



# IEEE APSCON 2026

IEEE Applied Sensing Conference

New Delhi, India // 23-25 February 2026



## THE 2026 IEEE APPLIED SENSING CONFERENCE **CONFERENCE PROGRAM**

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## Welcome Message

Dear Participants,

On behalf of the organizing committee, it is our pleasure to welcome you to participate, present, and exhibit, in the IEEE International Conference on Applied Sensing (APSCON 2026) at Taj Vivanta, New Delhi, Dwarka, India. We also wish to express our gratitude for your attendance. New Delhi, the capital of India, is a dynamic blend of history, culture, and modernity. It is a city of rich heritage and represents a fusion of different cultures.

Financially sponsored by the IEEE Sensors Council, APSCON 2026 offers an excellent forum to discuss latest developments in the field of sensing and sensors applications. The conference comprehensively covers all areas of sensors' applications, including agriculture and food technology, transportation systems, medical and digital healthcare, manufacturing and automation, environmental and climate change monitoring, infrastructure and sustainability, robotics and digital twins, wearable and immersive technologies, analytical and instrumentation, quantum technologies, and artificial intelligence for sensing, among others.

Building on the successes of the previous three conferences, APSCON 2026 offers a unique opportunity for the academic community to meet and network with industrial leaders in the field, and for industrialists to get an update on the most advanced applications of sensing technologies. Toward this end, the conference also has several talks by experts from industry, government and academia. This is further enriched by the exhibitors and live demos covering various facets of sensor systems and their diverse applications. We hope the atmosphere, breadth and depth of research topics combined with the quality of invited and contributed technical presentations will make IEEE APSCON a 'must attend' event for you every year.

The conference program consists of three plenary talks, three keynote and twelve invited lectures by eminent researchers in the field. The technical program is divided among more than 10 regular tracks and a special session track. The technical papers in all the above areas have been selected for oral and poster presentations following a detailed peer review process. Just as in the previous year, APSCON 2026 offered two options for publication of original works including submission to conference (Option A) and IEEE Sensors Letters (Option B). Of the 457 submitted papers (244 papers submitted via Option A and 213 via Option B), a total of 222 papers (147 accepted in Option A and 75 in Option B) will be presented during the conference by delegates from 18 countries (90% from Asia-Pacific, 6% from Europe and Africa, 4% from America region). APSCON also offers authors of regular papers published in IEEE Sensors Journal and IEEE Sensors Letters, the opportunity to present during the conference. A total of 13 such presentations are included in the conference program.

Our conference delegates will gain profound insight into the state-of-the-art from three distinguished plenary and three keynote speakers:

### Plenary Speakers:

1. Takao Someya (The University of Tokyo, Japan)
2. Yogesh Gianchandani (University of Michigan, Ann Arbor)
3. Anja Boisen (Department of Health Technology, Technical University of Denmark)

### Keynote Speakers:

1. Chandrasekhar Nair (Director & Chief Technology Officer (CTO) Molbio Diagnostics)
2. Nilesh M. Desai (Director of Space Applications Centre (SAC), ISRO)

IEEE APSCON 2026 will also have an in-conference workshop on "Science Without Borders: Driving Innovation through Global Partnerships". The technical program will be supplemented with Special Sessions, Live Demonstrations, Sensors Startup Summit, Sensors Standard Opportunities, and a Student Research Forum. We have 15 Live Demos, 15 MYOSA demonstrations, 15 Student Research Forums, and 11 Sensors Startup demonstrations. There are several exhibition stalls in the exhibition hangar and we encourage you to visit them. We greatly appreciate the support from our sponsors.

Under the Sensors Startup Summit, emerging startups are invited to network and share their success stories, opportunities, marketplace and technological challenges. Live Demos of their business model is also included in the program.

In the Students Research Forum section, advanced stage PhDs candidates and those who completed PhD recently (not older than 6 months), MTech/MS theses students and the undergraduate research students are invited to present their work and get feedback from the experts. This initiative is expected to provide an excellent opportunity to aspiring students to improve their work in addition to exploring post-doctoral and/or job opportunities.

The Sensors Standards Opportunities event invites participants to explore sensors domain's standards development opportunities while sharing an overview of its activities in context of state-of-the-art and emerging sensing technologies.

All these activities and events will culminate in the following awards which will be presented during the Conference Gala Dinner:

1. Best Paper (Lecture) - 2 awards
2. Best Paper (Poster) - 2 awards
3. Live Demo - 2 awards
4. Student Research Forum Award - 2 awards
5. Sensorpreneurship Award – 2 awards
6. MYOSA (Make Your Own Sensors Applications) Contest - 5 awards
7. Sensors Startup Challenge Award - 3 awards
8. Next Big Thing – 3 awards
9. DataPort Competition - 3 Awards

IEEE Sensors Council has a very active Women in Sensors (WiSe) team. WiSe team has supported two family care grants. The IEEE SC Family Care Grant Program supports attendance at IEEE APSCON 2026 by covering family care costs (including children, seniors, disabled needs) up for those with competing family responsibilities. The IEEE Sensors Council Young Professionals team has planned many exciting events. On February 23 prior to the welcome reception The Next Big Thing in Sensors will take place. This unique competition challenges you to look forward and define the Next Big Thing (NBT) in Sensors and is designed to be an icebreaker for understanding new opportunities in sensors. Two workshops are also planned for February 24, one focused on preparing journal papers and the other one on grant writing for success. On February 24 Sensorpreneur Pitch will also be held where entrepreneurs will be given an opportunity to network, find mentors and come up with innovative ideas at the end of the event.



## **Welcome Message**

Conference delegates are also invited to join the Conference Gala Dinner taking place on the lawn of the Taj Vivanta. The Gala Dinner will be preceded by a captivating Kathak performance by the renowned Padmashri Shovana Narayan.

Sensors Council is committed to sustainability. APSCON 2026 will be eliminating the use of paper posters and using E-posters as a new initiative of Sensors Council.

The conference will end with the Multi-Cultural Extravaganza. This event will embrace diversity and promote cross-cultural understanding. The delegates are encouraged to showcase the unique activities, traditions, and artefacts of their region or country through an interactive display. We hope conference delegates will enthusiastically participate in this multicultural extravaganza!

We wish all attendees an exceptional, productive, and memorable IEEE APSCON 2026 conference!

**Ramgopal Rao, Usha Varshney**

General Co-Chairs

**Ashok Kumar Pandey, Hamida Hallil Abbas**

Technical Program Committee Co-Chairs



## Organizing Committee

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Chirasree RoyChaudhuri, *Indian Institute of Engineering Science and Technology (IIST) Shibpur, India*

### Live Demo Co-Chairs

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Ponnalagu R N, *BITS Pilani Hyderabad, India*

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Jagannath Nayak, *DRDO, Hyderabad, India*

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Jonathan Cooper, *The Wolfson Chair of Bioengineering at the University of Glasgow, UK*

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Pooja Devi, *CSIR-Central Scientific Instruments Organisation, Chandigarh, India*

### Publications Chair

Veda Sandeep Nagaraja, *Tyndall National Institute, Ireland*



## Organizing Committee

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Sanket Goel, *BITS Pilani Hyderabad, India*  
Hamida Hallil-Abbas, *University of Bordeaux, France*  
Kavya Dashora, *IIT Delhi, India*



## Track Chairs

### Track 1: Agriculture and Food Technology

Kavya Dashora, *IIT Delhi, India*  
Alan O'Riordan, *Tyndall National Institute, Ireland*  
Dinesh Singh, *TCS, India*

### Track 2: Transportation Systems

Hussain Kachwala, *IIT Delhi, India*  
Nazila Fough, *University of Glasgow, UK*  
Rolland Vida, *Budapest University of Technology and Economics, Hungary*

### Track 3: Medical and Digital Healthcare

Dipankar Bandyopadhyay, *IIT Guwahati, India*  
Gautam Bacher, *BITS Pilani Goa, India*  
Jerome Cieslak, *Bordeaux University of Bordeaux, France*

### Track 4: Manufacturing and Automation

Shubhra Gangopadhyay, *The University of Missouri, USA*  
David Gucik Derigny, *The University of Bordeaux, France*

### Track 5: Environment and climate change Monitoring

Mitradip Bhattacharjee, *IISER Bhopal, India*  
Berengere Lebental, *Université Gustave Eiffel, France*  
Tapas Chakravarty, *Institute of Engineering and Management (IEM), Sector V, Kolkata, India*

### Track 6: Infrastructure and Sustainability

Seiichi Ogata, *Kyoto University, Japan*  
Pradeep Yemula, *IIT Hyderabad, India*  
Sangeeta Kale, *Defence Institute of Advanced Technology, India*

### Track 7: Robotics and Digital Twin

Sujay Kadam, *DAICT, India*  
Shubhendu Bhasin, *IIT Delhi, India*  
Nitesh Bhatia, *UK Atomic Energy Authority, UK*

### Track 8: Wearables and Immersive Technologies

Sharmistha Bhadra, *McGill University, Canada*  
Mohan Kumar, *Funplayiot, India*  
Shahid Malik, *IIT Delhi, India*

### Track 9: Analytical and Instrumentation

Jiro Hirokawa, *Tokyo Institute of Technology, Japan*  
Rajan Jha, *IIT Bhubaneswar, India*

### Track 10: Emerging Quantum Technologies

Poornendu Chaturvedi, *DRDO, India*  
Giorgos Fagas, *Tyndall National Institute, Ireland*  
Bhaskar Kenser, *IIT Delhi, India*

### Track 11: Live Demo

RN Ponnalagu, *BITS Pilani Hyderabad Campus, India*  
Han Shao, *Tyndall National Institute, Ireland*

### Special Session: AI for Sensing

Soma Bandyopadhyay, *TCS, India*  
Prasanta Guha, *IIT Kharagpur, India*  
Guillaume Perrin, *University of Eiffel, France*

### Focus Session 1: Edge Intelligence in Sensing: TinyML, Federated Learning, and Sensor Fusion

Mukesh Kumar, *CGC University, India*

### Focus Session 2: Artificial Intelligence with Internet of Things (AIOT)

Sujeet More, *KJEL, India*

### Focus Session 3: Cognitive Science for Marketing and Behavior Analysis

Debatri Chatterjee, *TCS, India*



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## Patrons and Exhibitors

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## Plenary Speakers



Monday | February 23 | 14:00 – 15:00

Takao Someya, *Graduate School of Engineering, The University of Tokyo, Japan*

### Electronic Skins for Robotics and Next Generation Wearables

The human skin is a large-area, multi-point, multi-modal, and stretchable sensor, inspiring the development of electronic skin for robots capable of detecting pressure and thermal distribution simultaneously. With improvements in conformability, electronic skin has evolved beyond robotics to next-generation wearables for humans, reaching a stage where ultrathin semiconductor membranes can be directly laminated onto the skin. This intimate and conformal integration of electronics with human tissue enables continuous health monitoring over extended periods, paving the way for personalized medical care.

The ultimate goal of electronic skin is to non-invasively measure human activities in natural conditions, fostering interactive reinforcement between artificial and biological skin. In this talk, I will review recent advances in stretchable thin-film electronics for applications in robotics and healthcare wearables, and discuss their growing relevance across diverse fields, while highlighting current challenges and future prospects of electronic skin.

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Tuesday | February 24 | 12:30 – 13:30

Yogesh Gianchandani, *University of Michigan, Ann Arbor*

### Gas-phase microfluidic systems meet real-world practical applications: collecting, separating, identifying, and quantifying volatile organic compounds at the chip scale

Volatile organic compounds (VOCs) such as benzene, toluene, and xylene are common pollutants found in fugitive emissions from industrial processing; from refinement, distribution, and combustion of petroleum and oil; and from printing and painting. Elevated exposure to such VOCs can result in central nervous system dysfunction, respiratory and cardiovascular diseases, and cancer. There is an obvious need to monitor and regulate such emissions in a cost-effective manner.

I will selectively review the nearly 50-year trajectory of research directed at micro-gas chromatographs for collecting, separating, identifying, and quantifying VOCs. New architectural options which are highly effective make better use of microfabricated elements than what is possible with conventional configurations. Results from advanced prototypes and recently commercialized micro-GCs show robust operation, with limits of detection that are better than 1 ppb for a number of VOCs – even while using ambient air as the carrier gas. Some of these microsystems incorporate more than 15 microfluidic elements on a single chip. However, in all cases the pumps are physically separate elements, which begs the question: is it possible to have a single-chip monolithic gas chromatograph that incorporates all the essential gas phase fluidics, including pumps?

This research is performed in the context of the University of Michigan Center for Wireless Integrated MicroSensing and Systems (WIMS 2 ). The Center brings together research in multiple specialties to facilitate microsystems for healthcare and environmental monitoring.

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Wednesday | February 25 | 12:30 – 13:30

Anja Boisen, *Department of Health Technology, Technical University of Denmark*

### Medical Micro & Nanotechnologies – fast blood analysis and ‘swallow your doctor’

Our ability to shape materials at the nanoscale opens up new possibilities for, among other things, rapid diagnostics and smart medication. I will give examples from our research that encompass both new discoveries and startup stories.

In the treatment of leukemia and sepsis, there is a need for therapeutic monitoring of drug concentrations in patients’ blood. Silicon structures at the nanometer scale can have surprising optical properties. For example, they can enhance the so-called Raman scattering more than a million times. This effect can be used to perform very sensitive measurements of small molecules in a complex

blood sample.

Our vision is that in the future we can ‘swallow our doctor’. Ingestible capsules can be made smart so that they can eventually measure, take samples, and perform local repairs/medication in the stomach and intestines. Can this be done without also having to swallow a battery, and how do you take a sample from the intestines?



## Keynote Speakers



Monday | February 23 | 12:00 – 13:00

Chandrasekhar Nair, *Director & Chief Technology Officer (CTO) Molbio Diagnostics*



Tuesday | February 24 | 14:15 – 15:15

Nilesh M. Desai, *Director of Space Applications Centre (SAC), ISRO*



## Focused Sessions

### Edge Intelligence in Sensing: TinyML, Federated Learning, and Sensor Fusion

Mukesh Kumar

The rapid growth of connected devices has transformed the way sensors are deployed across healthcare, industry, agriculture, environment, and smart cities. However, the increasing volume of raw data generated by these sensors presents challenges in terms of bandwidth, energy consumption, latency, and privacy. This Focus Session will explore the emerging paradigm of edge intelligence embedding machine learning and advanced analytics directly into sensing devices to enable real-time, secure, and energy-efficient decision-making. The session will bring together researchers, practitioners, and industry experts working at the intersection of sensing, TinyML, federated learning, and multimodal sensor fusion. Topics of interest include novel algorithms and hardware architectures for resource-constrained sensors, energy harvesting for intelligent devices, federated and privacy-preserving learning across distributed sensors, and deployment case studies in real-world domains such as biomedical monitoring, predictive maintenance, and climate resilience. By bridging theory and practice, this session aims to showcase cutting-edge solutions and identify key challenges that must be addressed to realize the vision of autonomous, intelligent, and trustworthy sensing systems. Participants will gain insights into how edge intelligence can redefine the future of sensing by enabling faster responses, reduced data dependence, and greater scalability.

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### Artificial Intelligence with Internet of Things (AIOT)

Sujeet More

The Artificial Intelligence of Things (AIoT) combines artificial intelligence (AI) technology with the Internet of Things (IoT) infrastructure in order to develop more effective IoT operations, increase interactions between humans and machines, optimize data management and analytics. An essential aspect of AIoT is the application of AI to a specific thing. In its most basic form, this entails conducting AI on the device, also known as edge computing, with no external connections required. AIoT does not require an Internet; it is just a development of the IoT concept, and the resemblance ends there. The combined potential of AI and IoT promises to unleash untapped consumer value across a wide range of business verticals, including edge analytics, autonomous cars, customized fitness, remote medical care, precision cultivation, intelligent retail, automated upkeep, and manufacturing machinery automation.

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### Cognitive science for marketing and behavior analysis

Debatri Chatterjee

The proposed session focuses on using human sensing and data analytics to detect, interpret and respond to human behavior to improve marketing effectiveness and to gain insights into customers' motivations, preferences, and decisions. This will help in creative advertising, product development, pricing, and other marketing areas. Traditional marketing revolves around the key principles of Product, Price, Place, Promotion, People (or Positioning), Process and Physical Evidence (or Packaging). Surveys, interviews of consumers or focus group studies are used to evaluate the effectiveness of the marketing strategies. Studies have shown that neuroscience techniques are better than traditional methods such as survey and interviews which are subjective in nature, often biased and unable to capture the unconscious decision-making process. Also, subjective assessments are conducted pre/post facto and not during the experience. Neuroscientific studies have proven that most decision-making is primarily an emotional, impulsive or unconscious action and seldom based on rational processing of information. Thus, application of neuroscientific knowledge can help brands to make smarter decisions based on how people's brain truly reacts rather than what they say. Various sensing methodologies like EEG, fMRI, Eye-tracking, camera and physiological signals like GSR, Heart rate variability are now a days being used to understand customer behaviors, optimizing product design and packaging, developing personalized marketing strategies and enhancing customer experiences. Therefore, we expect some research works that will apply some of the human sensing technologies to solve challenges faced in the field of marketing and advertising.



## **YP The Next Big Thing (NBT) in Sensors**

Sunday | February 22 | 18:00 – 19:00 | Debate

**What is the future of sensing technology? Tell us!**

This unique competition challenges you to look forward and define the Next Big Thing (NBT) in Sensors co-located with APSCON 2026, New Delhi, India. This forward-looking futuristic concept is designed to be an icebreaker for understanding new opportunities in sensors. All are welcome to attend!



## YP Workshops

### How to Prepare a Paper for IEEE Journals and/or Conferences

Tuesday | February 24 | 10:45 - 12:00 | Tango 1

Get the essential skills required for a successful career in academia. This session provides focused guidance on crafting high-quality manuscripts for the IEEE Sensors Council's journals and conferences.

