29: Crowd Counting in Large Surveillance Areas by Fusing Audio and WiFi Sniffing Data

Rui Guo, Baoqi Huang, Lifei Hao and Bing Jia (Inner Mongolia University, China)

30: CART-Gait: Cross Angle Refined Training of Cross-View Gait Recognition

Jinyan Chen, Yuxin Liu and Zheyan Gao (Tianjin University, China); Shitian Li (University of Macau, Macao)

31: A Novel Myoelectric Signal-Assisted Lower Extremity Exoskeleton Movement Training System and Its Application in Clinical Rehabilitation Research

JiaYi Cai (Macau University of Science and Technology & Poe Design, China)

32: Multimodal Rumor Detection via Multimodal Prompt Learning

Fan Chen and Xiuhong Li (Xinjiang University, China); Zhe Li (Hong Kong Polytechnic University, Hong Kong); Chenyu Zhou (Xinjiang University, China); Jiabao Sheng (The Hong Kong Polytechnic University, Hong Kong)

33: KD-VSUM: A Vision Guided Models for Multimodal Abstractive Summarization with Knowledge Distillation

Zehong Zheng (East China Normal University, China); Su Wang (East China Normal University, Hong Kong); Changlong Li and Wenxin Hu (East China Normal University, China)

34: Valence and Arousal Analysis Base on Multimodal Feature Extraction in Video of Streaming Platform

Han Chiang Kao and Jheng-Long Wu (Soochow University, Taiwan)

35: Evolutionary Complex-Valued CNN for PolSAR Image Classification

Mengxuan Zhang, Jingyuan Shi and Long Liu (Xidian University, China); Xilu Wang (Bielefeld University, Germany); Licheng Jiao (Xidian University, China)

36: Neural Architecture Search Based on Brain Storm Optimization Algorithm for Face Detection
Tian Zhang (Northeastern University, China); Nan Li (Northeastern University, New Zealand); Haidong Kang (Northeastern University, China); Jianing Liu and Hongjiang Wang (Shenyang Institute of Engineering, China); Lianbo Ma (Northeastern University, China)

37: TPC-NAS for ViTs: A Systematic Approach to Improve Vision Transformer Performance with Total Path Count
Pi-Chuan Chen and Tzi-Dar Chiueh (National Taiwan University, Taiwan)

38: When NAS Meets Anomaly Detection: In Search of Resource-Efficient Architectures in Surveillance Video
Haidong Kang and Lianbo Ma (Northeastern University, China); Nan Li (Northeastern University, New Zealand); Jianlun Ma (Northeastern University China, China); Jian Chen (Cheng, China)

39: Beyond Augmentation: Empowering Model Robustness Under Extreme Capture Environments
Yunpeng Gong (School of Informatics, China & Xiamen University, China); Yongjie Hou, Chuangliang Zhang and Min Jiang (Xiamen University, China)

40: Beyond Dropout: Robust Convolutional Neural Networks Based on Local Feature Masking
Yunpeng Gong (School of Informatics, China & Xiamen University, China); Chuangliang Zhang and Yongjie Hou (Xiamen University, China); Lifei Chen (Fujian Normal University, China); Min Jiang (Xiamen University, China)

41: Cross-Task Attack: A Self-Supervision Generative Framework Based on Attention Shift
Qingyuan Zeng (XMU, China); Yunpeng Gong (School of Informatics, China & Xiamen University, China); Min Jiang (Xiamen University, China)

42: NAS-SW: Efficient Neural Architecture Search with Stage-Wise Search Strategy
Jikun Nie (ShenZhen University, China); Yeming Yang, Qingling Zhu and Qiuzhen Lin (Shenzhen University, China)

43: Edge AI Online Training Architecture Using Multi-Phase-Quantization Optimizer
Itsuki Akeno (Hokkaido University, Japan)

44: Hysteretic Oscillator-Based Reservoir Computing for Audio Waveform Pattern Recognition
Reiji Ota, Yuzuru Kato and Yuichi Katori (Future University Hakodate, Japan)

