## INTERNATIONAL NEURAL NETWORK SOCIETY
**IJCNN 2023**
INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS
18–23 JUNE 2023 | GOLD COAST CONVENTION AND EXHIBITION CENTRE, QUEENSLAND, AUSTRALIA

# PROGRAM AT A GLANCE

## SUNDAY, JUNE 18

| Time | | | |
|---|---|---|---|
| 08:00 | 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<br>Hall 3 | Tutorial: Ethical Risks and Challenges of Computational Intelligence<br>Hall 4 | Tutorial: Randomization in Neural Networks: Feed-forward and Reservoir Computing models<br>Rooms 10-12 |
| 10:00 | Coffee Break<br>Hall 1 | | |
| 10:30 | Paper Development Workshop<br>Hall 3 | Tutorial: Foundation Models: A Sweeping Opportunity for Computer Vision<br>Hall 4 | Tutorial: Machine Learning Pipeline for EEG-based Brain- computer Interfaces<br>Rooms 10-12 |
| 12:30 | | Lunch On Your Own | |
| 13:30 | Tutorial: Language and the Brain: Deep Learning for Brain Encoding and Decoding<br>Hall 3 | Tutorial: Collaborative Learning and Optimisation<br>Hall 4 | Tutorial: Graph Self-Supervised Learning: Taxonomy, Frontiers, and Applications<br>Rooms 10-12 |
| 15:30 | Coffee Break<br>Hall 1 | | |
| 16:00 | Tutorial: Recent Advancement on Federated Learning Combating Non-IID Data<br>Hall 3 | Tutorial: Trustworthy Federated Learning: Concepts, Methods, Applications, and Beyond<br>Hall 4 | Tutorial: Explaining Machine Learning Decisions<br>Rooms 10-12 |
| 18:00 | Break | | |
| 18:30 | Welcome Reception<br>Hall 1 | | |

# MONDAY, JUNE 19

| 08:30 | **Plenary \| Xin Yao** Arena 1B |
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| 09:30 | **Coffee Break** Hall 1 |
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| 10:00 | Deep Learning Architecture: Part 1 Arena 1B | Neural Networks in Finance Arena 1A | Hybrid Learning Methods Foyer E | Knowledge Graphs Central Room B | Novel Feedforward Neural Networks Central Room C | Neural Networks in Physics and Mathematics Room 5 | Generative Adversarial Networks Room 6 | Special Session: Machine Learning and Deep Learning Methods applied to Vision and Robotics MLDLMVR: Part 1 Room 7 | Special Session: Advanced artificial intelligence techniques for medical decision-making: challenges and opportunities Room 8 | Virtual: Feature Selection, Extraction, and Aggregation | Virtual: Neural Networks for Image and Video Enhancement | Virtual: Text Summarisation and Classification | Virtual: Dialogue Systems and knowledge Discovery |
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| 12:00 | **Town Hall Luncheon** must be registered Arena 2 | **Lunch On Your Own** |
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| 13:00 | Event Extraction Using Neural Networks Arena 1B | Forecasting Using Neural Networks: Part 1 Arena 1A | Neural Networks for Image Classification: Part 1 Foyer E | Cognitive Architectures Central Room B | Probabilistic and Information-Theoretic Methods Central Room C | Brain-Inspired Architectures Room 5 | Special Session: Machine Learning and Deep Learning Methods applied to Vision and Robotics MLDLMVR: Part 2 Room 6 | Neural Network Hardware Room 7 | Image Super-Resolution and Generation Room 8 | Virtual: Deep Learning Architecture: Part 2 | Virtual: Biomedical Applications of Neural Networks: Part 1 | Virtual: Medical Image Processing Using Neural Networks | Virtual: Neural Networks for Object Detection: Part 1 |
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| 15:00 | **Coffee Break** Hall 1 |
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| 15:30 | **Plenary \| Barbara Webb** Arena 1B |
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| 16:30 | Deep Learning Theory: Part 1 Arena 1B | Forecasting Using Neural Networks: Part 2 Arena 1A | Neural Networks for Image Classification: Part 2 Foyer E | Sentiment Analysis Using Neural Networks Central Room B | Neural Networks in Robotics Central Room C | Semantic Cognition and Language Room 5 | Graph Matching with Neural Networks Room 6 | Special Session: Machine Learning and Deep Learning Methods applied to Vision and Robotics MLDLMVR: Part 3 Room 7 | Special Session: Deep Edge Intelligence Room 8 | Virtual: Recommender Systems with Neural Networks: Part 1 | Virtual: Classifiers: Part 1 | Virtual: Neural Networks for Fault and Fraud Detection | Virtual: Event Extraction and Action Recognition |
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| 18:30 | **Mentor-Mentee Networking Event, Monday** Room 5 | **Poster Session** Hall 1 |
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# Tuesday, June 20

| Time | Session |
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| 08:30 | **Explainable AI Panel** — Arena 1B |
| 09:30 | **Coffee Break** — Hall 1 |