#### Moderator



Joseph Andrews  
*University of Wisconsin – Madison, USA*

#### Panelists



Ramgopal Rao  
*Former Editor with IEEE Transactions on Electron Devices, Editorial Advisory Board Member with ACS Nano Letters, AIP Applied Physics Reviews, and IEEE J-Flex*



Thilo Sauter  
*Member of IEEE Periodicals Committee, VP Publications IEEE IES, Associate Editor-in-Chief of Sensors Letters*



Mitradip Bhattacharjee  
*Associate Editor IEEE Sensors Letters, Editorial Board Member, IEEE IoT Journal, Guest Editor for IEEE J-FLEX and NPJ Flexible Electronics*



Anja Boisen  
*Member of the Editorial Advisory Board for ACS Sensors and Lab on a Chip*



## YP Workshops

### Grant Writing for Success

Tuesday | February 24 | 16:45 - 18:00 | Nucleus

Learn the fundamental strategies and best practices for securing crucial funding. This workshop is tailored specifically for the needs of junior faculty, postdoctoral researchers, and graduate students.

#### Moderator



Joseph Andrews  
*University of Wisconsin – Madison, USA*

#### Panelists



Usha Varshney  
*National Science Foundation Former  
Program Director, USA*



Parikshit Sahatiya  
*BITS Pilani Hyderabad, India*



Dipankar Bandyopadhyay  
*Department of Chemical Engineering,  
IIT Guwahati, India*



Sangeeta Semwal  
*Ministry of Electronics and IT  
(MeitY), Government of India*



## Sensors Standards Opportunity

Tuesday | February 24 | 9:00 – 12:00 | Nucleus

This session invites participants to explore sensors domain's standards development opportunities while sharing an overview of its activities in context of state-of-the-art and emerging sensing technologies.

This session will provide a useful platform for networking and knowledge exchange for all the stakeholders working in the sensing standardization – assimilating the end-user industry (who use sensing systems in commercial products), the technologist (who engineer and build the sensing systems) and the academic and research community (who innovate new sensing systems).



### Introduction

R Venkatesha Prasad

Chair of the Standards Committee of the IEEE Sensors Council



### The IEEE P1451 family of Standards assures market reach for Sensors and Actuators

Gopalakrishna Kuppa and Jnanindra Kumar Dhar

Multi-sensory perception and recognition are vital traits for the survival of life forms. It is the base for humans to transact in the ecosystem. At the national level, it is fundamental to sovereignty and governance. In the core sector of the “Make in India program”, it did not make any inroads. India is heavily dependent on the import of sensors and sensory systems. However, one positive aspect is the development of Micro Electrical Mechanical Sensors (MEMS) for applications in Space, Nuclear and Defense establishments. Automotive. All other sectors-HVAC, Agriculture, Meteorology, and environmental monitoring urgently need self-reliant sensors product portfolio. This invited talk emphasizes the need for local design and production. Further, safety and Security features at the silicon level is vital and should be mandatory. IEEE has a Standard P1451.0-2024 to address this -Smart Transducer Interface for Sensors and Actuators. The core value this standard brings is in Interconnectivity, interoperability and security of application solutions. Entrepreneurs of sensors and actuators will be assured of patronage of the end users. Buoyed by this confidence, capital inducement in this sector will see growth and can be much higher than what we see today.



### Why Standards Matter: Impact and Importance of IEEE Standards

Srikanth Chandrasekaran

Almost every human on the planet today interacts with technology as part of their day and these technologies are built around a strong foundation of Standards. The IEEE Standards Association is at the forefront of developing standards across various technology sectors with very high impact standards such as WiFi (802.11), Ethernet (IEEE 802.3), Power and Energy Standards such as IEEE 1547 on Distributed Energy Resource and several others in the areas of Generation, Transmission and Distribution, Healthcare (IEEE 11073), Vehicular Technology Standards, Aerospace, Biomedical, EMI/EMC to name a few. More recent advances in technologies such as AI/ML and the digital transformation that is taking place in society and all around us has given rise to new sets of challenges that IEEE SA has been addressing to build trust in systems by focusing on cyber security, identity, and privacy and with a strong focus on socio-technical

standards around Ethics of AI, Children online frameworks and Sustainability.



## Sensors Standards Opportunity



### Flexible and Wearable Sensors Fabrication and Standardization

Parikshit Sahatiya

Flexible and wearable sensors are rapidly advancing as essential components for continuous health monitoring, soft robotics, and personalized electronics. While significant progress has been made in developing innovative materials, device architectures, and scalable fabrication methods, the field still lacks unified standards that ensure consistent performance, safety, and interoperability. This work highlights fabrication trends in flexible sensors, including printed electronics, nanomaterial-based films, and stretchable substrates, but places particular emphasis on the urgent need for standardization. Variability in material properties, mechanical durability, biocompatibility, and signal stability often leads to inconsistent device behavior across laboratories and commercial platforms. Establishing standardized protocols for calibration, cyclic testing, environmental stability, and long-term wearability is critical for translating laboratory prototypes into reliable products. By outlining the gaps in current evaluation methods and proposing pathways for systematic benchmarking, this abstract underscores how standardization can accelerate large-scale manufacturing, regulatory approval, and widespread adoption of flexible and wearable sensing technologies.

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### Accelerating Sensor Design, Modelling, and Standardization Using Advanced EDA Tools

Ayush Sing

The talk will cover the following broad areas:

Overview of emerging sensor technologies and the growing need for simulation-driven design and standardization.

Atomistic and nanoscale material modelling for sensor applications using Synopsys QuantumATK, covering electronic, optical, and transport properties.

Device-level multiphysics simulation and performance analysis of sensors using Sentaurus TCAD.

Role of advanced EDA workflows in enabling design repeatability, performance benchmarking, and sensor standardization.

Case studies and future opportunities involving digital twins and standards development within the sensor ecosystem.

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### Developing Medical Devices from real Clinical Problem

Ananya Rakesh Sharma

Medical device innovation is accelerating in response to the need for solutions that are less invasive, safer, cost-effective, and clinically practical. This need is especially urgent for patients with epilepsy who do not respond to pharmacological therapy, for whom existing alternatives are often invasive, expensive, or inaccessible. At PulseAur Neurology, a clinician-led team of end users, we began with a clear problem emerging directly from everyday patient care. This talk traces our journey from bedside observation to structured clinical research and early-stage solution development. We describe how direct patient care shaped problem definition, how clinical insight guided the evaluation of feasible approaches, and how government-supported research enabled progress toward an implementable biomedical instrumentation concept. Central to this process is the role of clinicians not merely as adopters of technology, but as drivers of innovation grounded in real clinical need. In addition to presenting a solution currently in development, we will highlight another unresolved challenge from our practice—one that persists despite technological advances. By sharing both progress and remaining gaps, this session underscores the value of clinician-driven, patient-centred innovation and invites collaboration to translate unmet needs into meaningful medical devices.



## **In-Conference Workshop**

### **Science Without Borders: Driving Innovation through Global Partnerships**

Tuesday | February 24 | 9:00 – 10:30 | Tango 1

This workshop aims to highlight the growing research collaboration between leading Indian institutes and the Tyndall National Institute, Ireland. Through short talks and a panel discussion. The session will showcase outcomes from staff and student visits, joint research efforts, INFRACHIP Transnational Access (TA) activities, and shared technology development initiatives. The workshop intends not only to present achievements to date but also to inspire deeper bilateral cooperation in the future.

#### **Workshop Structure:**

- Presentations from Indian Institutes
- Presentations from Tyndall National Institute
- Panel Discussion
- Networking and Future Collaboration Discussions



## Sensorpreneur Pitch

Tuesday | February 24 | 16:45 – 18:00 | Tango 1

IEEE APSCON 2026 will hold an event called “Sensorpreneur Pitch” where entrepreneurs will be given an opportunity to network, find mentors and come up with innovative ideas at the end of the event.

### Top 10 Finalists

- Jennifer J Robin, College of Engineering Cherthala, APJ Abdul Kalam Technological University (KTU), Kerala
- Tushar Baneshwar Shirke, Research Scholar, NIT Rourkela
- Sanidhya Chaturvedi, Co-Founder & Director, Folium Sensing Pvt Ltd | Final Year, Electrical Engineering, IIT Madras
- Asmita Bose, IIT Bhilai
- Bishnu Thakur, KPR Institute of Engineering and Technology, Coimbatore
- Om Kamatkar, Shri Ramdeobaba college of engineering and management b
- Sreenath Vijayakumar, Associate Professor, Dept of EE, IIT Palakkad and Founder, S4 Sensing Pvt. Ltd
- Damodar Yadagiri Tampula, Ramdeobada University, Nagpur
- Harish s.s., Amrite Vishwa Vidyapeetham Coimbatore (Student Founder)
- Eugene Gusmao, Multimedia University of Kenya



## **MYOSA Student Competition**

Tuesday | February 24 | 15:15 – 16:45 | Pre Function Area

Welcome to the IEEE International MYOSA Event!

### **What is the aim of this competition?**

It aims to excite submissions of innovative ideas, followed by live demonstrations of working prototypes. Some of the examples of the project proposals are given below:

- Automated lighting system of a smart housing
- Diagnostic applications based on a gesture sensor
- Automated irrigation for smart agriculture



## Startup Summit

Tuesday | February 24 | 9:00 – 12:00 | Pre Function Area

### Participating Startups

- Medic Tech Pvt Ltd
- Savatronic Special Lab
- Biradsiddha Engineering Services Pvt Ltd
- ZAMYT
- Revin Krishi
- Viral Vista
- Savatronic Life Tech
- QInsights Labs Pvt. Ltd.
- Satv Microgreens

### Why attend?

- Showcase your innovation/product at an international platform
- One-to-one meeting with Mentors
- Networking opportunities
- Finding out what's new in STEM!



## **IEEE DataPort Competition**

Tuesday | February 24 | 15:15 – 16:45 | Pre Function Area

We are pleased to announce the IEEE DataPort Dataset Competition, organized by IEEE DataPort. The competition aims to encourage researchers, academicians, and professionals to share high quality datasets that can advance research and innovation in sensor-based and data driven technologies.



## Pre-University Students Interactive Session

Tuesday | February 24 | 16:45 – 18:00 | Tango 3

### MYOSA & Agentic AI

#### Event Highlights

- See demo of Make Your Own Sensors Applications (MYOSA) kit. A Lego Internet of things educational kit.
- Easy plug-play and build concept to get sensor data within 15 mins.
- Learn How to build an Spy robocar using MYOSA.
- Bendy stretchy MYOSA.
- Understand AI's capabilities.
- Where AI Makes Mistakes (AI Blind Spots).
- Learn how to build AI applications without coding.
- See an AI Controlled MYOSA car.



## Social Events

### Welcome Reception

Join us for the welcome reception to kick off the conference—everyone is invited to attend!

Sunday | February 22 | 19:00 – 21:00

Location: Tango 1

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### Cultural Event & Awards Ceremony

Join us for a captivating Kathak performance by the renowned Padmashri Shovana Narayan followed by the presentation of the conference awards!

Tuesday | February 24 | 18:30 – 19:30

Location: Tango 1, 2, & 3

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### Gala Dinner

Join us for the gala dinner directly following the awards ceremony!

Tuesday | February 24 | 19:30 – 21:00

Location: Lawn

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### Gift Exchange and Multicultural Extravaganza See Off Tea

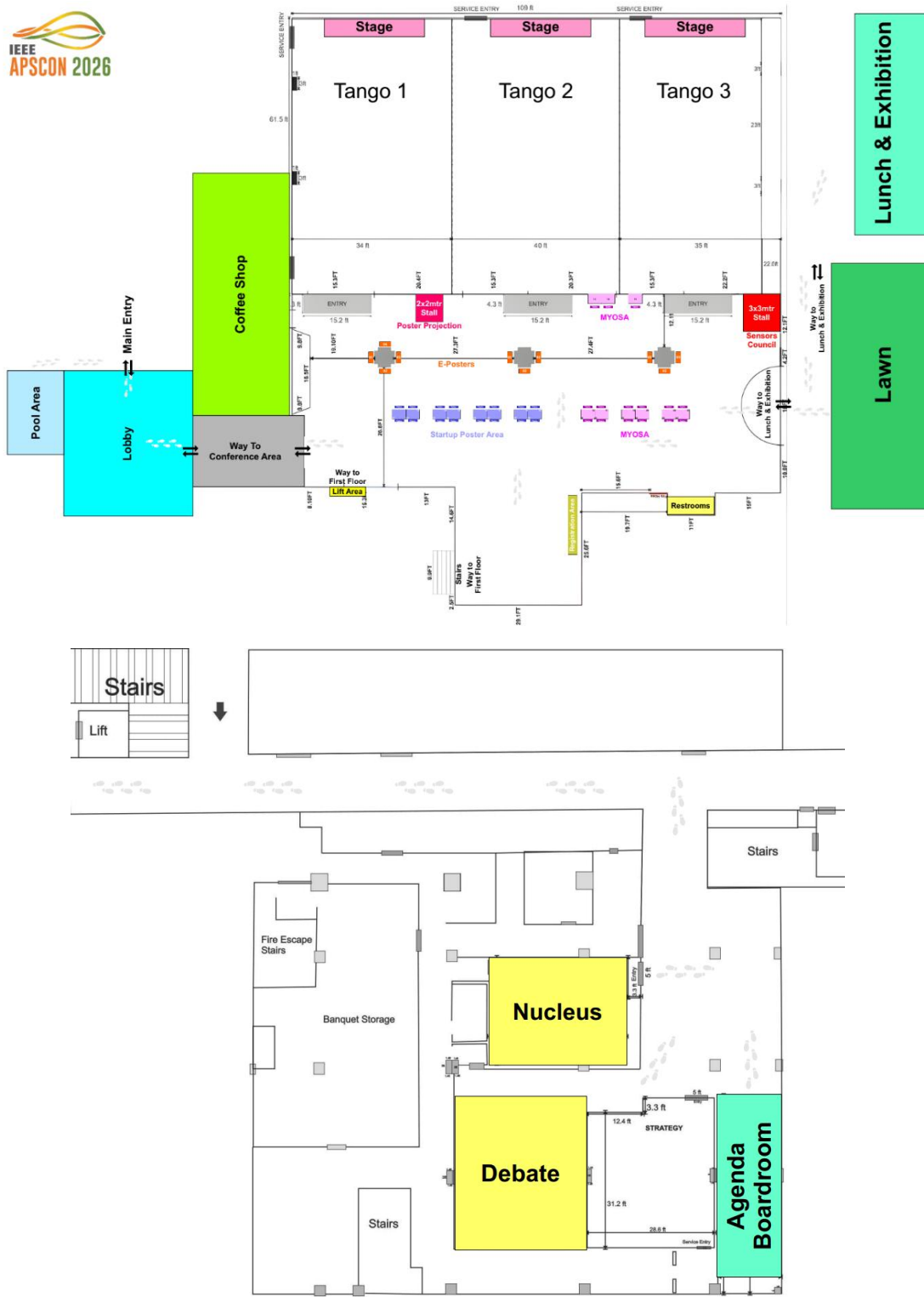
Join us for our multicultural send-off as we come together to celebrate and close out the

conference! Wednesday | February 25 | 16:00 – 17:00

Room: Tango 2

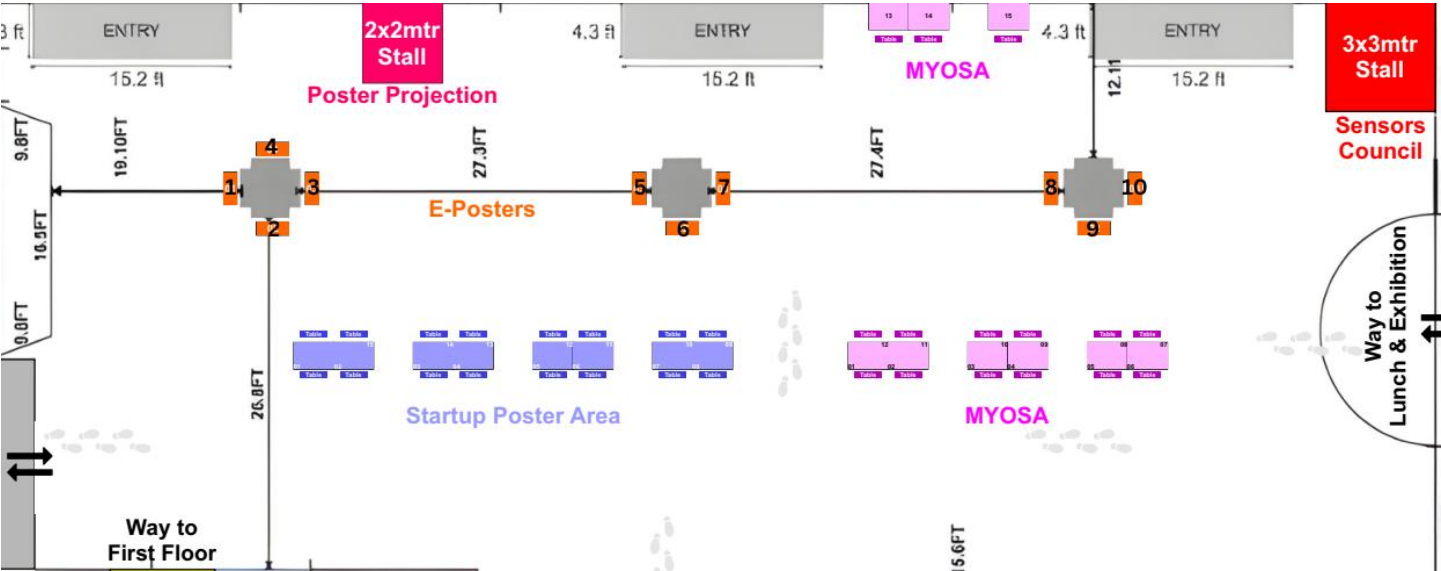


Venue Map





Poster Map





# PROGRAM AT A GLANCE



IEEE  
APSCON 2026

All Times Are Listed in IST

## February 22, 2026

18:00-19:00	YP Next Big Thing (Debate)
19:00-21:00	Welcome Reception (Tango 1)