45: GPINN: Physics-Informed Neural Network with Graph Embedding
Yuyang Miao and Haolin Li (Imperial College London, UK (Great Britain)); Danilo Mandic (Imperial College, London, UK (Great Britain))

46: SA-MPF: A Status-Aware Mask Prediction Framework for Online Disease Diagnosis

Zefa Hu (Institute of Automation，Chinese Academy of Sciences, China); Linghui Meng (Institute of AutomationChinese Academy of SciencesBeijing, China); Yunlong Zhao (The Institute of Automation of the Chinese Academy of Sciences, China); Yuan yuan Zhao (CASIA, China); Shuang Xu (The Institute of Automation of the Chinese Academy of Sciences, China); Bo Xu (Institute of Automation, Chinese Academy of Sciences, China)

47: Multi-View Clustering Network Based on Contrastive Learning and CycleGAN

Xvtianhao Wang and Xiaoli Sun (Shenzhen University, China); Xiujun Zhang (Shenzhen Polytechnic University, China)

48: Fine-Grained Dual-Space Context Analysis Network for Multimodal Emotion Recognition

Jinghao Li, Jiajia Tang, Wanzeng Kong and Yanyan Yin (Hangzhou Dianzi University, China)

49: Recursive Learning Framework for Structured Data Agglomeration

Angelo Ciaramella (University of Naples "Parthenope", Italy); Di Nardo Emanuel (Università Degli Studi di Napoli Parthenope, Italy); Giuseppe Vettigli (Centrica, UK (Great Britain))

50: Fast Explanation of RBF-Kernel SVM Models Using Activation Patterns

Mengqi Zhang (Cardiff University, UK (Great Britain)); Matthias Treder (iSIZE Ltd., UK (Great Britain)); David Marshall and Yuhua Li (Cardiff University, UK (Great Britain))

51: Data-Centered Scheme to Enhance Robustness of Deep Learning Model for Traffic Sign Recognition Under Adverse Weather

Yue Chang and Xiao-Jun Zeng (University of Manchester, UK (Great Britain)); Guowei Wang (Huawei Technologies Co Ltd, China); Chengdong Shi (University of Manchester, UK (Great Britain))

52: DPA-RCNN: Dual Position Aware 3D Object Detector for Point Cloud

Yidong Jiang (Wuhan University of Technology, China); Qing Xie (Wuhan University of Technology, China & Engineering Research Center of Intelligent Service Technology for Digital Publishing, China); Jiachen Li and Jinyu Xu (Wuhan University of Technology, China); Yongjian Liu (Wuhan University of Technology, China & Engineering Research Center of Intelligent Service Technology for Digital Publishing, China); Yanchun Ma (Wuhan Vocational College of Software and Engineering, China)

53: PUBA: A Physical Undirected Backdoor Attack in Vision-Based UAV Detection and Tracking Systems

Haoyu Jiang, Nan Li and Ping Yi (Shanghai Jiao Tong University, China)

54: Multi-Session Multi-Objective Budget Optimization for Auction-Based Federated Learning

Xiaoli Tang (NTU, Singapore); Han Yu (Nanyang Technological University, Singapore)

55: Autonomous Navigation of Agricultural Robots Utilizing Path Points and Deep Reinforcement Learning

Kang Jipeng and Zhibin Zhang (Inner Mongolia University, China); Yajie Liang (Inner Mongolia University, USA)

56: Integrating Semantic Segmentation Model for Self-Supervised Scene Flow Estimation via Cross Task Distillation
Bayram Bayramli (Shanghai Jiao Tong University, China); Yue Ding (Shanghai jiao tong University, China); Hongtao Lu (Shanghai Jiao Tong University, China)

57: Implicit Neural Alignment Network for Arbitrary-Scale Space-Time Video Super-Resolution
Qin Jiang (National University of Defense Technology, China); Qinglin Wang (National University of Defence Technology, China); Lihua Chi (Hunan Guoke Chaosuan Technology Company, China); Jie Liu (National University of Defense Technology, China)