**10:00**

| Session | Room |
|---------|------|
| Deep Learning Algorithms: Part 1 | Arena 1B |
| Medical Image Recognition Using Neural Networks: Part 1 | Arena 1A |
| Bioinformatics and Drug Discovery | Foyer E |
| Neural Networks for Cyber Security: Part 1 | Central Room B |
| Contrastive Learning | Central Room C |
| Medical Data Processing with Neural Networks | Room 5 |
| Unsupervised Learning and Clustering: Part 1 | Room 6 |
| Special Session: Neuromorphic Computing for Cloud, Edge and IoT | Room 7 |
| Special Session: Deep Learning for Anomaly Detection: Theory, Algorithms, and Applications | Room 8 |
| Virtual: Vision and Robotics with Neural Networks | |
| Virtual: Natural Language Processing Using Neural Networks | |
| Virtual: Recommender Systems with Neural Networks: Part 2 | |
| Virtual: Forecasting and Prediction | |

| Time | Session |
|------|---------|
| 12:00 | **Lunch On Your Own** |

**13:00**

| Session | Room |
|---------|------|
| Relation Extraction and Knowledge Distillation with Neural Networks | Arena 1B |
| Large-Scale Neural Networks | Arena 1A |
| Object and Defect Detection Using Neural Networks: Part 1 | Foyer E |
| Neural Networks for Cyber Security: Part 2 | Central Room B |
| Graph Neural Networks | Central Room C |
| Neural Networks for Video Processing: Part 1 | Room 5 |
| Unsupervised Learning and Clustering: Part 2 | Room 6 |
| Special Session: Recommender Systems, Digital Marketing and Consumer Behaviour Prediction | Room 7 |
| Deep Learning for Anomaly Detection | Room 8 |
| Virtual: Deep Learning Algorithms: Part 2 | |
| Virtual: Classifiers: Part 2 | |
| Virtual: Image Super-Resolution and Dehazing | |
| Virtual: Sentiment and Emotion | |

| Time | Session |
|------|---------|
| 15:00 | **Coffee Break** — Hall 1 |
| 15:30 | **Plenary \| Marco Gori** — Arena 1B |

**16:30**

| Session | Room |
|---------|------|
| Feature Extraction: Part 1 | Arena 1B |
| Medical Image Recognition Using Neural Networks: Part 2 | Arena 1A |
| Neural Network Models: Part 1 | Foyer E |
| Image Segmentation with Neural Networks | Central Room B |
| Machine Learning Algorithms | Central Room C |
| Neural Networks for Video Processing: Part 2 | Room 5 |
| Neural Networks for Data Classification: Part 1 | Room 6 |
| Special Session: Reservoir Computing: theory, models, and applications | Room 7 |
| Special Session: Domain Adaptation for Complex Situations: Theories, Algorithms and Applications | Room 8 |
| Virtual: Object and Defect Detection Using Neural Networks: Part 2 | |
| Virtual: Reinforcement Learning: Part 1 | |
| Virtual: Neural Network Applications in Security | |
| Virtual: Biomedical Applications of Neural Networks: Part 2 | |

| Time | Session |
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| 18:30 | **Poster Session** — Hall 1 / **Competitions** — Area 1B |
| 19:30 | **XAI / AML Section Meeting** — Room 9 |

# Wednesday, June 21

| Time | Sessions |
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| **08:30** | **Plenary \| Deliang Wang** — Arena 1B |
| **09:30** | **Coffee Break** — Hall 1 |

**10:00**

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Federated Learning<br>Arena 1B | Health Risk Prediction and Medical Records<br>Arena 1A | Smart Energy Network with Machine Learning<br>Foyer E | Multi-Agent Reinforcement Learning: Part 1<br>Central Room B | Text Understanding and Analysis Using Neural Networks: Part 1<br>Central Room C | Neural Networks for Computer Vision: Part 1<br>Room 5 | Neural Networks for Image Recognition<br>Room 6 | Special Session: The Coming of Age of Explainable AI XAI and Machine Learning<br>Room 7 | Special Session: Deep Learning for Graphs DL4G: Part 1<br>Room 8 | Virtual: Neural Network Applications: Part 1 | Virtual: Neural Network Models: Part 2 | Virtual: Neural Networks for Video Processing: Part 3 | Virtual: Transformers: Theory and Applications |

**12:00** — **Lunch On Your Own**

**13:00**

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| Emotion Recognition with Neural Networks<br>Arena 1B | Meta-Learning and Ensembles<br>Arena 1A | Time-Series Analysis Using Neural Networks<br>Foyer E | Multi-Agent Reinforcement Learning: Part 2<br>Central Room B | Text Understanding and Analysis Using Neural Networks: Part 2<br>Central Room C | Neural Networks for Computer Vision: Part 2<br>Room 5 | Neural Network Applications in Image and Data Processing<br>Room 6 | Neural Networks in Law and Tracking<br>Room 7 | Special Session: Deep Learning for Graphs DL4G: Part 2<br>Room 8 | Virtual: Neural Network Training Strategies: Part 1 | Virtual: Neural Networks for Security and Law | Virtual: Reinforcement Learning: Part 2 | Virtual: Feature Extraction: Part 2 |