## February 23, 2026

	TANGO 1	TANGO 2	TANGO 3	DEBATE	NUCLEUS
9:00-10:30	Agriculture & Food Technology I	Transportation Systems I	AI for Sensing I	Manufacturing & Automation I	Medical & Digital Healthcare I
10:30-11:00	Coffee Break (Pre Function Area)				
11:00-11:30	Opening Ceremony (Tango 1, 2, & 3)				
11:30-11:45	Group Photo (Outside)				
12:00-13:00	Keynote Speaker: Chandrasekhar Nair (Tango 1, 2, & 3)				
13:00-14:00	Lunch (Exhibition Hanger)				
14:00-15:00	Plenary Speaker: Takao Someya (Tango 1, 2, & 3)				
15:00-16:30	Poster Session/Coffee Break (Pre Function Area)				
16:30-18:00	Analytical & Instrumentation I	Infrastructure & Sustainability I	Robotics & Digital Twin I	Wearables & Immersive Technologies I	Medical & Digital Healthcare II

## February 24, 2026

	TANGO 1	TANGO 2	TANGO 3	DEBATE	NUCLEUS	PRE FUNCTION AREA
9:00-10:30	Workshop: Science Without Borders: Driving Innovation through Global Partnerships	Medical & Digital Healthcare III	From Physical to Chemical Sensing I	Student Research Forum I	Sensors Standards Event	Startup Summit
10:30-10:45	Coffee Break (Pre Function Area)					
10:45-12:00	YP Research Workshop (Journal)	Manufacturing & Automation II	AI for Sensing II	Student Research Forum II	Sensors Standards Event	Startup Summit



# PROGRAM AT A GLANCE



IEEE  
APSCON 2026

## February 24, 2026 (cont.)

	TANGO 1	TANGO 2	TANGO 3	DEBATE	NUCLEUS	PRE FUNCTION AREA
12:30-13:30	Plenary Speaker: Yogesh Gianchandani (Tango 1, 2, & 3)					
13:30-14:15	Lunch (Exhibition Hanger)					
14:15-15:15	Keynote Speaker: Nilesh M Desai (Tango 1, 2, & 3)					
15:15-16:45	Poster Session/Live Demos/MYOSA Competition (Pre Function Area)				DataPort Competition	
16:45-18:00	Sensorpre- neur Pitch		Session for Pre-university Student Workshop	Student Research Forum III	YP Research Workshop (Proposal Writing)	
18:30-19:30	Cultural Event & Awards Ceremony (Tango 1, 2, & 3)					
19:30-21:00	Gala Dinner (Lawn)					

## February 25, 2026

	TANGO 1	TANGO 2	TANGO 3	DEBATE	NUCLEUS
9:00-10:30	Environment & Climate Change Monitoring I	Emerging Quantum Technologies I	From Physical to Chemical Sensing II	Agriculture & Food Technology II	Medical & Digital Healthcare IV
10:30-10:45	Coffee Break (Pre Function Area)				
10:45-12:00	Environment & Climate Change Monitoring II	Manufacturing & Automation III	From Physical to Chemical Sensing III	Analytical & Instrumentation II	Medical & Digital Healthcare V
12:30-13:30	Plenary Speaker: Anja Boisen (Tango 1, 2, & 3)				
13:30 - 14:30	Lunch (Exhibition Hanger)				
14:30-15:45	Environment & Climate Change Monitoring III	Medical & Digital Healthcare VI	From Physical to Chemical Sensing IV	AI for Sensing III	Cognitive Science for Marketing & Behavior Analysis
16:00-17:00	Gift Exchange and Multicultural Extravaganza and See off Tea (Tango 2)				

IEEEDataPort



tcs Research



Visit the Exhibit Booths in the Exhibition Hanger



## Technical Program: Sunday, February 22

17:00 - 20:00

**Registration**

Room: Pre Function Area

18:00 – 19:00

**YP Next Big Thing**

Room: Debate

19:00 – 21:00

**Welcome Reception**

Room: Tango 1



## Technical Program: Monday, February 23

8:30 - 18:00

### Registration

Room: Pre Function Area

9:00 – 10:30

### A1L-A: Agriculture & Food Technology I

Room: Tango 1

Session Chair(s): Kavya Dashora, IITD

9:00

#### *Invited Talk*

##### **6364: Smart Sensors for Sustainable Agriculture, Food & Environmental Applications**

Alan O'Riordan, Shane O'sullivan, Ridwan Adib

Tyndall National Institute - University College Cork, Ireland

9:30

##### **6050: Development of Machine Learning Model for Automated Fruit Classification & Ripeness Detection**

Anshika Jindal{1}, Monika Nayak{1}, Rekha Manasa{1}, Medha Shukla{2}, Chinmaya K. A.{1}

{1}Indian Institute of Technology (Banaras Hindu University) Varanasi, India; {2}Rewa Engineering College, India

9:45

##### **6173: Automated Detection and Severity Estimation of Growth Anomalies in Basil with Imaging**

Swagatam Bose Choudhury, Sanket Junagade, Sanat Sarangi, Dineshkumar Singh

TATA Consultancy Services Limited, India

10:00

##### **6205: Adaptive Estimation of Yield and Impact for Barley with Varying Ambient Conditions**

Vidit Patil, Rushikesh Kulat, Sanat Sarangi, Dineshkumar Singh

TATA Consultancy Services Limited, India

10:15



#### *Sensors Letters Paper*

##### **6406: Polymer-Based Flexible Multi-modal Sensor for Plant Health Monitoring**

Dhanranjan Kumar, Shivansh Singh, Mitradip Bhattacharjee

Indian Institute of Science Education and Research Bhopal, India

9:00 – 10:30

### A1L-B: Transportation Systems

Room: Tango 2

Session Chair(s): Pankaj Kumar, DAIICT

Hussain kachwala, IIT Delhi

9:00

#### *Invited Talk*

##### **6352: Autonomy at Scale: From Intelligent Vehicles to Trusted Mobility Ecosystems Across Air and Ground**

Neeli Prasad

SmartAvatar B.V., Netherlands

9:30

##### **6163: Fusion of Geometric and Kinematic Features for LiDAR-Based Vehicle Classification**

Muni Srinivasulu B, Diya S Dileep, Bijo Sebastian, Lelitha Vanajakshi

Indian Institute of Technology Madras, India

9:45

##### **6216: Transight: Dual-Attention Spatio-Temporal Network for Anomaly Detection in Intelligent Transportation Surveillance**

Rakesh Kumar, Arvind Arvind, Manish Kumar Sharma, Sumeet Saurav, Sanjay Singh

CSIR-Central Electronics Engineering Research Institute, India



## Technical Program: Monday, February 23

10:00



### *Sensors Letters Paper*

#### **6329: Digital Twin for Drone Indoor Autonomous Navigation**

Jaswanth Kumar M, Satyam Singh, Ahnaf Saneen, Della Thomas  
Indian Institute of Information Technology (IIIT) Kottayam, India

10:15



### *Invited Journal Author*

#### **6385: A Hybrid CNN–BiLSTM Approach for Wildlife Detection Nearby Railway Track in a Forest**

Devendra Singh Parihar, Ripul Ghosh  
CSIR-Central Scientific Instruments Organisation, India

9:00 – 10:00

#### **A1L-C: AI for Sensing I**

Room: Tango 3

Session Chair(s): Soma Bandyopadhyay, TCS  
Prasanta Guha, IIT KGP

9:00

### *Invited Talk*

#### **6353: AI for Sensing**

Arpan Pal, Soma Bandyopadhyay, Arijit Ukil  
TATA Consultancy Services Limited, India

9:30

#### **6015: Throughput-Aware Mission Optimization for UAV-Enabled Data Collection in IoT Networks**

Sonam Badjatya, Santosh Shah, Sunil Kumar  
LNM Institute of Information Technology, India

9:45

#### **6288: TinyML Based Detection of Alcohol Induced Abnormalities Using ECG Signals and Metadata**

Sujit Shinde{2}, Sushrut Lingayat{2}, Karan Bhavsar{2}, Sanjay Kimbahun{2}, Avik Ghose{2}, Debabrata Roy{1}  
{1}Rabindranath Tagore International Institute of Cardiac Sciences, India; {2}TATA Consultancy Services Limited, India

10:00



### *Invited Journal Author*

#### **6315: Predictive Modeling of Osteoporosis: A Machine Learning Approach Based on Electromagnetic Signals**

Nishtha Shrivastava, Debalina Ghosh, Prasanta Kumar Sahu  
Indian Institute of Technology Bhubaneswar, India

10:15

#### **6350: Non-Invasive Screening of Prediabetes Using VOC Nanosensors: Classification of Synthetic Breath with Machine Learning**

Paramita Kar Choudhury{2}, Tanushree Banerjee{2}, Souradeep Roy{1}, Mohd Abdullah Siddiqui{2}, Prasanta K Guha{1}, Avik Ghose{2}, Sanjay Kimbahun{2}, Arpan Pal{2}  
{1}Indian Institute of Technology Kharagpur, India; {2}TATA Consultancy Services Limited, India

9:00 – 10:30

#### **A1L-D: Manufacturing & Automation I**

Room: Debate

Session Chair(s): Shubhra Gangopadhyay, The University of Missouri  
Han Shao, Tyndall

9:00

### *Invited Talk*

#### **6357: An Uncertainty Quantified Decision Perspective on Process Design, Development, and Modelling of Advanced Oxidation Process-Based Combined Industrial Dye-Wastewater Treatment Plant**

Shantanu Bhattacharya{1}, Kirtiman Singh{2}  
{1}CSIR-Central Scientific Instruments Organisation, India; {2}UPES, Dehradun, India

9:30

#### **6020: Impact of Different Interfaces on Trust During Authority Shifting in Collaborative Robotics**

Matteo Menolotto{2}, Aryan Gandhi{1}, Ashok Kumar Pandey{1}, Brendan O'Flynn{2}  
{1}Indian Institute of Technology Hyderabad, India; {1}Indian Institute of Technology Hyderabad, Ireland; {2}Tyndall National Institute / University College Cork, Ireland



## Technical Program: Monday, February 23

9:45

### **6032: Validation of Surface Virtual Sensors for Plastic Injection Molds**

Fábio Amaral{1}, Luis Piardi{2}, Paulo Leitão{2}, Roberto Neli{1}

{1}Federal University of Technology – Paraná, Brazil; {2}Research Centre in Digitalization and Intelligent Robotics (CeDRI), Instituto Politécnico de Bragança, Portugal

10:00

### **6051: Intelligent Machine Condition Monitoring Using Triboelectric Vibration Sensor**

Aparna Sinha{2}, Debanjan Das{1}

{1}Indian Institute of Technology Kharagpur, India; {2}Indian Institute of Technology Roorkee, India

10:15



### **Sensors Letters Paper**

### **6401: Novel GNSS-INS Integration Scheme with UKF-Based Dynamic IMU Calibration and Dual-layer Design for Reliable Navigation**

R C Ajaykrishna, Banibrata Mukherjee

IIT Kharagpur, India

9:00 – 10:30

### **A11-E: Medical & Digital Healthcare I**

Room: Nucleus Hall

Session Chair(s): Gautam Bacher, BITS PILANI GOA

Dipankar Bandyopadhy, IIT Guwahati

9:00

### **Invited Talk**

### **6354: Advancing Electrochemical Transistors from Lab to Field**

Chirasree Roychaudhuri, Piyali Mukherjee, Usha Rani Dash, Morza Rohan Ahamed

Indian Institute of Engineering Science and Technology Shibpur, India

9:30

### **6055: An Optimized Autoencoder Based Microwave Imaging Approach for Brain Anomaly Detection**

Naibedya Pattnaik, Vedula Kiran Bharadwaj, Arijit Chowdhury, Anwasha Khasnobish, Tapas Chakravarty

TATA Consultancy Services Limited, India

9:45

### **6059: UV-Induced Carrier Dynamics in Isoprene Sensors: Insights from STM and Experimental–Theoretical Analysis**

Akshaya M V{1}, Amala K{1}, Suja K J{2}, Palash Kumar Basu{1}

{1}Indian Institute of Space Science and Technology, India; {2}National Institute of Technology Calicut, India

10:00

### **6064: Design and Development of Miniaturized Cytology Scanner for Resource-Limited Settings**

Koushik Chandra Chenna{3}, Anujkumar Dayaram Prajapati{3}, Griffin Weston{2}, Christine Surrette{2}, Narayana Subramaniam{1}, Ravikanth Manyam{4}, Fiona Ginty{2}, Hardik Jeetendra Pandya{3}

{1}Aster International Institute of Oncology, India; {2}GE HealthCare Technology & Innovation Center, United States; {3}Indian Institute of Science, India; {4}Vishnu Dental College, India

10:15

### **6087: An Interpretable Feature Framework for Analyzing Multiclass Sleep Apnea from ECG Signals**

Shayan Roy{2}, Rajobrata Dasgupta{1}, Ankan Mondal{1}, Biswarup Ganguly{2}

{1}Jadavpur University, India; {2}National Institute of Technology Silchar, India

10:30 – 11:00

### **Coffee Break**

Room: Pre Function Area

11:00 – 11:30

### **Opening Ceremony**

Room: Tango 1, 2, & 3

11:30 – 11:45

### **Group Photo**

Room: Outside

12:00 – 13:00

### **Keynote Speaker: Chandrasekhar Nair, Director & Chief Technology Officer (CTO) Molbio Diagnostics**

Room: Tango 1, 2, & 3

Session Chair: Kavya Dashora, IITD



## Technical Program: Monday, February 23

13:00 – 14:00

### Lunch

Room: Exhibition Hanger

14:00 – 15:00

### Plenary Speaker: Takao Someya

Room: Tango 1, 2, & 3

Session Chair: Ravinder Dahiya, Northeastern University

15:00 – 16:30

### Posters: A2P-F: Agriculture & Food Technology III

Room: Pre Function Area, Screen 1

Session Chair(s): Kavya Dashora, IITD

Dinesh Singh, TCS

15:00

#### 6009: Real-Time Crop Sensing and Localization for Precision Agriculture

Rakesh M D{1}, Rohith Rajesh{2}, Rudraswamy S B{1}

{1}SJCE, JSS Science and Technology University, India; {2}Vellore Institute of Technology - Chennai, India

15:10

#### 6115: Smart Scale

Pranav Kaul{1}, Nitin Yadav{1}, Sugandh Kumar{1}, Aniket Gupta{2}, Anuj Grover{1}

{1}Indraprastha Institute of Information Technology Delhi, India; {2}Manipal University Jaipur, India

15:20

#### 6184: A Lightweight CNN Framework with SAM-Based Preprocessing for Luffa Disease Detection

Manish Kumar Sharma, Sumeet Saurav, Sanjay Singh

CSIR-Central Electronics Engineering Research Institute, India

15:30

#### 6238: A Disposable Sensor Combined with LDA-SVM for Rapid Detection of Milk Fat Percentage and Water Adulteration

Pooja Prasad, Asmita Bose, Avishek Adhikary

Indian Institute of Technology Bhilai, India

15:40



#### Sensors Letters Paper

#### 6300: In-Vitro and In-Vivo EIS-Based Analysis and Validation of Salt Stress Response in Pusa Basmati 1 Rice

Sohom Adhikari, Rishikesh Datar, Sandhya Mehrotra, Rajesh Mehrotra, Gautam Bacher

BITS Pilani KK Birla Goa Campus, India

15:50



#### Sensors Letters Paper

#### 6386: Graphene/PEDOT:PSS Hybrid Ink Based Flexible and Eco-Friendly Humidity Sensor for Early Plant Leaf Stress Monitoring

Ajay Beniwal{1}, Temitope Odedeyi{2}, Izzat Darwazeh{2}

{1}Dhirubhai Ambani University, India; {2}University College London (UCL), London, UK, United Kingdom

16:00



#### Sensors Letters Paper

#### 6387: Quality Assessment and Valuation of Made-Tea Using ROI Segmentation and Spectral-TDS Fusion

Sanket Junagade, Swagatam Bose Choudhury, Sanat Sarangi, Dineshkumar Singh

TATA Consultancy Services Limited, India

16:10



#### Sensors Letters Paper

#### 6400: Magnetic Characterization and an Arctan-based Multi-Component Nonlinear Modelling of Mangifera Indica L. Tissues for PBC Applications

Gunjan Kumari, Nagendra Prasad Pathak

IIT Roorkee, India

16:20



#### Sensors Letters Paper

#### 6397: Flexible MoS<sub>2</sub>-Based Ion-Selective Sensor with Valinomycin Membrane for In-Situ Detection of Soil Potassium (K<sup>+</sup>) Ions

Prajwal Shukla, Rahul Gond, Brajesh Rawat

IIT Ropar, India



## Technical Program: Monday, February 23

15:00 – 16:30

**Posters: A2P-G: Analytical Instrumentation III**

Room: Pre Function Area, Screen 2

Session Chair(s): Rajan Jha, IIT Bhubaneswar

15:00

**6077: FFT and Chirp-Z Transform Based Signal Processing for Precision FMCW RADAR Level Measurement**

Shyam Sundar Jena{2}, Manjiri Pande{1}, Sandip Shrotriya{1}, Amitava Roy{1}

{1}Bhabha Atomic Research Centre, India; {2}Homi Bhabha National Institute, India

15:10

**6079: Physics Inspired Approach for Enhancing Underwater Images Using Virtual Polarizer**

Alok Rajput, Vidhi Khakholia, Rakib Rizuan Riyad, Shayan Roy, Biswarup Ganguly

National Institute of Technology Silchar, India

15:20

**6136: Design and Simulation of a MEMS Based Non-Thermal Hair Type Airflow Sensor**

Sudheera Kariyawasam{2}, Vishwa Kannangara{4}, Vaibhav Ramalingam{1}, Sanjaya Senarathna{3}, Ranjith Amarasinghe{3}, Dumith Jayathilaka{3}

{1}APJ Abdul Kalam Technological University, India; {2}Colorado State University, United States; {3}University of Moratuwa, Sri Lanka; {4}University of Southern Denmark, Denmark