58: Multi-Attribute Dynamic Learning for 3D Face Reconstruction and Dense Alignment in the Unconstrained Environment
Lei Li, Fuqiang Liu, Qi Wang, Jiahao Li and Junyuan Wang (Tongji University, China); Xiang Li (Huaibei Normal University, China); Yanni Wang (Fudan University, China)

59: HeteroMorpheus: Universal Control Based on Morphological Heterogeneity Modeling
YiFan Hao (Chinese Academy of Millitary Science, China); Yang Yang (Chinese Academy of Military Sciences, China); Junru Song (Renmin University of China, China); Wei Peng (Chinese Academy of Military Science, China); Weien Zhou (Chinese Academy of Military Sciences, China); Tingsong Jiang and Wen Yao (Chinese Academy of Military Science, China)

60: Efficient Spatio-Temporal Event Representation Based on Kalman Filtering and Linear Weighted Timestamps
Jinyu Zhong (Guangdong University of Technology, China); Weiming Zeng (Hong Kong Baptist University, Hong Kong); Yunhua Chen (Guangdong University of Technology, China); Jinsheng Xiao (Wuhan University, China); Irwin King (The Chinese University of Hong Kong, Hong Kong)

61: A Triple Network Knowledge Learning Framework for Particle Swarm Optimization
Zhao Zhang, Lingda Wang and Chen Chen (Beijing Institute of Technology, China)

62: Evolutionary Multitasking Collaborative Neural Architecture Search for Scene Classification
Shanfeng Wang, Zaitian Liu, Jianzhao Li, Maoguo Gong and Rui Yang (Xidian University, China)

63: Finding Sets of Pareto Sets in Real-World Scenarios - A Multitask Multiobjective Perspective
Jiao Liu (Nanyang Technological University & College of Computing & Data Science, Singapore); Yew Soon Ong (School of Computer Engineering, Nanyang Technological University, Singapore); Melvin Wong (Nanyang Technological University, Singapore)

64: Multi-Stage Transfer Learning Evolutionary Algorithm for Dynamic Multiobjective Optimization
Qianhui Wang, Qingling Zhu and Junkai Ji (Shenzhen University, China)

65: Multiobjective Sequential Transfer Optimization: Benchmark Problems and Preliminary Results

Xiaoming Xue (City University of Hong Kong, Hong Kong); Liang Feng (Chongqing University, China); Cuie Yang (Northeastern University, China); Songbai Liu (Shenzhen University, China); Linqi Song (City University of Hong Kong, Hong Kong); Kay Chen Tan (The Hong Kong Polytechnic University, Hong Kong)

66: Language Evolution for Evading Social Media Regulation via LLM-based Multi-agent Simulation

Jinyu Cai and Jialong Li (Waseda University, Japan); Mingyue Zhang (Southwest University, China); Munan Li (Dalian Maritime University, China); Chen-Shu Wang (National Taipei University of Technology, Taiwan); Kenji Tei (Waseda University / National Institute of Informatics, Japan)

67: Reinforcement Learning with Safe Action Generation for Autonomous Racing

Jiacheng Yang, Yuanda Wang, Lu Dong and Xin Yuan (Southeast University, China)

68: FOG: A Unified Framework for Federated Combinatorial Optimization on Graphs

Shiqing Liu and Ulrich Rückert (Bielefeld University, Germany); Yaochu Jin (Westlake University, China)

69: Expensive optimization based on evolutionary multi-tasking and hybrid restart strategy

Zhenyuan Li, Xiao-Liang Ma, Zexuan Zhu and Yueyue Li (Shenzhen University, China)

70: Multi-Objective Finite-Frequency H-infinity/GH-2 Static Output Feedback Control for Input-Delayed Active Suspension System of In-Wheel Motor-Driven Electric Full-Vehicle

Suhwan Choi, Yeongjae Kim and Tae-Hyoung Kim (Chung-Ang University, Korea (South))

71: A Novel Subspace Construction Method for Large-scale Evolutionary Multi-objective Optimization

Wenping Wang, Yang Zhang and Shuwei Zhu (Jiangnan University, China); Meiji Cui (Nanjing University of Science and Technology, China)