**15:00** — **Coffee Break** — Hall 1

**15:30** — **Plenary \| Kenji Doya** — Arena 1B

**16:30**

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| Domain Adaptation<br>Arena 1B | Image Enhancement and Denoising with Neural Networks<br>Arena 1A | Neural Networks for Prediction<br>Foyer E | Image Re-Identification and Retrieval<br>Central Room B | Transfer Learning and Optimization<br>Central Room C | Recurrent neural networks and Models of Neurons<br>Room 5 | Neural Networks for Data Classification: Part 2<br>Room 6 | Rumor Detection and Fault Diagnosis<br>Room 7 | Special Session: Federated Learning - Methods, Applications, Challenges, and beyond<br>Room 8 | Virtual: Neural Network Training Strategies: Part 2 | Virtual: Image Processing with Neural Networks: Part 1 | Virtual: Language Models and Cognitive Architectures | Virtual: Prediction and Control |

**18:30** — **Poster Session** — Hall 1

**19:30** — **Banquet and Award Ceremony** — Arena 2

# Thursday, June 22

| Time | | | | | | | | | | | | | |
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| **08:30** | **Plenary \| Nikola K. Kasabov** Arena 1B | | | | | | | | | | | | |
| **09:30** | **Coffee Break** Hall 1 | | | | | | | | | | | | |
| **10:00** | **Neural Networks for Object Detection: Part 2** Arena 1B | **Special Session: Randomization-Based Deep and Shallow Learning Algorithms and/or Biomedical Applications** Arena 1A | **Question-and-Answer Systems: Part 1** Foyer E | **Reinforcement Learning Algorithms: Part 1** Central Room B | **Text Summarisation with Neural Networks** Central Room C | **Transformers: Part 1** Room 5 | **Neural Networks for Semantics: Part 1** Room 6 | **Neural Networks for Software Development** Room 7 | **Special Session: Intelligent Vehicles and Transportation Systems IVTS** Room 8 | **Virtual: Shape and Image Recognition** | **Virtual: Deep Learning Theory: Part 2** | **Virtual: Neural Networks for Pattern Recognition** | **Virtual: Neural Network Applications: Part 2** |
| **12:00** | **Lunch On Your Own** | | | | | | | | | | | | |
| **13:00** | **Image Generation and Analysis** Arena 1B | **Neural Networks for Recommendations: Part 1** Arena 1A | **Question-and-Answer Systems: Part 2** Foyer E | **Reinforcement Learning Algorithms: Part 2** Central Room B | **Text Classification with Neural Networks: Part 1** Central Room C | **Transformers: Part 2** Room 5 | **Neural Networks for Semantics: Part 2** Room 6 | **Training Techniques for Deep Neural Networks: Part 1** Room 7 | **Special Session: Lifelong Learning: recent advances and challenges** Room 8 | **Virtual: Image Processing with Neural Networks: Part 2** | **Virtual: Robustness of Deep Neural Networks** | | |
| **15:00** | **Coffee Break** Hall 1 | | | | | | | | | | | | |
| **15:30** | **Impacts of the NSF CAREER Award Panel** Arena 1B | | | | | | | | | | | | |
| **16:30** | **Anomaly Detection Using Neural Networks** Arena 1B | **Neural Networks for Recommendations: Part 2** Arena 1A | **Explainable AI** Foyer E | **Spiking Neural Networks** Central Room B | **Text Classification with Neural Networks: Part 2** Central Room C | **Neural Networks for Communications** Room 5 | **Reservoir Networks and Multi-Objective Learning** Room 6 | **Training Techniques for Deep Neural Networks: Part 2** Room 7 | **Special Session: Social Network Computation for Online Intelligence** Room 8 | | | | |

| | FRIDAY, JUNE 23 | | |
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| 08:00 | Workshop: Multimodal Synthetic Data for Deep Neural Networks (MSynD)<br>Room 1 | Workshop: Workshop on Trustworthy and Responsible AI: theory, applications, and challenges<br>Room 2 | Workshop: Autonomous Learning in Complex Decision Situations<br>Room 3 |
| 10:00 | Coffee Break<br>Gallery | | |
| 10:30 | Workshop: Multimodal Synthetic Data for Deep Neural Networks (MSynD) Continued<br>Room 1 | Workshop: Workshop on Trustworthy and Responsible AI: theory, applications, and challenges Continued<br>Room 2 | Workshop: Autonomous Learning in Complex Decision Situations Continued<br>Room 3 |
| 12:30 | Lunch on Your Own | | |
| 13:30 | Workshop: Machine Learning, Artificial Intelligence and Neural Networks in Higher Education Workshop<br>Room 1 | | Workshop: Interactive Explanations of Neural Networks and Artificial Intelligence (Int- XAI)<br>Room 3 |
| 15:30 | Coffee Break<br>Gallery | | |
| 16:00 | Workshop: Machine Learning, Artificial Intelligence and Neural Networks in Higher Education Workshop Continued<br>Room 1 | | Workshop: Interactive Explanations of Neural Networks and Artificial Intelligence (Int- XAI) Continued<br>Room 3 |
| 18:00 | End of Conference | | |