15:30

**6168: Nanotechnology-Assisted of Methylene Sensing and Remediation Blue in Water**

Isabela Fernandes Silva Reis{1}, Neoli Lucyszyn Suckow{2}, José Luís Fabris{1}, Marcia Muller{1}

{1}Federal University of Technology – Paraná, Brazil; {2}Pontifícia Universidade Católica do Paraná, Brazil

15:40

**6172: 3D Printed Automated Optical Delay Stage with Gear Reduction Enabled Sub-Micron Microstepping**

Shailendra Prajapati, Muthuserpi Sasikumar, Srikanth Sugavanam

Indian Institute of Technology Mandi, India

15:50

**6204: High Precision Direct Detection-Based Automated Measurements of the Verdet Constant Using 3D Printing Technologies**

Anand Mohan{2}, Shailendra Prajapati{2}, Srikanth Sugavanam{2}, Erwin Fuhrer{1}

{1}Indian Institute of Technology Guwahati, India; {2}Indian Institute of Technology Mandi, India

16:00

**6296: Multi-View Panoramic Thermal Infrared Monitoring with Edge Analytics for Resource-Constrained Sensing**

Manjeet Singh{3}, Gurkirat Singh{1}, Neeraj Guleria{2}, Guramandeep Singh{2}, Aparna Akula{3}

{1}Chitkara University Institute of Engineering & Technology / Chitkara University, India; {2}CSIR-Central Scientific Instruments Organisation, India; {3}CSIR-Central Scientific Instruments Organisation, Academy of Scientific and Innovative Research, India

16:10



**Sensors Letters Paper**

**6283: Novel Al<sub>2</sub>O<sub>3</sub>/GO Nanocomposite-Based Highly Sensitive Optical Fiber Humidity**

Subham Koley, Sunil Khijwania

Indian Institute of Technology Jodhpur, India

16:20

**6297: Design and Optimization of Ni-Cr Microheaters Structures with Thickness Variation for Low- Power Operation**

Ujjwal Singh{2}, Prachi Soni{2}, Aditya Joshi{1}, Bhawna Pareek{4}, Shailesh K Moussalpuria{3}, Ajay Agarwal{2}

{1}Indian Institute of Information Technology, Bhagalpur, India; {2}Indian Institute of Technology Jodhpur, India; {3}Medical Technology Centre, Indian Institute of Technology Jodhpur, India; {4}Mody University of Science and Technology, India



## Technical Program: Monday, February 23

15:00 – 16:30

### Posters: A2P-H: Analytical Instrumentation IV

Room: Pre Function Area, Screen 3

Session Chair(s): Shahid Malik, IIT Delhi

15:00



#### *Invited Journal Author*

##### **6308: Design of Reconfigurable Radar Signal Processor for Frequency-Modulate Continuous Wave Radar**

Yunseong Sim{1}, Jinmoo Heo{1}, Yongchul Jung{2}, Seongjoo Lee{3}, Yunho Jung{1}

{1}Korea Aerospace University, Korea; {2}Korea Electronics Technology Institute, Korea; {3}Sejong University, Korea

15:10



#### *Sensors Letters Paper*

##### **6321: Numerical Modeling of Graphene Nanoribbons Salisbury Screen on CaF<sub>2</sub> Substrate for Near-Unity Mid-Infrared Absorption**

Vinod Sharma, Saurabh Kishen, Naresh Kumar Emani

Indian Institute of Technology Hyderabad, India

15:20

##### **6347: Optimization of Low-Noise Amplifier Circuits for Enhanced Sensor Signal Integrity**

Dayarnab Baidya, Athul Krishnan, Mitradip Bhattacharjee

Indian Institute of Science Education and Research Bhopal, India

15:30



#### *Sensors Letters Paper*

##### **6389: Spectral Line Enhancement for Noise-Resilient Passive Sonar Detection using Dual-Attention Guided Wavelet domain FISTA-Net**

Riya Rani Ss, Sumit Datta

Digital University Kerala, India

15:40



#### *Sensors Letters Paper*

##### **6408: Wet Bulk Micromachining of Si{110} with IPA- added NH<sub>4</sub>OH Etchants for MEMS-Based Sensors application**

Priyanka Dewangan, Vishal Sahu, Prem Pal

Indian Institute of Technology Hyderabad, India

15:50



#### *Sensors Letters Paper*

##### **6416: High-performance Broadband Photodetector based on Uniform WS<sub>2</sub> Micro- Squares**

Vaibhav Kandwal{1}, Pukhraj PRAJAPAT{1}, Gulpavit Kaur Bhatia{2}, Ajay Bhatt{1}, Govind Gupta{1}

{1}National physical laboratory New Delhi, India; {2}SRM University, Kattankulathur, Chennai, Tamil Nadu, 603203, India., India

15:00 – 16:30

### Posters: A2P-J: Transportation Systems & AI for Sensing

Room: Pre Function Area, Screen 4

Session Chair(s): Hussain kachwala, IIT Delhi

Pankaj Kumar, DAICT

15:00

##### **6072: An IoT-Integrated IMU Sensor Node for Affordable Crash Detection and Emergency Notification**

Alaa Aldin Ghazal, S. G Ganpule

Indian Institute of Technology Roorkee, India

15:10

##### **6141: Enhancing Electric Vehicle Route Transparency Using Explainable AI Integrated Quantum Deep Reinforcement Learning Framework for Green Transportation**

Shweta Jain{2}, Prashant Kumar{2}, Rishit Aggarwal{1}, Dr. Rajni{3}, Bahareh Kamranzad{4}

{1}Indian Institute of Technology Patna, India; {2}National Institute of Technology Delhi, India; {3}O.P. Jindal Global University, India; {4}University of Strathclyde, United Kingdom

15:20



#### *Sensors Letters Paper*

##### **6399: Differential Self-Attention in 1D CNNs for Driver Inattention Detection Using Multimodal Biosignals**

Pavan Kaveti, P Satyajith Chary, Ankit Singh, Digvijay S Pawar, Nagarajan Ganapathy

Indian institute of technology Hyderabad, India



## Technical Program: Monday, February 23

15:30



### *Sensors Letters Paper*

#### **6398: A Novel Multi-Layer Functional Brain Connectivity-Based Motor Imagery Classification Model Using EEG Sensor Data**

Sudip Modak, Suman Halder, Soumya Chatterjee

National Institute of Technology Durgapur, India

15:40



### *Sensors Letters Paper*

#### **6404: Precision-Driven AI Smartphone-Based Sensor System for Fingernail-Based Non-Invasive Disease Detection**

Neha Ingole<sup>{2}</sup>, Richa Khandelwal<sup>{1}</sup>

<sup>{1}</sup>RBU, India; <sup>{2}</sup>RCOEM, India

15:00 – 16:30

#### **Posters: A2P-K: Environment & Climate Change Monitoring IV**

Room: Pre Function Area, Screen 5

Session Chair(s): Tapas Chakravarty, Institute of Engineering and Management, Kolkata

Mitradip Bhattacharjee, IISER Bhopal

15:00

#### **6061: Dual-Mode Optical Detection of Cobalt Ions Using Silica Nanoparticles**

Priyanka Shedbale, Nirmal Punjabi, Suparna Mukherji, Soumyo Mukherji

Indian Institute of Technology Bombay, India

15:10

#### **6069: Low Level Detection of CH<sub>3</sub>OH Sensing via MoS<sub>2</sub>/PANI Heterojunction Transistor**

Shivangi Srivastava, Sajal Agarwal

Rajiv Gandhi Institute of Petroleum Technology, India

15:20

#### **6150: Design and Analysis of High-Resolution Airborne SAR Sensor at X Band Using LFM for Remote Sensing Applications**

Nagaraju Chintha<sup>{2}</sup>, P Vinod Kumar<sup>{2}</sup>, Bhukya Venkanna Naik<sup>{1}</sup>

<sup>{1}</sup>Indian Institute of Information Technology, Nagpur, India; <sup>{2}</sup>Rajiv Gandhi University of Knowledge Technologies, Nuzvid, India

15:30

#### **6206: A Study on Remote Sensing and Smart Sensors for Urban Air Quality and Carbon Footprint Management**

Chandni Keswani<sup>{4}</sup>, Shyam Sunder Agrawal<sup>{3}</sup>, Shohrat Fatima<sup>{1}</sup>, V. Seema Vinod<sup>{2}</sup>, Aswathy Menon<sup>{5}</sup>, Ravi Kumar<sup>{3}</sup>

<sup>{1}</sup>Banaras Hindu University Varanasi, India; <sup>{2}</sup>Gandhigram Rural Institute Gandhigram, India; <sup>{3}</sup>Lovely Professional University, India; <sup>{4}</sup>Shri Vaishnav Institute of Management and Science Indore, India; <sup>{5}</sup>Shri Vaishnav Vidyapeeth Vishwavidyalaya, India

15:40



### *Sensors Letters Paper*

#### **6382: Label-Free Electrochemical Detection of Acetaminophen Using a Gold Nanoparticle-Modified Stainless Steel Electrode**

Nikila Nair<sup>{1}</sup>, Soniya Varghese<sup>{2}</sup>, Afra Aboobacker<sup>{3}</sup>, Jose Joseph<sup>{1}</sup>

<sup>{1}</sup>Digital University Kerala, India; <sup>{2}</sup>India Graphene Engineering and Innovation Centre, India; <sup>{3}</sup>Kerala University of Digital Sciences, Innovation and Technology, India

15:50



### *Sensors Letters Paper*

#### **6395: Large-scale fabrication of fully printed, photoactivated Au decorated Tin Oxide based room-temperature NO<sub>2</sub> sensors with ultra-high response on paper substrates**

Siri Chandana Amarakonda, Manvendra Singh, Mohammed Hadhi Pazhaya Puthanveetil, Subho Dasgupta

Indian Institute of Science, India

16:00



### *Sensors Letters Paper*

#### **6393: Analysis of Mxene and Mxene/ZnO Composite based I-V Sensing for Antibiotic Detection**

Seyadu Abuthahir, Manikandan M, Yuthika R, M Lavanya Priyadarshini, Manikandan E

Vellore Institute of Technology - Chennai Campus, India



## Technical Program: Monday, February 23

16:10



### *Sensors Letters Paper*

**6409: Comparative Chemiluminescence Sensing of Hydrogen Peroxide Using a Miniaturized Chip using Cobalt Catalyst versus Electrogenerated Emission at a Graphite Electrode**

M.A. Hasamnis

Shri. Ramdeobaba College of Engineering and Management, India

16:20



### *Sensors Letters Paper*

**6412: Electromechanical and Acoustic Characterization of a Capacitive Micromachined Ultrasonic Transducer in Multienvironment Conditions**

Bijit Kumar Nath{1}, Reshmi Maity{1}, Niladri Pratap Maity{2}

{1}Mizoram University (A Central University), India; {2}NITTTR Kolkata, India

15:00 – 16:30

**Posters: A2P-L: Infrastructure & Sustainability II**

Room: Pre Function Area, Screen 6

Session Chair(s): Siddharth Tallur, IIT Bombay

15:00

**6037: Design and Implement of Advanced Algorithm in MATLAB for Efficient Solar Dish Orientation**

Arnav Sharma, Purnima Hazra

Shri Mata Vaishno Devi University, India

15:10

**6063: Low-Cost AI-Driven Footfall Monitoring System with Enhanced Detection Range for Smart City Applications**

Arnav Sharma, Solihah Jan, Satyendra Kumar Singh, Bhawani Singh, Purnima Hazra

Shri Mata Vaishno Devi University, India

15:20

**6256: A Robust IoT Architecture for Real-Time Battery and Environmental Monitoring in Coal-Mine Infrastructure**

David Tandell{1}, Musab Bin Khaleeq{1}, Rahul Mishra{2}, Tapas Kumar Maiti{1}, Sujay Kadam{1}

{1}Dhirubhai Ambani University, India; {2}Indian Institute of Technology Patna, India

15:30



### *Invited Journal Author*

**6319: Fully Waste-Derived Triboelectric Nanogenerators for Real-Time Activity Tracking**

Ajay Saini, Manas Tiwari, Trapti Mudgal, Deepak Bharti

Malaviya National Institute of Technology, Jaipur, India

15:40



### *Sensors Letters Paper*

**6396: Design and Fabrication of Anthracite Coal-Derived Graphene Oxide Humidity Sensor for Moisture Sensing in Transformer Oil**

Vikash Ranjan{2}, Prasenjit Basak{2}, Shailesh Kumar{1}

{1}Arka Jain University, Jharkhand, India; {2}Thapar Institute of Engineering and Technology, Patiala, India

15:50



### *Sensors Letters Paper*

**6405: Sustainable, Flexible and Ambient Temperature Operated Polyaniline-based Chemiresistive Ammonia Sensor with Eco-Friendly Design**

Ajay Beniwal{1}, Rahul Gond{2}, Xenofon Karagiorgis{3}, Brajesh Rawat{2}, Chong Li{3}

{1}Dhirubhai Ambani University (formerly DA-IICT), Gandhinagar, India, India; {2}Indian Institute of Technology, Ropar, Rupnagar, India, India; {3}University of Glasgow, Glasgow, UK, United Kingdom

16:00



### *Sensors Letters Paper*

**6414: A LoRa-Based V2I System for Collision Warning at Blind-Turn**

Shubham Gupta{2}, Pratyush Gupta{2}, Theajus Prakash{2}, Ramendra S. Baoni{1}, Anuj Grover{2}

{1}Bisquare Systems Pvt. Ltd., India; {2}IIIT Delhi, India

16:10

**6418: A Multi-Modal Communication Framework for Enhanced Vehicular Coordination and Aerial Surveillance**

Annu Annu{1}, Syam Narayanan S{2}, Rajalakshmi Pachamuthu{2}, Shaik Jani Basha{2}, Vijay Kumar Gudimetla{2}

{1}Indian Institute of Technology Hyderabad, India; {2}NM-ICPS TiHAN Foundation, Indian Institute of Technology Hyderabad, India



## Technical Program: Monday, February 23

15:00 – 16:30

### Posters: A2P-M: Wearables & Immersive Technologies II

Room: Pre Function Area, Screen 7

Session Chair(s): Brendan O'Flynn, Tyndall University

Pankaj Kumar, DAICT

15:00

#### 6038: Accurately Quantified Heart Rate Variability Through Non-Contact Wearable Radar Sensing

Zainab Riaz{2}, Stephanie Pella{2}, Neil Tom{2}, Mark Halaki{3}, Martin Ugander{3}, Tuguy Esgin{1}, Mehmet Rasit Yuce{2}  
{1}Curtin University, Australia; {2}Monash University, Australia; {3}University of Sydney, Australia

15:10

#### 6047: Development of a Wearable Vibrator-Accelerometer System for Early Breast Cancer Detection

Adhinarayan Ashok{1}, Jai Aadhiya Ramesh{1}, Sanjam Bedi{1}, Taha Ashraf Ali Shaikh{1}, Daqsh Srivastava{1}, Adarsh Ganesan{1}, Madhurendra Mishra{2}  
{1}Birla Institute of Technology and Science, Pilani - Dubai, U.A.E.; {2}Sri Guru Tegh Bahadur Khalsa College, University of Delhi, India

15:20

#### 6089: AI-Driven Generation of Cortisol-Binding Peptides for Non-Invasive Stress Detection

Sucharita Banerjee{1}, Dharmendr Kumar{3}, Parijat Deshpande{3}, Sanjay Kimbahu{3}, Ajay Singh Panwar{2}  
{1}ITB-Monash Research Academy, Tata Consultancy Services Limited, India; {2}Indian Institute of Technology Bombay, India; {3}TATA Consultancy Services Limited, India

15:30

#### 6104: Multi-Command Control of Prosthetic Arm Using a Low-Cost EEG Blink Sequencer

Anukha Vusirikala{1}, Simarjeet Saini{2}  
{1}Castilleja School, United States; {2}University of Waterloo, Canada

15:40

#### 6109: Multi-Sensor Smart Insole System: Design, Fabrication and Evaluation for Real-Time Gait Analysis

Yash Agarwal, Karanjeet Singh, Rayhankhan Pathan M, Anuj Grover  
Indraprastha Institute of Information Technology Delhi, India

15:50

#### 6178: Wearable Fingertip PPG Compared to Wrist PPG for Emergency Alerting via Bluetooth or Cellular

Henry Tran{2}, Jamal Bahari{2}, Alex McGovern{1}, Carissa Ruscheinsky{1}, Justin Tsang{1}, Siddiqui Hakim{1}, Chandana Unnithan{1}, Bonnie Gray{2}  
{1}Lifeguard Digital Health Inc., Canada; {2}Simon Fraser University, Canada

16:00

#### 6179: Graphene Based Flexible Piezoresistive Strain Sensor

Remya Kunjuveetil G, Aleena Kabeer, Malavika Prasad S, Alex James  
Digital University Kerala, India

16:10

#### 6189: Design of Wearable and Wireless Motion Capture System for Biomechanical Application

Prasanna P, Sanjeev R, Celestin Jerald A  
SASTRA Deemed to be University, India

16:20



#### *Sensors Letters Paper*

#### 6388: A CSRR-IDC Based Microwave Biosensor for Non-Invasive Creatinine Detection

Teja Jetty{1}, Andleeb Zahra{1}, Swarnim Sinha{1}, Syed Azeemuddin{2}, Zia Abbas{1}  
{1}International Institute of Information Technology, Hyderabad, India; {2}Pennsylvania State University, The Behrend College, United States



## Technical Program: Monday, February 23

16:30 – 18:00

### A3L-A: Analytical & Instrumentation I

Room: Tango 1

Session Chair(s): Shahid Malik, IIT Delhi

Rajan Jha, IIT Bhubaneswar

16:30

#### *Invited Talk*

##### **6384: Tellurene Wearable Sensors**

Wenzhuo Wu

Purdue University, United States

17:00

##### **6065: Dual-Frequency Ultrasonic Method for Wide-Range, High-Precision Non-Contact Vibration Measurement**

Haneesh Sankar T P, Nithya P, Rajesh K R

Centre for Development of Advanced Computing, India

17:15

##### **6214: A Machine Learning Approach to Digital Dental Shade Matching with Ambient Light Mitigation**

Yusma Hilal{1}, Devender Nath Maurya{1}, Mohammad Ehshan Khan{1}, Saba Shaikh{1}, Ruchika Nawal{2}, Vidhi Bhalla{3}, Amit Malhotra{3}, Shahid Malik{1}  
{1}Indian Institute of Technology Delhi, India; {2}Maulana Azad Institute of Dental Science, India; {3}Maulana Azad Institute of Dental Sciences, India