72: A Two-stage Evolutionary Framework For Multi-objective Optimization

Peng Chen, Jing Liang and Kangjia Qiao (Zhengzhou University, China); Ponnuthurai Nagaratnam Suganthan (Qatar University, Qatar); Xuanxuan Ban (Zhengzhou University, China)

16:20 – 16:40	
Break	

16:40 – 18:00
IJCNN S4_14 Special Session: Neural Architecture Search's Theory, Algorithm and Application
Conference: IJCNN
Room: 211+212
Session Chair(s): Matteo Gambella

16:40 Lesion Feature Extraction and Classification Optimization Method Using Dynamic Fusion of Global Attention and Local Attention

Xueyao Cui, Huiyan Jiang and Yang Zhou (Northeastern University, China); Xianhua Han (Rikkyo University, Japan); Xuena Li (The First Affiliated Hospital of China Medical University, China); Yan Pei (University of Aizu, Japan)

17:00 HZS-NAS: Neural Architecture Search with Hybrid Zero-Shot Proxy for Facial Expression Recognition

Xiao Yang and Yun Liu (Sichuan University, China); Jiyuan Liu (West China Hospital of Stomatology, China); Yanan Sun (Sichuan University, China)

17:20 FlatNAS: Optimizing Flatness in Neural Architecture Search for Out-Of-Distribution Robustness

Matteo Gambella, Fabrizio Pittorino and Manuel Roveri (Politecnico di Milano, Italy)

17:40 Analysis of Search Space Design for Neural Architecture Search with Weight Sharing

Youhei Akimoto (University of Tsukuba, Japan); Shinichi Shirakawa (Yokohama National University, Japan)

16:40 – 18:00
IJCNN S4_17 Special Session: Deep Learning for Graphs 1
Conference: IJCNN
Room: 301+302
Session Chair(s): Nicolo Navarin

16:40 Multi-Relational Graph Neural Network for Out-Of-Domain Link Prediction

Asma Sattar (University of Pisa & FAST National University, Pakistan); Georgios Deligiorgis and Marco Trincavelli (H and M Group, Sweden); Davide Bacciu (University of Pisa, Italy)

17:00 Physics-Informed Graph Neural Cellular Automata: An Application to Compartmental Modelling

Nicolo Navarin and Paolo Frazzetto (University of Padua, Italy); Luca Pasa (Università degli Studi di Padova, Italy); Pietro Verzelli (Universitätsklinikum Bonn, Germany); Filippo Visentin (University of Padua, Italy); Alessandro Sperduti (Università degli Studi di Padova, Italy); Cesare Alippi (Politecnico di Milano, Italy)

17:20 HyperAggregation: Aggregating over Graph Edges with Hypernetworks

Nicolas Lell (University of Ulm, Germany); Ansgar Scherp (Ulm University, Germany)

17:40 Fast and Exact Synthesis of Application Deployment Plans Using Graph Neural Networks and Satisfiability Modulo Theory

Mădălina Eraşcu (West University of Timisoara, Romania)

16:40 – 18:00
IJCNN S4_18 Special Session: AI, Law and Regulation
Conference: IJCNN
Room: 311+312
Session Chair(s): Amanda Maria Horzyk

16:40 The Brussels (D)Effect: First-Mover Disadvantages in the AI Regulation

Mateja Durovic (King's College London, UK (Great Britain))

17:00 Implications of European By-Design Laws on Data-Driven System Design

Amanda Maria Horzyk (University of Edinburgh, UK (Great Britain) & University of Sussex, UK (Great Britain))

17:20 Fundamental Rights and AI Impact Assessment: A Proposal for a New Quantitative Approach

Nicole Inverardi, Samuele Bertaina, Ilaria Biganzoli, Andrea Claudio Cosentini, Rachele Desiante, Dario Fontanella and Ilaria Giuseppina Penco (Intesa Sanpaolo S.p.A., Italy)

17:40 Explainable AI: Can the AI Act and the GDPR Go Out for a Date?