17:30

##### **6022: Effect of Activation Function on Model Performance for Gearbox Fault Diagnosis**

Husain Kanchwala

Indian Institute of Technology Delhi, India

17:45

##### **6082: Real-Time Onboard Detection of Hazardous Gasses Using Electrochemical Fingerprinting**

Tharnath Bagirathan, Raven Reitsstetter, Dustin Reitsstetter, Pierre-Emmanuel Gaillardon

University of Utah, United States

16:30 – 18:00

### A3L-B: Infrastructure & Sustainability I

Room: Tango 2

Session Chair(s): Siddharth Tallur, IIT Bombay

16:30

#### *Invited Talk*

##### **6391: From sensors to sustainable systems: Field-deployable intelligence for infrastructure and public health**

Siddharth Tallur

IIT Bombay, India

17:00

##### **6091: Environment- Friendly Flexible Perovskite Solar Cells for Self- Powered IoT Devices Under Indoor Lighting**

Nikhil Handa, Neeraj Neeraj, Navneet Gupta

Birla Institute of Technology and Science, Pilani, India

17:15

##### **6180: Towards a Digital Twin of HEMM Fleet Operations: A Sensor-System Prototype and Simulation Framework for Monitoring in Open-Pit Coal Mines**

Musab Bin Khaleeq, Jalak Vyas, Saarthak Jindal, David Tandel, Tapas Kumar Maiti, Sujay Kadam

Dhirubhai Ambani University, India

17:30

##### **6187: Scalable Fabrication of Double-Sided Laser-Induced Graphene for High-Sensitivity Triboelectric Pressure Sensors**

Tausif Kamal, Faizan Tariq Beigh, Ankur Goswami, Dhiman Mallick

Indian Institute of Technology Delhi, India

17:45



#### *Sensors Letters Paper*

##### **6390: Water Soluble Flexible Substrate Based Humidity Sensor for Transient Sensing**

Mohammed Hadhi Pazhaya Puthanveetil, Siri Chandana Amarakonda, Subho Dasgupta

Indian Institute of Science Bengaluru, India



## Technical Program: Monday, February 23

16:30 – 18:00

### A3L-C: Robotics & Digital Twin I

Room: Tango 3

Session Chair(s): Sujay Kadam, DAICT

Shubhendu Bhasin, IIT Delhi

16:30

#### *Invited Talk*

##### **6355: Wearable Robotics: Empowering Mobility, Restoring Lives**

Shubhendu Bhasin

Indian Institute of Technology Delhi, India

17:00

##### **6048: TihanFly: A Multi-Drone Ground Control Station for Scalable UAV Operations**

Pavan Sai Kumar Thummala{1}, Mohan Kumar J{2}, Syam Narayanan S{2}, Tarun Kumar Bodnayakuni{1}, Raju Santhani{1}, Rajalakshmi Pachamuthu{1}

{1}Indian Institute of Technology Hyderabad, India; {2}NMCIPS TIHAN Foundation, Indian Institute of Technology Hyderabad, India

17:15

##### **6071: Design and Development of a Unmanned Surface Vehicle (USV) for Sludge Quantification and Inland Water Quality Assessment**

Dwivedula Narasimha Sri Sourabh, Vinayak Maharshi, Balakumaran M, Himabindu Allaka

Indian Institute of Technology Hyderabad, India

17:30

##### **6084: Enhancing Human–Robot Collaboration Based on Hand Tracking Sensing and Cobot Speed Control**

Luis Piardi, Alexandre Carelli Borsoi, Paulo Leitão

Research Centre in Digitalization and Intelligent Robotics (CeDRI), Instituto Politécnico de Bragança, Portugal

17:45

##### **6199: A Simulation Driven Design Methodology of Piezoelectric Tactile Sensors for 3D Force Detection**

Kalash Chandakapure{2}, Paramita Kar Choudhury{2}, Ashutosh Kumar Tripathi{1}, Biswanath Panda{1}, Baquer Mazhari{1}, Y N Mohapatra{1}, Ranjan Dasgupta{2}, Titas Bera{2}

{1}Indian Institute of Technology Kanpur, India; {2}TATA Consultancy Services Limited, India

16:30 – 18:00

### A3L-D: Wearables & Immersive Technologies I

Room: Debate

Session Chair(s): Mohan Kumar, IIT Hyderabad

Ravinder Dahiya, IEEE

16:30

#### *Invited Talk*

##### **6341: Technology in Geriatric Care**

Supratik Gupta

Support Elders Pvt Ltd, India

17:00

##### **6053: A Comparative Study on a Wearable Non-Invasive Hydration Monitoring System Based on Multifrequency Bioimpedance Analysis with Commercial and Predictive Models**

Prividhyasakthi Vijayakumar{1}, Govind U{2}, Amaresh S{2}, Swaminathan Sundararaman{1}, Hardik Jeetendra Pandya{1}

{1}Indian Institute of Science, India; {2}Indian Institute of Science, Bangalore, India

17:15

##### **6102: Miniaturized Dual-Band Patch Antenna for Reliable Sensing Applications**

Soham Karak{1}, Swapnaleena Biswas{1}, Sneha Shaw{1}, Ch Raghavendra{2}, A Jhansirani{2}, Gobinda Sen{1}

{1}Institute of Engineering and Management, India; {2}Siddhartha Academy of Higher Education, India

17:30

##### **6186: Lithography-Free Multiband Flexible Graphene Antenna for Wearable Biomedical Applications**

Sujoy Paul, Faizan Tariq Beigh, Dibyajyoti Mukherjee, Dhiman Mallick

Indian Institute of Technology Delhi, India

17:45

##### **6200: Double-Sided Laser-Induced Graphene Memristors for Thermally Tunable Neuromorphic Computing**

Soha Maqbool Bhat, Faizan Tariq Beigh, Dhiman Mallick

Indian Institute of Technology Delhi, India



## Technical Program: Monday, February 23

16:30 – 18:00

### **A3L-E: Medical & Digital Healthcare II**

Room: Nucleus Hall

Session Chair(s): Gautam Bacher, BITS PILANI GOA

Dipankar Bandyopadhy, IIT Guwahati

16:30

#### **6092: Birefringence Quantification Based on Polarization Integrated Digital Holographic Microscopy**

Mirza Sameerullah Baig, Partha Pratim Pal, Alan Ranjit Jacob, Renu John

Indian Institute of Technology Hyderabad, India

16:45

#### **6112: Digital Phantom for Full Angle Spatial Compound Imaging Simulations for Ultrasound Image Guidance of Hyperthermia**

Aishwarya Gunasekaran, Kavitha Arunachalam

Indian Institute of Technology Madras, India

17:00

#### **6123: Performance of Thin Film Force Sensors on Tissue Mimicking Phantom with Varying Stiffness for Tactile Finger Force Sensing**

Vijayalakshmi Gunasekaran, Kavitha Arunachalam

Indian Institute of Technology Madras, India

17:15

#### **6129: Photoplethysmography-Driven Intelligent Edge Finger Clip for Non-Invasive Hemoglobin Monitoring**

Aditi Das, Ishan Basu, Mrinal Kumar Acharya, Debanjan Das

Indian Institute of Technology Kharagpur, India

17:30



#### ***Sensors Letters Paper***

#### **6324: Ultrasensitive Detection of Creatinine Using Deep Learning Integrated Graphene Oxide Gold Nanocomposites SERS Sensor**

Vennila Preethi S, Gowri Annasamy

Indian Institute of Information Technology, Design & Manufacturing, Kancheepuram, India



## Technical Program: Tuesday, February 24

8:30 - 18:00

### Registration

Room: Pre Function Area

9:00 – 10:30

### Workshop: Science Without Borders: Driving Innovation through Global Partnerships

Room: Tango 1

9:00 – 10:30

### B1L-B: Medical & Digital Healthcare III

Room: Tango 2

Session Chair(s): Gautam Bacher, BITS PILANI GOA

Dipankar Bandyopadhy, IIT Guwahati

9:00

### Invited Talk

#### 6358: Indigenous Brain Implants

Hardik Jeetendra Pandya

Indian Institute of Science, India

9:15

#### 6157: A Disposable Sensor for the Fast Estimation of Urine Urea Using Single Frequency Impedimetry

Saransh Chourey, Asmita Bose, Avishek Adhikary

Indian Institute of Technology Bhilai, India

9:30

#### 6164: Sensing the Neural, Muscular, and Biomechanical Biomarkers to Evaluate Age-Related Neuromuscular Health

Sankhalp Ns, Celestin Jerald A

SASTRA Deemed to be University, India

9:45

#### 6203: Non-Invasive Quantitative Evaluation of Embryos with Digital Holographic Microscopy

Jyothika Velakketh Ganesan, Partha Pratim Pal, Sandeep Karunakaran, Renu John

Indian Institute of Technology Hyderabad, India

10:00



### Sensors Letters Paper

#### 6323: Functionalized SiO<sub>2</sub> Wafer Platform for on Chip Extracellular Vesicles Capture-Lysis for Electrochemical Sensing

Nusrat Praween{2}, Krishna Thej Pammi Guru{3}, Palash Kumar Basu{1}

{1}Indian Institute of Space Science and Technology, India; {2}Indian Institute of Space Science and Technology, Thiruvananthapuram, India; {3}SoC, University of South Africa, India

9:00 – 10:30

### B1L-C: From Physical to Chemical Sensing I

Room: Tango 3

Session Chair(s): Kavya Dashora, IITD

9:00



### Sensors Letters Paper

#### 6335: A Portable Microfluidic Paper-Based Analytical Device for Sensing of Cortisol in Artificial Saliva

Utkarsha Wankhade{3}, Danish Khan{3}, Khushi Mahule{3}, Manshwi Patle{3}, Madhura Ambadkar{3}, Isha Wele{3}, Jayu Kalambe{1}, Rajesh Pande{2}

{1}RamdeoBaba University Nagpur, India; {2}RBU, India; {3}RCOEM, India

9:15



### Sensors Letters Paper

#### 6336: A Data-Driven Approach to Leak Identification and Severity Analysis in Pipelines Using Acoustic Sensing and Deep Learning

Mayukh Biswas{4}, Aditya Narayan{2}, Debaudh Ghosh{3}, Samriddha Ganguly{1}, Raj Rakshit{4}, Chirabrata Bhaumik{4}

{1}Indian Institute of Science Education and Research Bhopal, India; {2}Indian Institute of Technology, Guwahati, India; {3}Jadavpur University, India; {4}TATA Consultancy Services Limited, India

9:30



### Sensors Letters Paper

#### 6338: A 4H-SiC CTAT Temperature Sensor Operating Between 14K and 481K

Luigi Di Benedetto{2}, Nicola Rinaldi{2}, Mathias Rommel{1}, Alexander May{1}, Rosalba Liguori{2}, Alfredo Rubino{2}, Gian Domenico Licciardo{2}

{1}Fraunhofer Institute for Integrated Systems and Device Technology, Germany; {2}University of Salerno, Italy



## Technical Program: Tuesday, February 24

9:45



### *Sensors Letters Paper*

#### **6340: rGO/Graded ZnO Based FET for Tunable Heavy Metal Ion Detection in Water**

Arijit Patra{1}, Sampurna Mukherjee{1}, Bidesh Mahata{1}, Tanmoy Jana{2}, Sayan Dey{1}

{1}Indian Institute of Technology Bhubaneswar, India; {2}Techno International New Town, Kolkata, India

10:00



### *Sensors Letters Paper*

#### **6345: Sensor-Driven Entropy for Energy-Efficient Security in Optical Camera Communication Systems**

Puneet Pandey, Sandeep Joshi

Birla Institute of Technology and Science, Pilani, India

9:00 – 10:30

#### **B1L-D: Student Research Forum I**

Room: Debate

Session Chair(s): Chirasree RoyChaudhuri, Bengal Engineering and Science University

Parikshit Sahatiya, Birla Institute of Technology and Science Pilani Hyderabad Campus

9:00

#### **6044: Customer Segmentation**

Kannan N{3}, Renuka N{2}, Vinitha C{1}, Saran Venkatesh B{1}, Ucchakumar S{1}

{1}Kongu Engineering College, India; {2}kongu engineering college-638052, India; {3}kongu engineering college,perundurai-638052, India

9:15

#### **6066: Face-Landscape Illusion Generation Using Style Gan**

Sattvik Annadatha, Sivagamasundari G.

PES University, India

9:30

#### **6099: Magnetic Field Sensing in AIN-Based One-Port Delay Line SAW Resonator**

Tanisha Burman, Davinder Kaur

Indian Institute of Technology Roorkee, India

9:00 – 12:00

#### **Sensors Standards Event**

Room: Nucleus

9:00 – 12:00

#### **Startup Summit**

Room: Pre Function Area

10:30 – 10:45

#### **Coffee Break**

Room: Pre Function Area

10:45 – 12:00

#### **YP Workshop: How to Prepare a Paper for IEEE Journals and/or Conferences**

Room: Tango 1

10:45 – 12:00

#### **B2L-B: Manufacturing & Automation II**

Room: Tango 2

Session Chair(s): Shubhra Gangopadhyay, The University of Missouri

Thilo Sauter, Donau-Universität, Vienna, Austria

10:45

#### **6057: A Two-Stage Multi-Task Learning-Based Algorithm for Photo Lithography Quality Root Cause Analysis**

Sameera Bharadwaja Hayavadana{2}, Ankit Gupta{2}, Siddharth Jandial{2}, Akash Gaurav{2}, Shashank Shrikant Agashe{2}, Gil-Woo Song{1}

{1}Samsung Electronics, Korea; {2}Samsung Semiconductor India Research, India

11:00

#### **6113: Inductively Coupled Recovery Mechanism for Instrumented Mooring Lines of Buoy System**

Byju C{1}, Ananya Amban{2}, Divya D S{2}

{1}Centre for Development of Advanced Computing, India; {2}ER&DCI Institute of Technology, Centre for Development of Advanced Computing C-DAC, India



## Technical Program: Tuesday, February 24

11:15



### *Sensors Letters Paper*

#### **6407: ANN based hybrid framework to evaluate the ride comfort standards in autonomous and conventional vehicles**

Kp Sibivivek, Edwin Varghese, Ashok Kumar Pandey  
Indian Institute of Technology Hyderabad, India

11:30

#### **6056: Real-Time Quantification of TPM in Frying Oil Using IDE-Based Sensor**

Rajat Srivastava, Sangeeta Kale  
Defence Institute of Advanced Technology, India

11:45



### *Sensors Letters Paper*

#### **6362: A Smart Dual Thermistor-Based Nasal Mask for Respiratory Health Monitoring**

Thomaskutty Mathew, Chapala Anjaneyulu, Joel Mohapatra, Brithik Biju R, Anoop Chandrika Sreekantan  
Indian Institute of Space Science and Technology, India

10:45 – 12:00

#### **B2L-C: AI for Sensing II**

Room: Tango 3

Session Chair(s): Shailesh Deshpande, TCS  
Soma Bandyopadhyay, TCS

10:45

#### **6322: Identification of Gait Phases from Wireless Surface Electromyography Features with a Hybrid CNN-LSTM Architecture**

V Mallikarjuna Reddy M{1}, Pandian P S{1}, Kumaravelu S{2}, Karthick P A{3}  
{1}Defence Research and Development Organisation, India; {2}K.A.P.V. Government Medical College Tiruchirappalli, India; {3}National Institute of Technology Tiruchirappalli, India

11:00

#### **6194: Lightweight Hybrid Neural Network for Enhanced ECG Signal Quality Assessment**

Evgenia Slivko{1}, Kay Bierzynski{1}, Lorenzo Servadei{2}, Robert Wille{2}  
{1}Infineon Technologies AG, Germany; {2}Technical University of Munich, Germany

11:15

#### **6339: Prediction of Ripeness in Mangoes Using Digital Smell**

Smarth Behl, Vinod Shrivastava, Shubhajit Roy Chowdhury  
Indian Institute of Technology Mandi, India

11:30



### *Sensors Letters Paper*

#### **6326: Masked-Aware Directional Attention Network for DOA Estimation Under Sensor Failure Conditions**

Anuj Kumar Mishra{1}, Aditya Srivastava{3}, Ripul Ghosh{2}  
{1}Academy of Scientific and Innovative Research (AcSIR), Ghaziabad-201002, India, India; {2}CSIR-Central Scientific Instruments Organisation, India; {3}Vellore Institute of Technology, Bhopal, India

11:45



### *Sensors Letters Paper*

#### **6330: Nanostructured Silicon Aptasensor for Reliable Detection of Leukemia Biomarker**

Shafaque F. Khan{2}, Arpita Parakh{2}, Sangeeta Palekar{2}, Dinesh Rotake{1}, Jayu Kalambe{2}  
{1}Indian Institute of Technology Bombay, India; {2}RamdeoBaba University Nagpur, India

10:45 -12:00

#### **B2L-D: Student Research Forum II**

Room: Debate

Session Chair(s): Chirasree RoyChaudhuri, Bengal Engineering and Science University  
Parikshit Sahatiya, Birla Institute of Technology and Science Pilani Hyderabad Campus

10:45

#### **6101: Eco-Metachip Mini: A Low-Cost, Eco-Friendly Chemical Identifier Utilizing a Novel Coir-Rubber Dielectric Sensor**

Abhiram B, Aaromal A, Devanarayanan C.R, Ivana Anto Kallookaran  
Cochin University of Science And Technology, India

11:00

#### **6114: Harnessing Synergy in Reactively Co-Sputtered Mo-W-N Pseudocapacitive Nanocomposite for High-Performance Flexible Na-Ion Supercapacitor**

Vijay Lohan, Davinder Kaur  
Indian Institute of Technology Roorkee, India



## Technical Program: Tuesday, February 24

11:15

**6131: Investigating Hybrid Deep Learning Architectures for Speech Envelope Reconstruction from EEG**

Uday Sankar Gottipalli, Aditi Jha, Krishna Miyapuram  
Indian Institute of Technology Gandhinagar, India

11:30

**6257: Design and Analysis of a Quadrature Branch-Line Coupler for Wideband RF Applications**

Michael Waweru{2}, Emmanuel Musundi{1}  
{1}Kenyatta University, South Africa; {2}University of Pretoria, South Africa

11:45

**6264: Next-Generation Printed PEDOT:PSS Electrodes with Synergistic Mechanical and Electrical Deformability**

Hemant Hemant, Vipin Amoli  
Rajiv Gandhi Institute of Petroleum Technology, India

12:30 – 13:30

**Plenary Speaker: Yogesh Gianchandani, University of Michigan, Ann Arbor**

Room: Tango 1, 2, & 3

Session Chair: Usha Varshney, National Science Foundation Former Program Director

13:30 – 14:15

**Lunch**

Room: Exhibition Hanger

14:15 – 15:15

**Keynote Speaker: Nilesh M. Desai, Director of Space Applications Centre (SAC), ISRO**

Room: Tango 1, 2, & 3

Session Chair: Hamida Hallil-Abbas, University of Bordeaux

15:15 – 16:45

**DataPort Competition**

Room: Nucleus

15:15 – 16:45

**Posters: B3P-F: Medical & Digital Healthcare VII**

Room: Pre Function Area, Screen 1

Session Chair(s): Dipankar Bandyopadhy, IIT Guwahati

15:15

**6021: HeartSense: Machine-Augmented Intelligence for Predicting Cardiovascular Disease from Structured Clinical Data with Patient Diagnostic Profiles**

Aarush Aggarwal, Piyush Taneja, Vinay Arora, Sanjeev Rao  
Thapar Institute of Engineering & Technology, India

15:25

**6039: VITAL Net: A Hybrid Framework for SpO2 and HR Estimation Using Smartphone rPPG Video**

Rahul Ranjan, Vishal Singh Roha, Mehmet Rasit Yuce  
Monash University, Australia

15:35

**6045: Design of Compact Near-Field Probe with Tissue-Invariant Response for Deep Tissue Microwave Radiometry**

Neenu Vymeliyath Sajeev, Kavitha Arunachalam  
Indian Institute of Technology Madras, India

15:45

**6096: A Smart Piezoelectric Mat for Gesture-Based Communication in Hearing and Speech Disabilities**

Remya Nair, Zainab Abualhassan, Dania Husni, Fatma Abualhassan, Nader Shehata  
Kuwait College of Science and Technology, Kuwait

15:55

**6097: Predicting Workplace Depressive Symptoms Based on Work Limitation Questionnaire and Wearable-Derived Indicators**

Hiroaki Suzuki{2}, Takemi Matsui{2}, Nobutoshi Kariya{1}, Yusuke Obara{1}, Shohei Sato{2}  
{1}Maynds Tower Mental Clinic, Japan; {2}Tokyo Metropolitan University, Japan

16:05

**6124: Preliminary Evaluation of Polymer-Based Mechanical Intracranial Pressure Sensor with Ultrasound Readout**

Colleen Chemerka, Lukas Selzer, Florian Solzbacher  
University of Utah, United States



## Technical Program: Tuesday, February 24

16:15

**6144: A NEGF Simulation-Based Study of Ultra-Scaled Split-Cavity TMD Biosensor for SARS-CoV-2 Detection**

Chetna Garg{2}, Harsupreet Kaur{1}

{1} University of Delhi, India; {2} University of Delhi South Campus, India

16:25

**6146: Wigner Ville Distribution as Feature Extraction with Bio-Inspired Feature Selection for Improved Diabetes Classification**

Dinesh Chellappan{2}, Harikumar Rajaguru{1}

{1} Bannari Amman Institute of Technology, India; {2} KPR Institute of Engineering and Technology, India

16:35

**6156: Piezo-ECG Integration for Individualized Continuous Cuffless Blood Pressure Monitoring: A Correlation-Based Proof-of-Concept Study**

Saransh Khandelwal, Renu John

Indian Institute of Technology Hyderabad, India

15:15 – 16:45

**Posters: B3P-G: Medical & Digital Healthcare VIII**

Room: Pre Function Area, Screen 2

Session Chair(s): Gautam Bacher, BITS PILANI GOA

15:15

**6192: DTM MXene-Based Double Network Hydrogel Mimicking Human Skin Functionality**

Nongthombam Joychandra Singh{2}, Tarun Singh{2}, Yashasvi Jagadish{2}, Nilesh Goel{1}, Parikshit Sahatiya{2}

{1} Birla Institute of Technology and Science, Pilani - Dubai, India; {2} Birla Institute of Technology and Science, Pilani - Hyderabad, India

15:25

**6198: Localisation of Seizure Onset Zones from Cyclostationary Features of Intracranial EEG Signals**

Archana S{4}, Divya Bharathi Krishnamani{3}, V Mallikarjuna Reddy M{1}, Jac Fredo A R{2}, Karthick P A{4}, Ramakrishnan S{3}

{1} Defence Research and Development Organisation, India; {2} Indian Institute of Technology (Banaras Hindu University) Varanasi, India; {3} Indian Institute of Technology Madras, India; {4} National Institute of Technology Tiruchirappalli, India

15:35

**6207: Enhanced Wireless Power Transfer Using Magnetically Graded Self-Biased Magnetoelectric Heterostructure**

Palak Agarwal, Aditi Shekhar, Dibyajyoti Mukherjee, Dhiman Mallick

Indian Institute of Technology Delhi, India

15:45

**6209: Characterization of Tissue Morphology Based on Attenuation and Speckle Features Using Gradient Boost Classifiers**

Devanshi Soni, Nijas Mohamed, Renu John

Indian Institute of Technology Hyderabad, India

15:55

**6227: Automated Assessment of Cognitive Load Across Different Task Using Multimodal Signals and Novel Cross-Attention Network**

Swarubini P J{1}, Kaveti Pavan{1}, Ryunosuke Kirita{2}, Tomohiko Igasaki{2}, Nagarajan Ganapathy{1}

{1} Indian Institute of Technology Hyderabad, India; {2} Kumamoto University, Japan

16:05

**6229: Performance Analysis of Graphene FET on Flexible and Si Substrate**

Shrestha Das, Kamalesh Tripathy, Sanjeev Patel, Mitradip Bhattacharjee

Indian Institute of Science Education and Research Bhopal, India

16:15

**6230: TCAD Simulation Study of a Graphene Field-Effect Transistor Biosensor for Malaria Antigen Detection**

Archit Agrawal, Shraddha Bhatnagar, Satyendra Kumar Maurya, Vishal Saxena, Dheerendra Singh

Birla Institute of Technology and Science, Pilani, India

16:25

**6236: A Robust Ensemble Framework for Autism Spectrum Disorder Classification Integrating Multiple Connectivity Features for fMRI Data**

Vijay Srinivas P, Harish Ss, Gunda Harshavardhan, Jerome Richard D, Amrutha Veluppal

Amrita Vishwa Vidyapeetham, Coimbatore, India

16:35

**6237: PPG Data Compression Using Fast Fourier Transform and Discrete Hartley Transform**

Vivek Singh, Dhvani Kaushal, Priyanka Jain

Delhi Technological University, India



## Technical Program: Tuesday, February 24

15:15 – 16:45

**Posters: B3P-H: Medical & Digital Healthcare IX**

Room: Pre Function Area, Screen 3

Session Chair(s): To Be Announced

15:15

**6247: Comparative Analysis of Hydrogen Peroxide Detection Using Paper-Based Micropads and Glass Vials**

Prithvi Chawla, Meghana Hasamnis

Shri Ramdeobaba College of Engineering and Management, India

15:25

**6261: Towards a Minimally Invasive Platform for Point-of-Care Early Detection of NAFLD Through Rapid Profiling of MDA and TNF- $\alpha$  with Synthetic MIP Receptors**

Salik Abdullah, Subhadyuti Basu, Deepjyoti Kalita, Khalid Baig Mirza

National Institute of Technology, Rourkela, India

15:35

**6331: Label-Free Detection of Phytophthora Palmivora Through DNA Hybridization**

Remya Eapen, Jose Joseph

Digital University kerala, India

15:45



**Sensors Letters Paper**

**6415: Fully inkjet-printed glucose sensor on flexible polyimide substrate**

Aditi Ghosh, Sushree Sangita Priyadarsini, Subho Dasgupta

Indian Institute of Science, India

15:55

**6159: Analysis of Neck and Shoulder Muscle Fatigue Conditions Using Nonlinear Features of Surface Electromyography**

Gobinath Kaliyaperumal<sup>{2}</sup>, Karthick P A<sup>{2}</sup>, Ramakrishnan S<sup>{1}</sup>

<sup>{1}</sup>Indian Institute of Technology Madras, India; <sup>{2}</sup>National Institute of Technology Tiruchirappalli, India

16:05

**6166: A Highly Sensitive Optical Biosensor with Tunable Point Defect Cavity for Point-of-Care Testing**

Bahareh Firouzi<sup>{1}</sup>, Yashar Gholami<sup>{2}</sup>, Behnam Saghirzadeh Darki<sup>{1}</sup>, Kian Jafari<sup>{2}</sup>, Taha Azad<sup>{2}</sup>

<sup>{1}</sup>Islamic Azad University, Iran; <sup>{2}</sup>University of Sherbrooke, Canada

16:15



**Sensors Letters Paper**

**6301: Data-Driven Extended-Gate Field-Effect Transistor-Based Biosensors for Bisphenol S Detection Using Machine Learning Framework**

Rishikesh Datar, Neha Menon, Ashirbad Panda, Gautam Bacher

BITS Pilani KK Birla Goa Campus, India

16:25



**Sensors Letters Paper**

**6411: Detection of Neck and Shoulder Muscle Fatiguing Contractions Using Superlet Transform of Wireless Electromyography Measurements and Lightweight CNN**

Gobinath Kaliyaperumal, Karthick P A

National Institute of Technology Tiruchirappalli, India

16:35



**Sensors Letters Paper**

**6410: A GMR-Based Smart Respiration Belt for Non-Invasive Real-Time Monitoring**

Aryan Sharma, Sayam Chakraborty, Thomaskutty Mathew, Siva Sankar Rusum, Satuluri Tejaswini, Abhay Renjith T J, Anoop C S

Indian Institute of Space Science and Technology, India



## Technical Program: Tuesday, February 24

15:15 – 16:45

**Posters: B3P-J: Robotics & Digital Twin II**

Room: Pre Function Area, Screen 4

Session Chair(s): To Be Announced

15:15

**6017: Learning Based Motion Planning of a 6-DOF Manipulator by Using a Neural Network**

Akanksha Dwivedi, Ujjwal Singh, Ajay Agarwal

Indian Institute of Technology Jodhpur, India

15:25

**6090: Cyber Physical System for Stagnant Water Detection and Targeted Spraying Using UAVs**

Shaikh Jani Basha{3}, Syam Narayanan S{3}, Mohan Kumar{3}, Srikanth Vs{1}, Sathasheel Hasure{1}, Lakshminarayan R{1}, Dheeraj Sr{1}, Rajalakshmi Pachamuthu{2}{1}Indian Air Force Academy, India; {2}Indian Institute of Technology Hyderabad, India; {3}NMCIPS TIHAN Foundation, Indian Institute of Technology Hyderabad, India

15:35

**6098: Development of a Mobile Service Robot with UWB Localization for Hazard and Air Quality Detection in Multi-Room Facilities**

Ege Yurtseven

TED Ankara College Foundation High School, Turkey

15:45

**6110: A Multi-Sensor Fusion Framework for Unmanned Aerial Vehicle (UAV) Navigation and Inspection in GPS-Denied and Degraded Environments**

Vuppu Venkata Sai Viswa Kiran, Sainath Reddy Akkala, Vishal Sri Sai H, Himabindu Allaka, R Prasanth Kumar

Indian Institute of Technology Hyderabad, India

15:55

**6120: UAV Based Precise Multi Payload Dropping System Using Vision Guidance and RTK Positioning**

Tarun Kumar Bodnayakuni{1}, Sanju Kumar Nt{2}, Syam Narayanan S{2}, Raju Santhani{1}, Pavan Sai Kumar Thummala{1}, Rajalakshmi Pachamuthu{1}

{1}Indian Institute of Technology Hyderabad, India; {2}NMCIPS TIHAN Foundation, Indian Institute of Technology Hyderabad, India

16:05

**6122: Cloud Based Task Management System for Building Inspection Using Drones and Deep Learning Techniques**

Sanju Kumar Nt{2}, Philip Godala{1}, Rajalakshmi Pachamuthu{1}

{1}Indian Institute of Technology Hyderabad, India; {2}NMCIPS TIHAN Foundation, Indian Institute of Technology Hyderabad, India

16:15

**6145: Evaluating and Mitigating Adversarial Vulnerabilities in Vision Foundation Models**

Digvijaysing Rajput

Indian Institute of Technology Hyderabad, India

15:15 – 16:45

**Posters: B3p-K: Robotics & Digital Twin III**

Room: Pre Function Area, Poster Screen 5

Session Chair(s): Sujay Kadam

15:15

**6226: Modeling and Control of a Two-Agent Aerial System for Dynamic Throw-and-Catch Maneuvers**

Aashish Sahu, R Prasanth Kumar

Indian Institute of Technology Hyderabad, India

15:25

**6245: Real-Time Semantic Mapping and Object-Oriented Autonomous Navigation with Low-Cost LiDAR and RGB Sensor**

Sarimella Rami Reddy, Vuppu Venkata Sai Viswa Kiran, S Chinnikrishna Yadav, R Prasanth Kumar

Indian Institute of Technology Hyderabad, India

15:35



**Sensors Letters Paper**

**6394: CatBoost-Driven Anomaly Detection in Industrial Robotic Arms Using CASPER Dataset**

Priyanshu Doshi, Neal Daftary, Hetavi Jani, Anuja Nair

Nirma University, India

15:45



**Sensors Letters Paper**

**6413: Experimental Demonstration of a DC excited Coreless Planar PCB Coil Actuator targeted for Lateral Micro-actuation in MEMS**

Praful Kabad{4}, Abhijit Kamble{2}, Vinod Belwanshi{1}, Sanjay Talole{3}, Bhubon Mech{2}

{1}CSIR - National Metallurgical Laboratory, India, India; {2}Defence Institute of Advanced Technology Pune, India; {3}Defence Research and Development Organisation, Pune, India; {4}Indian Institute of Technology Delhi, India



## Technical Program: Tuesday, February 24

15:55

### **6240: Computational Analysis of Working and Counter Electrode Gap Influence on Current Density in Laser-Induced Graphene Electrochemical Sensors**

David Stephen J B, Kalpana Settu

Indian Institute of Information Technology, Design & Manufacturing, Kancheepuram, India

16:05

### **6176: Paper Based Nonenzymatic rGO-CuO Nanocomposite Sensor for Sweat Glucose Detection**

Rimjim Shibam, Prem Chetry, Rewrewa Narzary, Partha Pratim Sahu

Tezpur University, India

15:15 – 16:45

#### **Posters: B3P-L: Special & Focus Sessions**

Room: Pre Function Area, Screen 6

Session Chair(s): Soma Bandyopadhyay, TCS

Shailesh Deshpande, TCS

15:15

### **6078: Design and Implementation of Low-Cost Highly Sensitive Portable Microwave Sensor for Detection of Permittivity of Edible Oils**

Supratim Mondal{1}, Sagnik Adhikary{1}, Ch Raghavendra{2}, A. Jhansirani{2}, Gobinda Sen{1}

{1}Institute of Engineering and Management, India; {2}Siddhartha Academy of Higher Education, India

15:45

### **6130: Canonical Correlation Approach for Predicting Music Aesthetic Ratings from EEG Sensors**

Pankaj Pandey{3}, Poorva Bedmutha{4}, Nashra Ahmad{2}, Aditi Jha{3}, Krishna Miyapuram{3}, Derek Lomas{1}

{1}Delft University of Technology, Netherlands; {2}Durham University, United Kingdom; {3}Indian Institute of Technology Gandhinagar, India; {4}University of California, San Diego, United States

15:55

### **6161: Enabling Plasmonic Refractive Index Nanosensing Assisted with Ai**

Anirban Chaudhuri{2}, Subhasri Chatterjee{2}, Sauvik Roy{1}, Anish Datta{2}, Nirmalya Ghosh{1}, Soma Bandyopadhyay{2}, Tapas Chakravarty{2}, Arpan Pal{2}

{1}Indian Institute of Science, Education and Research - Kolkata, India; {2}TATA Consultancy Services Limited, India

16:05

### **6281: AI-IoT Enabled PEDOT: PSS VOC Sensor for Early Thermal Runaway Detection in Lithium-Ion Batteries**

Palwinder Kaur{1}, Amol P. Bhondekar{1}, Vilas G. Pol{1}, Sudeshna Bagchi{2}

{1}CSIR-Central Scientific Instrumenst Organisation, India; {2}CSIR-Central Scientific Instruments Organisation, India

16:15

### **6285: Visual Attention-Based Modeling of Consumer Like/Dislike Reactions to Creative Contents**

Mithun B S, Tince Varghese, Somnath Karmakar

TATA Consultancy Services Limited, India

15:15 – 16:45

#### **B3P-M: Emerging Quantum Technologies II**

Room: Screen 7

Session Chair(s): Bhaskar Kenser, IIT Delhi

Poornendu Chaturvedi, DRDO

15:15

### **6175: Valley Induced Non-Equivalent Berry Curvature in Half Metallic Janus Heterostructure**

Deepshekh Roy, Pritam Deb

Tezpur University, India

15:25



#### **Sensors Letters Paper**

### **6392: A Compact Active Quenching and Recharge Circuit for 3D-Integrated SPAD Pixels**

Zhenjie Wang, Bhaskar Choubey

University of Siegen, Germany



## Technical Program: Tuesday, February 24

15:15 – 16:45

### **B3P-N: Live Demo**

Room: Pre-Function Area

Session Chair(s): Han Shao, Tyndall

Ponnalagu R N, Birla Institute of Technology and Science Pilani Hyderabad Campus

### **6263: Artificial Intelligence Enabled Electronic Nose for Real-Time Odour Profiling of Pizza Seasonings**

Malay Yadav{2}, Arun Sharma{1}

{1}National Institute of Food Technology Entrepreneurship and Management (NIFTEM), India; {2}Tata Consultancy Services, United States