Maja Nisevic and Arno Cuypers (KUL Leuven, Belgium); Jan De Bruyne (Director of CiTiP KUL, Belgium)

16:40 – 18:00
IJCNN S4_19: Neural Networks Models - Feedforward NN
Conference: IJCNN
Room: 313+314
Session Chair(s):

16:40 SC-ViT: Semantic Contrast Vision Transformer for Scene Recognition

Jiahui Niu and Xin Ma (Shandong University, China); Rui Li (Inspur Academy of Science and Technology, China)

17:00 Superpixel-Based Anomaly Detection for Irregular Textures with a Focus on Pixel-Level Accuracy

Mehdi Rafiei (Aarhus University, Denmark); Toby Breckon (Durham University, UK (Great Britain)); Alexandros Iosifidis (Aarhus University, Denmark)

17:20 Modelling Graph Neural Network by Aggregating the Activation Maps of Self-Organizing Map

Luan V. de C. Martins (University of São Paulo, Brazil); Donghong Ji (Wuhan University, China); Liang Zhao (University of Sao Paulo, Brazil)

17:40 Robust Video Watermarking Network Based on Channel Spatial Attention

Jian Li, Tao Zuo, Bin Ma, Chunpeng Wang, Peng Zhang, Huanhuan Zhao and Zhengzhong Zhao (Qilu University of Technology, China)

16:40 – 18:00
IJCNN S4_20: J2C Paper Session 1
Conference: IJCNN
Room: 315
Session Chair(s): Tijana Markovic

16:40 A Modular Ice Cream Factory Dataset on Anomalies in Sensors to Support Machine Learning Research in Manufacturing Systems

Tijana Markovic, Miguel Leon and Bjorn Leander (Malardalen University, Sweden); Sasikumar Punnekkat (Mälardalen University, Sweden)

17:00 Evolving Memristive Reservoir

Xinming Shi (Southern University of Science and Technology, China & University of Birmingham, UK (Great Britain)); Leandro Minku (University of Birmingham, UK (Great Britain)); Xin Yao (Southern University of Science and Technology, China)

17:20 BBRefinement: A Universal Scheme to Improve the Precision of Box Object Detectors

Marek Vajgl and Petr Hurtik (University of Ostrava, Czech Republic); David Hynar (Varroc Lighting, Czech Republic)

17:40 Reconstructive Reservoir Computing for Anomaly Detection in Time-Series Signals

Junya Kato (The University of Tokyo, Japan); Gouhei Tanaka (Nagoya Institute of Technology, Japan); Ryosho Nakane and Akira Hirose (The University of Tokyo, Japan)

16:40 – 18:00
IJCNN S4_21: J2C Paper Session 2
Conference: IJCNN
Room: 411+412
Session Chair(s): Azam Asilian Bidgoli

16:40 Towards Precision Sleep Medicine: Self-Attention GAN as an Innovative Data Augmentation Technique for Developing Personalized Automatic Sleep Scoring Classification
Chih-En Kuo (National Chung Hsing University, Taiwan); Tsung-Hua Lu (National Cheng Kung University Hospital, Taiwan); Guan-Ting Chen and Po-Yu Liao (Feng Chia University, Taiwan)

17:00 Ranking Loss and Sequestering Learning for Reducing Image Search Bias in Histopathology
Azam Asilian Bidgoli (Wilfrid Laurier University, Canada)

17:20 Modulating STDP with Back-Propagated Error Signals to Train SNNs for Audio Classification
Dylan G. Peterson, Thoshara Malathi Nawarathne Batugedara Mohottalalage and Henry Leung (University of Calgary, Canada)

17:40 Neural Improvement Heuristics for Graph Combinatorial Optimization Problems
Andoni Irazusta Garmendia (University of the Basque Country, Canada); Josu Ceberio (UPV/EHU, Spain); Alexander Mendiburu (University of the Basque Country, Spain)

16:40 – 18:00
IJCNN S4_22: Bio-Inspired and Biomorphic Systems
Conference: IJCNN
Room: 413
Session Chair(s):