### **6265: Live Demonstration: Force Platform for Balance Measurement**

Ronak Tiwari, Deepan Muthirayan, Andy Ruina, Arshdeep Sidhu

Plaksha University, India

### **6266: Live Demonstration: Energy-Autonomous Environmental Sensor Probes**

Suman Kundu, Uttunga Shinde, Peter Woias

University of Freiburg, Germany, Germany

### **6269: Live Demonstration:- neuroglow:Development of a Low-Cost Adaptive Cognitive Therapy System for Hand-Eye-Brain Coordination**

Bishnu Thakur, Rohit Sah, Saurav Kafle

KPR Institute of Engineering and Technology, Anna University, India

### **6369: Live Demonstration: Advanced Sensor Systems for Smart Agriculture**

Han Shao{1}, Alan O'Riordan{2}, Richard Murray{1}

{1}Tyndall National Institute, Ireland; {2}Tyndall National Institute - University College Cork, Ireland

### **6272: A Handheld System Utilizing Wet Electrode Atmospheric Pressure Microplasma for Multielement Analysis of Metal Ions in Aqueous Samples**

Manjeet Kumar, Bhaskar Mitra

Indian Institute of Technology Delhi, India

### **6334: ECG and Non-Invasive Glucose Monitoring Systems**

Joychandra Singh{2}, Varun Darapureddy{2}, Yashasvi Jagadish{2}, Chandra Sekhar Reddy Kolli{2}, Nilesch Goel{1}, Parikshit Sahatiya{2}

{1}Birla Institute of Technology and Science, Pilani - Dubai, U.A.E.; {2}Birla Institute of Technology and Science, Pilani - Hyderabad, India

### **6337: Live Demonstration: Autonomous, Weather-Agnostic Sensing and Communication Drone for Post-Disaster Logistics**

Srikanth Burugula, Aditya Bondalapati, Emani Venkata Gaurav, D. Mohan Sai Eswar Uma

VNR Vignana Jyothi Institute of Engineering and Technology, India

### **6351: Live Demonstration: EchoVerse-An IoT Based Hybrid Language Translator**

Nirbhay Hemant Shinganjude, Shivam Rahul Mandalekar, Rucha Dilip Yerunkar

Ramdeobaba University, India

### **6342: Towards a Digital Twin of HEMM Fleet Operations: A Sensor-System Prototype and Simulation Framework for Monitoring in Open-Pit Coal Mines**

Musab Bin Khaleeq, Jalak Vyas, Saarthak Jindal, David Tandel, Tapas Kumar Maiti, Sujay Kadam

Dhirubhai Ambani University, India

### **6343: A Robust IoT Architecture for Real-Time Battery and Environmental Monitoring in Coal-Mine Infrastructure**

David Tandel{1}, Musab Bin Khaleeq{1}, Rahul Mishra{2}, Tapas Kumar Maiti{1}, Sujay Kadam{1}

{1}Dhirubhai Ambani University, India; {2}Indian Institute of Technology Patna, India

### **6344: Live Demonstration: Smart Flexible Self Powered Insole Sensor System for Real Time Foot Pressure Mapping and Human Activity Monitoring**

Vishal Singh, Irshan Akhtar, Dhiman Mallick

Indian Institute of Technology Delhi, India

### **6370: ElderEase: AI-Driven Intelligent Support Systems for Enhanced Elderly Assisted Living**

Jeswin Joseph{2}, Gopika Gopakumar{2}, Shreya R S{2}, Yajjala Yamuna Kumari{2}, Vishnu V Das{1}, Anish Sathyan{1}

{1}Centre for Development of Advanced Computing (C-DAC), India; {2}ER&DCI Institute of Technology, India

### **6373: Live Demonstration: Surveillance Terrain Rover with Integrated Dynamic Evolution**

Parameshwaran Iyer, Sohini Kayal, Dibyasreekanth Bisoyi, Swayam Shree, Aarshia Rawat, Aryan Anupam, Ponnalagu R. N., Joyjit Mukherjee

Birla Institute of Technology and Science, Pilani - Hyderabad, India

### **6375: Physics-Informed Neural Networks for Human Activity Recognition with Heterogeneous Sensor Data**

Aayush Katariya, Vyom Vyas, Arindam Kushagra

Birla Institute of Technology and Science, Pilani - Hyderabad, India



## Technical Program: Tuesday, February 24

15:15 – 16:45

### **MYOSA Competition**

Room: Pre Function Area

16:45 – 18:00

### **Sensorpreneur Pitch**

Room: Tango 1

16:45 – 18:00

### **Session for Pre-University Student Workshop**

Room: Tango 3

16:45 – 18:00

### **B4L-D: Student Research Forum III**

Room: Debate

Session Chair(s): Chirasree RoyChaudhuri, Bengal Engineering and Science University

Parikshit Sahatiya, Birla Institute of Technology and Science Pilani Hyderabad Campus

16:45

### **6267: ML-Enhanced IoT-Integrated AlGaIn/GaN HEMT Based Multifunctional Sensors for Gas, and Radiation Detection**

Vikas Pandey

Indian Institute of Technology Jodhpur, India

17:00

### **6268: Intelligent Cardiovascular Disease Diagnosis Using Deep Learning Through Different Modalities: Numeric Data and Images**

Navya Prasad, Sneha Saxena, Anupama Bhan

Amity University Uttar Pradesh, India

17:15

### **6270: Development of an Interdigitated Electrodes-Based Extended-Gate Field-Effect Transistor Biosensor for Sensitive Detection of Bisphenol S**

Rishikesh Datar, Gautam Bacher

BITS Pilani KK Birla Goa Campus, India

17:30

### **6271: A Handheld System Utilizing Wet Electrode Atmospheric Pressure Microplasma for Multielement Analysis of Metal Ions in Aqueous Samples**

Manjeet Kumar, Bhaskar Mitra

Indian Institute of Technology Delhi, India

17:45

### **6002: Performance Analysis of RF Energy Harvesting for Wireless Sensor Networks Using NetSim Simulation**

Durganandhini V, Fatheen Ibrahim S, Gayathri V, Kamalnath K, Raja L

Sri Eshwar College of Engineering, India

16:45 – 18:00

### **YP Workshop: Grant Writing for Success**

Room: Nucleus

18:30 – 19:30

### **Cultural Event & Awards Ceremony**

Room: Tango 1, 2, &3

19:30 – 21:00

### **Gala Dinner**

Room: Lawn



## Technical Program: Wednesday, February 25

8:30 – 18:00

### Registration

Room: Pre Function Area

9:00 – 10:30

### C1L-A: Environment & Climate Change Monitoring I

Room: Tango 1

Session Chair(s): Tapas Chakravarty, Institute of Engineering and Management, Kolkata

9:00

#### 6029: Design and Implementation of a Remotely Operated Smart Cbrn Detection Bot for Hazardous Environment Monitoring

Md Farukh Abudin, Manyap S Konyak, Jitesh Choudhary

Centre for Development of Advanced Computing, India

9:15

#### 6052: Cost-Effective Butter Paper Based Sensor for Accurate Soil Suction Measurement

Shinjan Chatterjee, Sunil Mohan, Tadikonda Venkata Bharat

Indian Institute of Technology Guwahati, India

9:30

#### 6246: Paper Dipstick-Based Pathogen Nucleic Acid Extraction and Electrochemical Sensing for End-to-End Wastewater Monitoring

Shruti Ahuja, Kiran Kondabagil, Siddharth Tallur

Indian Institute of Technology Bombay, India

9:45



#### Invited Journal Author

#### 6320: AC Analysis and Modeling of Graphene-Enriched WO<sub>3</sub>-Pt Films for Hydrogen Sensing

Tiziana Polichetti<sup>{1}</sup>, Brigida Alfano<sup>{1}</sup>, Ettore Massera<sup>{1}</sup>, Maria Lucia Miglietta<sup>{1}</sup>, Anna De Girolamo Del Mauro<sup>{1}</sup>, Luigi Di Benedetto<sup>{2}</sup>, Rosalba Liguori<sup>{2}</sup>, Nicola Rinaldi<sup>{2}</sup>, Alfredo Rubino<sup>{2}</sup>

<sup>{1}</sup>ENEA, Italy; <sup>{2}</sup>University of Salerno, Italy

9:00 – 10:30

### C1L-B: Emerging Quantum Technologies I

Room: Tango 2

Session Chair(s): Bhaskar Kenseri, IIT Delhi

Poornendu Chaturvedi, DRDO

9:00

#### Invited Talk

#### 6403: Quantum Technology Initiatives of DRDO

Poornendu Chaturvedi

SSPL, India

9:15

#### 6074: Tunable Amplitude–Frequency Response of Phononic Frequency Combs for Quantum Sensing

Madhurendra Mishra<sup>{2}</sup>, Adarsh Ganesan<sup>{1}</sup>

<sup>{1}</sup>Birla Institute of Technology and Science, Pilani - Dubai, U.A.E.; <sup>{2}</sup>Sri Guru Tegh Bahadur Khalsa College, University of Delhi, India

9:30

#### 6111: Investigations on Metasurfaces Based on PDMS Substrates with Varying Mixing Ratios

Mohamed Abdulla, Vanniya Balan, Srijith Kanakambaran

Indian Institute of Information Technology, Design & Manufacturing, Kancheepuram, India

9:45

#### 6171: Rydberg Atomic RF Sensor-Based Quantum Radar

Sourav Banerjee, Neel Kanth Kundu

Indian Institute of Technology Delhi, India

10:00

#### 6325: A Dual Frequency Ultrasonic Ranging Method with Adaptive Frequency Tuning for Micrometer-Accuracy Distance Measurement

Haneesh Sankar T P, Nithya P, Rajesh K R

Centre for Development of Advanced Computing, India



## Technical Program: Wednesday, February 25

9:00 – 10:30

### C1L-C: From Physical to Chemical Sensing II

Room: Tango 3

Session Chair(s): Anwesha Khasnobish, TCS

Chirasree RoyChaudhuri, Bengal Engineering and Science University

9:00



#### *Sensors Letters Paper*

##### **6346: Pristine SiNW Thin-Film Gas Sensors: Poole-Frenkel Transport-Enabled H<sub>2</sub>S Detection**

Vishnuram Abhinav{2}, Shikha Supriya Verma{1}, Atanu Das{3}, Tejas R. Naik{4}

{1}Gauhati Medical College and Hospital, India; {2}Indian Institute of Technology Bombay, India; {3}Manipal Institute of Technology, Manipal Academy of Higher Education, India; {4}University of Glasgow, United Kingdom

9:15



#### *Sensors Letters Paper*

##### **6348: Automated Multimodal Sensing for Cognitive Load Assessment Using Cross-Modality Driven Attention Fusion**

Swarubini P J{1}, Ryunosuke Kirita{2}, Tomohiko Igasaki{2}, Nagarajan Ganapathy{1}

{1}Indian Institute of Technology Hyderabad, India; {2}Kumamoto University, Japan

9:30



#### *Sensors Letters Paper*

##### **6349: Development of Electrochemical Sensors for Blood Glucose Detection with Wide Range Using MWCNT-Chitosan – A Microneedle Approach**

Mohana Priya Kandan{2}, David Stephen J B{1}, Sreeja Balakrishna Pillai S{1}

{1}Anna University, Chennai, India; {2}College of Engineering Guindy, Anna University, India

9:45



#### *Sensors Letters Paper*

##### **6363: FPGA Implementation of Binary-Weighted Transformer for Prognostics and Health Management of Permanent Magnet Synchronous Motors Using Current Sensors**

Soongyu Kang{2}, Yongchul Jung{3}, Sewoon Oh{1}, Yunho Jung{2}

{1}Korea Aerospace Industries, Korea; {2}Korea Aerospace University, Korea; {3}Korea Electronics Technology Institute, Korea

10:00

##### **6174: An Enhanced Direct Microcontroller-Based LVDT Instrumentation System**

Rushikesh Gadekar, Anoop Chandrika Sreekantan

Indian Institute of Space Science and Technology, India

9:00 – 10:30

### C1L-D: Agriculture & Food Technology II

Room: Debate

Session Chair(s): Kavya Dashora, IITD

9:00

##### **6075: Energy-Efficient IoT-Based Waterproof Irrigation Node Using Wireless Tree-Topology**

Lokesh Aravapalli, Sujit G, Jagan P, Madhav Rao

International Institute of Information Technology Bangalore, India

9:15

##### **6167: Sensitive Detection of Water in Milk Using Microwaves**

Nazmia Kurniawati, Paris Vélez, Pau Casacuberta, Xavier Canalias, Gerard Sisó, Ferran Martín

CIMITEC, Universitat Autònoma de Barcelona, Spain

9:30

##### **6211: Rapid In-Situ Crop Age Estimation for Corn Using Phenological Features with Mobile Sensing**

Abhishek Kumar, Ruturaj Patil, Sanket Junagade, Sanat Sarangi, Ajay Mittal, Dineshkumar Singh

TATA Consultancy Services Limited, India



## Technical Program: Wednesday, February 25

9:45

### 6218: Intelligent Pre-Harvest Grapes Management System

Shumaila Khan{3}, Priteem Behera{3}, Tabassum Shaikh{3}, Ashwini Gajarusi{3}, Ajay Upadhyay{1}, Nishant Deshmukh{1}, Sujoy Saha{1}, Prashant Nikumbhe{1}, Maryam Shojaei Baghini{2}

{1}ICAR-National Research Centre for Grapes, India; {2}Indian Institute of Technology Bombay, India; {3}TIH Foundation for IoT and IoE, India

10:00

### 6307: Spatio-Spectral Sensor for Differentiating Naturally and Artificially Ripened Bananas - A Comprehensive Analysis with Deep and Handcrafted Features

Neha Naik{2}, Narayan Vetrekar{2}, Rajendra Gad{2}, Raghavendra Ramachandra{4}, Yongsheng Chen{1}, Adavi Rao Desai{3}

{1}Georgia Institute of Technology, United States; {2}Goa University, India; {3}ICAR Research Complex for Goa, India; {4}Norwegian University of Science and Technology, Norway

9:00 – 10:30

### C1L-E: Medical & Digital Healthcare IV

Room: Nucleus Hall

Session Chair(s): Gautam Bacher, BITS PILANI GOA

Dipankar Bandyopadhy, IIT Guwahati

9:00

### 6212: Metal Positioning for Guided Dentistry Using Capacitive Sensor

Mohammad Ehshan Khan{1}, Nivit Karki{1}, Javed Khan{1}, Sangeeta Talwar{2}, Amit Malhotra{2}, Vidhi Bhalla{2}, Shahid Malik{1}

{1}Indian Institute of Technology Delhi, India; {2}Maulana Azad Institute of Dental Sciences, India

9:15

### 6224: Hilbert Transform-Based Glucose Monitoring Using Hybrid Informer-ANN Architecture

Suryansh Malhotra, Manisha Manisha, Jyoti Yadav

Netaji Subhas University of Technology, India

9:30

### 6233: FGaC Based Simplified Hill Climb Algorithms for Faster and Robust Autofocusing

Partha Pratim Pal, Mirza Sameerullah Baig, Mridul Verma, Alan Ranjit Jacob, Renu John

Indian Institute of Technology Hyderabad, India

9:45

### 6235: Deep Learning-Based Estimation of Gait Percentage Using Healthy Gait Data: A Trial Toward Rehabilitation

Rehan Nasar, Rikthika S, Hrishikesh Kulkarni Prahlad, Abhishek Kumar, Manish C Poojari, Krishnan Chemmangat, Deepu Vijayasenan

National Institute of Technology Karnataka Surathkal, India

10:00



### Sensors Letters Paper

### 6311: Smartphone-Based Portable Calcium Sensing Platform Using Image Processing and Machine Learning

Parthesh Patil, Sangeeta Palekar, Jayu Kalambe

RamdeoBaba University Nagpur, India

10:30-10:45

### Coffee Break

Room: Pre Function Area

10:45 – 12:00

### C2L-A: Environment & Climate Change Monitoring II

Room: Tango 1

Session Chair(s): Mitradip Bhattacharjee, IISER Bhopal

Tapas Chakravarty, Institute of Engineering and Management, Kolkata

10:45



### Sensors Letters Paper

### 6298: High-Performance Dual UV-A Band Photodetector Based on Sodium-Doped Hydrothermally Synthesized ZnO Nanostructures

Pritika Singh{2}, Tejendra Dixit{1}, Vipul Singh{2}

{1}Indian Institute of Information Technology, Design & Manufacturing, Kancheepuram, India; {2}Indian institute of technology indore, India

11:00



### Sensors Letters Paper

### 6274: Optical Sensing of Chlorophyll Content in Tomato Plants Exposed to Metal Nanoparticles Under Selective Lighting

Felipe Hornung{2}, Walter Oswaldo Cutipa Flores{2}, Katia Christina Zuffellato-Ribas{1}, André Eugenio Lazzaretti{2}, Marcia Muller{2}, José Luís Fabris{2}

{1}Federal University of Paraná, Brazil; {2}Federal University of Technology – Paraná, Brazil



## Technical Program: Wednesday, February 25

11:15



### *Sensors Letters Paper*

#### **6303: Fabrication of MoSe<sub>2</sub>/ MoSe<sub>2</sub> Nanocomposite-Based Highly Sensitive Gas Sensors for Room Temperature Detection of NO Gas at ppb Level**

Priyanka Dutta, Mantasha Malik, Anukriti Bharadwaj, J. S. Tawale, Govind Gupta  
CSIR-National Physical Laboratory, India

11:30



### *Invited Journal Author*

#### **6312: Exploring the Sensing Capabilities of Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene Derived C/TiO<sub>2</sub>: An Approach Toward Stable and Selective Hydrogen Gas Sensing**

Amala K, Palash Kumar Basu  
Indian Institute of Space Science and Technology, India

10:45 – 12:00

### **C2L-B: Manufacturing & Automation III**

Room: Tango 2

Session Chair(s): Shubhra Gangopadhyay, The University of Missouri  
Han Shao, Tyndall

10:45

#### **6197: Predictive Health Monitoring of Solenoid Coils Under Humid Aging Conditions**

Thomas Roulleau{1}, Killian Corbel{2}, Hani Al Hajjar{2}, Frédéric Lamarque{2}  
{1}ASCO - EMERSON, France; {2}University of Technology of Compiègne, France

11:00

#### **6210: Fabric Sorting System Using Computer Vision and Capacitive Sensing for Smart Textile Recycling**

Md Kaunain Bin Mahtab, Abdullah Tariq, Mudra Chavda, Junaid Sahibole, Najeeb Ahmad, Shahid Malik  
Indian Institute of Technology Delhi, India

11:15

#### **6221: Highly Sensitive Tunnelling Magnetoresistance-Based Positioning Systems**

Mohamad Idris Wani{1}, Brij Kishor Katore{1}, Meraj Ahmad{2}, Huxi Wang{2}, Hadi Heidari{2}, Benish Jan{1}, Shahid Malik{1}  
{1}Indian Institute of Technology Delhi, India; {2}University of Glasgow, United Kingdom

11:30

#### **6232: MTS-QRL: A Multi-Tier TOPSIS-Guided Q-Learning Framework for Adaptive Data Rate Optimization in LoRaWAN**

Uma Mahesh J{1}, Judhistir Mahapatro{2}  
{1}National Institute of Technology Rourkela, India; {2}National Institute of Technology, Rourkela, India

10:45 – 12:00

### **C2L-C: From Physical to Chemical Sensing III**

Room: Tango 3

Session Chair(s): Anwesha Khasnobish, TCS  
Chirasree RoyChaudhuri, Bengal Engineering and Science University

10:45



### *Sensors Letters Paper*

#### **6359: Semi-Supervised Multi-Loss Tcn and Transfer Learning for Earthquake Detection in Distributed Fiber-Optic Acoustic Sensing Systems**

Deepika Sasi{2}, Sundaresan Sabapathy{1}, Thomas Joseph{2}  
{1}Amrita Vishwa Vidyapeetham, Coimbatore, India; {2}National Institute of Technology, Puducherry, India

11:00



### *Sensors Letters Paper*

#### **6360: Resonance-Based Sensing on Large Surfaces Using RF Excitation for Human Machine Interaction**

Vikas Kumar{1}, Shivansh Awasthi{1}, Vikash Sharma{1}, Santosh Parajuli{1}, Thomas George Thundat{2}, Ankur Gupta{1}  
{1}Indian Institute of Technology Delhi, India; {2}University at Buffalo, United States

11:15



### *Sensors Letters Paper*

#### **6378: Assessment of the Mask Composed of Sputtered Si Thin Film and Positive Photoresist for Wet Bulk Micromachining of Borofloat Glass**

Vishal Sahu, Robbi Vivek Vardhan, Priyanka Dewangan, Yogesh Kumar Srivastava, Prem Pal  
Indian Institute of Technology Hyderabad, India



## Technical Program: Wednesday, February 25

11:30



### *Sensors Letters Paper*

#### **6376: Development of Flexible and Biodegradable Paper-Based Wheatstone Bridge Strain Gauge for Low-Cost Sensing Applications**

Amit Kumar Goyal{3}, Neha Gupta{1}, Ajay Kumar{2}, Rajesh Mahadeva{4}

{1}GNIoT, India, India; {2}Jaypee Institute of Information Technology, India; {3}Manipal Institute of Technology, Manipal Academy of Higher Education, India; {4}MIT MAHE, India

11:45



### *Sensors Letters Paper*

#### **6374: NiO Micro-Flower Based Conductometric Sensor for Selective Detection of Trace Level TATP**

Bidesh Mahata{1}, Arijit Pattra{1}, Sakshi Gupta{2}, Sanjay Gulia{2}, Sayan Dey{1}

{1}Indian Institute of Technology Bhubaneswar, India; {2}IRDE, DRDO, India

10:45 – 12:00

### **C2L-D: Analytical & Instrumentation II**

Room: Debate

Session Chair(s): Rajan Jha, IIT Bhubaneswar

Shahid Malik, IIT Delhi

10:45



### *Sensors Letters Paper*

#### **6287: An On-Line Estimation of Three Non-Idealities of Sine-Cosine Angle Sensors Using a Simple Digital Interface Circuit**

Ishaan Sharma, Kishor Bhaskarrao Nandapurkar

Indian Institute of Technology Roorkee, India

11:00



### *Sensors Letters Paper*

#### **6293: A Linearizing Digital Front-End for GMR-Based Magnetic Field Sensor**

S. Mohana Priya{2}, Sujay R. Chaudhary{1}, Atharva R. Shinde{1}, Kishor Bhaskarrao Nandapurkar{1}

{1}Indian Institute of Technology Roorkee, India; {2}SLB Pune, India

11:15



### *Sensors Letters Paper*

#### **6304: Concurrent Battery-Free Wireless Strain Sensing Using Backscatter Communication**

Jin Mitsugi, Osamu Tokumasu, Masashi Owaki

Keio University, Japan

11:30



### *Invited Journal Author*

#### **6306: Sensitivity Enhancement Enabled by Strongly Coupled DG-IDC Structure with CSRR for Permittivity Detection**

Yatish Beria, Gouree Shankar Das, Akash Buragohain, Partha Protim Kalita, Trishna Doloi

Dibrugarh University, India

11:45



### *Sensors Letters Paper*

#### **6314: Incoherent Convolutional Dictionary Learning Based 3D Current Reconstruction from Magnetic Field Imaging**

Saurabh Sahu{1}, Prabhat Anand{2}, Anuj Bathla{1}, Kasturi Saha{1}, M Girish Chandra{2}

{1}Indian Institute of Technology Bombay, India; {2}TATA Consultancy Services Limited, India

10:45 – 12:00

### **C2L-E: Medical & Digital Healthcare V**

Room: Nucleus Hall

Session Chair(s): Dipankar Bandyopadhy, IIT Guwahati

Gautam Bacher, BITS PILANI GOA

10:45

#### **6239: Investigation of Graphene Oxide Coating Methods in Laser-Induced Graphene-Based Humidity Sensor**

Aruloli Kathirvel, Kalpana Settu

Indian Institute of Information Technology, Design & Manufacturing, Kancheepuram, India

11:00

#### **6241: Silicone-Dampened FSR for Novel Residual Stump Movement-Based Prosthetic Arm Control**

Benish Jan, Iqbal Kagdi, Mudra Chavda, Shahid Malik

Indian Institute of Technology Delhi, India



## Technical Program: Wednesday, February 25

11:15



**Invited Journal Author**

**6305: An Electrochemical Sensor Based on a Facile Synthesis of Chitosan-Blend-Polyaniline Decorated COOH-MWCNT-Hollandite/A-MnO<sub>2</sub> Nanocomposites for Creatinine Detection**

Kabyashree Hazarika, Jiten Chandra Dutta  
Tezpur University, India

11:30

**6309: Impact of Gold Coating Methods on Sensing Performance of Enzymatic Glucose Sensors**

Hrishita Sharma{2}, Deepjyoti Kalita{1}, Khalid Baig Mirza{1}  
{1}National Institute of Technology, Rourkela, India; {2}NIT Rourkela, India

11:45



**Sensors Letters Paper**

**6302: Robust Viral RNA Sensing Using Non-Negative Matrix Factorization of Optical and Electrochemical Signals**

Ranamay Saha{1}, Sagnik Sarma Choudhury{1}, Kapil Manoharan{1}, Ekta Gupta{2}, Shantanu Bhattacharya{1}  
{1}Indian Institute of Technology Kanpur, India; {2}Institute of Liver and Biliary Sciences, India

12:30 – 13:30

**Plenary Speaker: Anja Boisen, Department of Health Technology, Technical University of Denmark**

Room: Tango 1, 2, & 3

Session Chair: Rudra Pratap, Plaksha University

13:30 – 14:30

**Lunch**

Room: Exhibition Hanger

14:30 – 15:45

**C3L-A: Environment & Climate Change Monitoring III**

Room: Tango 1

Session Chair(s): Mitradip Bhattacharjee, IISER Bhopal  
Tapas Chakravarty, Institute of Engineering and Management, Kolkata

14:30



**Sensors Letters Paper**

**6310: An MoS<sub>2</sub>/GO Based Thin-Film Transistor for Region-Dependent Tunable Detection of NO<sub>x</sub> Gases**

Sukanya Mahalik, Bidesh Mahata, Sayan Dey  
Indian Institute of Technology Bhubaneswar, India

14:45



**Invited Journal Author**

**6316: Portable and Power-Efficient Flue Gas Monitoring System for Real-Time Air Quality Measurement**

Prajwal Shukla{2}, Anjali Goel{2}, Vikas Kumar{1}, Harneet Kaur{3}, Vikas Kumar Malav{2}, Brajesh Rawat{2}  
{1}Indian Institute of Technology Delhi, India; {2}Indian Institute of Technology Ropar, India; {3}Mahant Bachittar Singh College of Engineering & Technology, India

15:00



**Invited Journal Author**

**6317: Machine Learning-Based Edge Intelligence for Reliable Gas Monitoring Networks**

Sharmistha Nayak{2}, Sudip Misra{1}, Subhasish Basu Majumder{1}  
{1}Indian Institute of Technology Kharagpur, India; {2}XIM University, India

15:15



**Sensors Letters Paper**

**6332: An IoT-Based Real-Time Elevator Health Monitoring System Using LSTM Autoencoder**

Yogendra Kumar, Mohammad Arif Khan, Avishek Adhikary  
Indian Institute of Technology Bhilai, India

15:30

**6327: ML-GSQC: Machine Learning for Gas Sensor-Based Quantification and Classification**

Ujjwal Singh, Akanksha Dwivedi, Ajay Agarwal  
Indian Institute of Technology Jodhpur, India



## Technical Program: Wednesday, February 25

14:30-15:45

### C3L-B: Medical & Digital Healthcare VI

Room: Tango 2

Session Chair(s): Gautam Bacher, BITS PILANI GOA

Dipankar Bandyopadhy, IIT Guwahati

14:30



#### *Sensors Letters Paper*

##### **6294: Torsion Monitoring with a Helically Wound Macrobend Optical Fiber Sensor**

Vinicius de Carvalho{2}, André Eugenio Lazzaletti{1}, Marcia Muller{1}, José Luís Fabris{1}

{1}Federal University of Technology – Paraná, Brazil; {2}UTFPR, Brazil

14:45



#### *Invited Journal Author*

##### **6280: FPGA-Based Implementation Using Graph Spectral Features for Multiclass Brain Tumor Classification**

Suman Rekha Dip, Hemant Kumar Meena

MALVIYA NATIONAL INSTITUTE OF TECHNOLOGY, India

15:00



#### *Invited Journal Author*

##### **6279: Electrochemical Impedance-Based Detection of Pancreatic Cancer Biomarker Glypican1 and Mucin1 Using Electric Field-Lysed Extracellular Vesicles for Analysis: A Proof of Concept**

Nusrat Praween{2}, Krishna Thej Pammi Guru{3}, Palash Kumar Basu{1}

{1}Indian Institute of Space Science and Technology, India; {2}Indian Institute of Space Science and Technology, Thiruvananthapuram, India; {3}SoC, University of South Africa, South Africa

15:15



#### *Invited Journal Author*

##### **6276: Rapid, Label-Free Detection of PSA Using Graphene-Based Resistive Sensor**

Bolivia Konthoujam{1}, Nikita Bhandari{1}, Shridhar Ghagane{2}, Rajendra Nerli{2}, Sudhanshu Shukla{1}, Ruma Ghosh{1}

{1}Indian Institute of Technology Dharwad, India; {2}KAHER's Dr. Prabhakar Kore Basic Science Research Centre, Belagavi, India

15:30

##### **6251: Fabrication and Evaluation of Textile-Based Laser-Induced Graphene Electrodes for ECG Applications**

Theptha J S, Kalpana Settu

Indian Institute of Information Technology, Design & Manufacturing, Kancheepuram, India

14:30-15:45

### C3L-C: From Physical to Chemical Sensing IV

Room: Tango 3

Session Chair(s): Anwesha Khasnobish, TCS

Chirasree RoyChaudhuri, Bengal Engineering and Science University

14:30



#### *Sensors Letters Paper*

##### **6367: Colloidal Gold-Assisted Isolation and Electric Lysis of Small Exosomes for Electrochemical Detection of HER2 Cancer Biomarker**

Krishna Thej Pammi Guru{3}, Nusrat Praween{2}, Sreedevi Vallabhapurapu{4}, Srinivasu Vallabhapurapu{4}, Palash Kumar Basu{1}

{1}Indian Institute of Space Science and Technology, India; {2}Indian Institute of Space Science and Technology, Thiruvananthapuram, India; {3}SoC, University of South Africa, India; {4}University of Johannesburg, South Africa

14:45



#### *Sensors Letters Paper*

##### **6371: Towards Green Electronics: Screen-Printed MXene-Based Microsupercapacitors on Paper Substrate with Nafion-Based Gel Electrolyte**

Sushree Sangita Priyadarsini, Aditi Ghosh, Subho Dasgupta

Indian Institute of Science, India

15:00



#### *Sensors Letters Paper*

##### **6366: Linear Multiregime Thermistor Digitizer Featuring Lead-Wire and Self-Heating Compensation**

Sajeev Ramachandran{2}, Anoop Chandrika Sreekantan{1}, Roy Thankachan{2}

{1}Indian Institute of Space Science and Technology, India; {2}Vikram Sarabhai Space Centre, Indian Space Research Organisation, Thiruvananthapuram, India



## Technical Program: Wednesday, February 25

15:15



### *Sensors Letters Paper*

#### **6368: Duty-Ratio Controlled Front-End for Thermistors with Broad Span**

Safeer S S<sup>{3}</sup>, Nani Simhadri<sup>{2}</sup>, Anoop Chandrika Sreekantan<sup>{1}</sup>, Vineeth B S<sup>{2}</sup>, Radhika V N<sup>{3}</sup>

<sup>{1}</sup>Indian Institute of Space Science and Technology, India; <sup>{2}</sup>Indian Institute of Space Science and Technology, Trivandrum, India; <sup>{3}</sup>ISRO Inertial Systems Unit, Trivandrum, Indian Institute of Space Science and Technology, Trivandrum, India

15:30



### *Sensors Letters Paper*

#### **6372: Real Time Phase Transition Sensor Based on Latent Heat Driven FBG for Sub-Millimeter Ice Accretion Monitoring**

Debojyoti Mondal<sup>{2}</sup>, Sundarrajan Asokan<sup>{1}</sup>

<sup>{1}</sup>Indian Institute of Science, Bangalore, India; <sup>{2}</sup>Pandit Deendayal Energy University, India

14:30-15:45

#### **C3L-D: AI for Sensing III**

Room: Debate

Session Chair(s): Parikshit Sahatiya, Birla Institute of Technology and Science Pilani Hyderabad Campus

14:30



### *Sensors Letters Paper*

#### **6380: Identification of Adulteration and Brands of Packaged Mango Juices Using KNN Model on LDA-Reduced Hydrogel Impedance Data**

Ragini Vinay Mehta, Shikha Kaiwart, Dibakar Roy, Suchetan Pal, Avishek Adhikary

Indian Institute of Technology Bhilai, India

14:45



### *Sensors Letters Paper*

#### **6379: Machine Learning Assisted Pb<sup>2+</sup> Ions Detection Using AlGa<sub>N</sub>/Ga<sub>N</sub> HEMT Sensors**

Nidhi Mahesh Hegde, Pramod Martha, Adarsh Nigam

Manipal Institute of Technology, Manipal Academy of Higher Education Manipal, India

15:00



### *Sensors Letters Paper*

#### **6381: Analysis of Pregnancy Progression in Term Condition Using Propagation Features and Uterine EMG Measurements**

Vinothini S<sup>{1}</sup>, Punitha N<sup>{1}</sup>, Karthick P A<sup>{2}</sup>, Ramakrishnan S<sup>{1}</sup>

<sup>{1}</sup>Indian Institute of Technology Madras, India; <sup>{2}</sup>National Institute of Technology Tiruchirappalli, India

15:15



### *Sensors Letters Paper*

#### **6365: Evaluation of Shape Variations in Structural MR Images of Fornix in Normal, MCI, and AD Subjects Using Pseudo Zernike Moments**

Ahsan Ali<sup>{1}</sup>, Subha Dharmapalan Puthankattil<sup>{2}</sup>

<sup>{1}</sup>Indian Institute of Technology Madras, Chennai, India, India; <sup>{2}</sup>National Institute of Technology Calicut, India, India

14:30 – 15:45

#### **C3L-E: Cognitive Science for Marketing & Behavior Analysis**

Room: Nucleus

Session Chair(s): Shailesh Deshpande, TCS

Debatri Chatterjee, TCS

14:30

#### **Invited Talk**

#### **6356: Cognitive Science Insights for Marketing in a Diverse India**

Dhurjati Majumdar

Netaji Subhas University of Technology, India

15:00

#### **6284: Understanding the Influence of Mental Fatigue on Emotional States: A Neuromarketing Perspective**

Man Patel, Satrajit Kar

TATA Consultancy Services Limited, India

15:15

#### **6286: Neuromarketing Applications: Evolving Trends and the Way Forward**

Siddhartha Sarkar, Sachin Patel

TATA Consultancy Services Limited, India



## Technical Program: Wednesday, February 25

16:00 – 17:00

**Gift Exchange and Multicultural Extravaganza See Off Tea**

Room: Tango 2