16:40 Advancing Neuromorphic Computing: Mixed-Signal Design Techniques Leveraging Brain Code Units and Fundamental Code Units
Murat Isik (Stanford University, USA); Newton Howard (University of Oxford, UK (Great Britain)); Sols Miziev and Wiktoria Pawlak (ni2o Inc., USA)

17:00 Effects of the Retina-Inspired Light Intensity Encoding on Color Discrimination Performance
Io Yamada and Hirotsugu Okuno (Osaka Institute of Technology, Japan)

17:20 End-To-End Image Classification in Linear Hybrid Cellular Automata
Naoki Sawahashi and Jose Príncipe (University of Florida, USA)

18:10 – 18:40
Closing Ceremony
Room: 301+302

18:40 – 20:00
Farewell Party
Room: 303+304

IEEE SSCI 2025

TRONDHEIM NORWAY 17th - 20th March

IEEE SYMPOSIUM SERIES ON COMPUTATIONAL INTELLIGENCE

IEEE Computational Intelligence Society

IEEE

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IEEE SSCI is widely recognized for cultivating the interchange of state-of-the-art theories and sophisticated algorithms within the broad realm of Computational Intelligence Applications. The Symposia provide for cross-pollination of research concepts, fostering an environment that facilitates future inter and intra collaborations.

The 2025 event marks a significant milestone in the evolution of IEEE SSCI, launching the newly restructured biennial Symposia Series featuring ten dedicated Applied Computational Intelligence Symposia:

- IEEE Symposia on Computational Intelligence for Energy, Transport, and Environmental Sustainability
- IEEE Symposia on Computational Intelligence in Engineering/Cyber-Physical Systems
- IEEE Symposia on Computational Intelligence in Image, Signal Processing and Synthetic Media
- IEEE Symposia on Computational Intelligence in Artificial Life and Cooperative Intelligent Systems
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- IEEE Symposia on Trustworthy, Explainable, and Responsible Computational Intelligence
- IEEE Symposia on Multidisciplinary Computational Intelligence Incubators

IEEE SSCI 2025, hosted in Trondheim, Norway - a city seamlessly blending historical richness with innovative progress - brings IEEE SSCI to a stunning winter location, for skiers and non-skiers alike. Longer days and milder winter weather, together with the chance to see the Northern Lights., provides the perfect timing for a visit to Norway. Trondheim's small downtown area provides easy walking distance from the Venue to attractions, shopping, restaurants - from fast food to Michelin star - and sport activities.

We, the Organising Committee, are thrilled to extend a heartfelt invitation to academia, industry, and government agencies alike, to actively participate in presentations and discussions in Trondheim that will play a pivotal role in shaping the trajectory of Applied Computational Intelligence. The conference program is set to showcase a vibrant lineup, including plenary and keynote addresses, oral and poster presentations, industry events, engaging panels, insightful workshops, instructive tutorials, and stimulating competitions. For additional information, please visit the conference website at ieee-ssci.org.

Your participation is invaluable, and we look forward to welcoming a diverse and dynamic community to contribute to the success of both the relaunch of IEEE SSCI and the 2025 event.

IMPORTANT DATES

10th June, 2024 Call for Competitions, Call for Tutorials **31st July, 2024** Competition Proposals Submission **15th August, 2024** Notification of Acceptance (Competitions) **10th September, 2024** Title and Abstract of Full/Short Papers Submission **17th September 2024** Full Paper Submission, Short Paper Submissions, Tutorial Proposals Submission **1st October, 2024** Notification of Acceptance (Tutorials) **19th November 2024** Author Notification Full Papers, Author Notification Short Papers **10th December 2024** Late Breaking Papers Submission (LBP), Poster-only Submissions (Abstract), Journal Paper Presentation Submission (JPP) **18th December 2024** Camera Paper Deadline Full Papers, Camera Paper Deadline Short Papers **20th December 2024** Early Registration Deadline **10th January 2025** Author Notification (LBP, Abstracts, JPP), Competition Participant Submission **20th January 2025** Camera Copy Deadline (LBP), Notification of Acceptance (Competition Participants) **27th January 2025** Extended Early Registration (LBPs, Abstract, JPP, Competition Participants)