Call for papers

The IEEE ISIE 2023 is the 32nd International Symposium on Industrial Electronics (ISIE), focusing on frontier technologies for industries, applications of electronics, controls, communications, instrumentation and computational intelligence. The objectives of the conference are to provide high quality research and professional interactions for the advancement of science, technology, and fellowship. Papers on completed work with new results, or work-in-progress in novel research are encouraged for submission.

Topics of interest include, but are not limited to:

- New Technologies for Electric Transportation
- Electric Energy Storage Systems
- Power Systems and the Smart Grid, Renewable Energy Systems and Smart Grid
- Electrical Machines and Drives
- Power Electronics & Energy Conversion
- Control Systems
- Motion Control, Robotics and Mechatronics
- Instrumentation, Sensors, Actuators, Systems Integration and Nano-Technologies
- Signal and Image Processing and Computational Intelligence
- Industrial Informatics: Cloud Computing, Big Data, AI, Informatics and Software Engineering
- Intelligent factory automation
- ICT and AI enabling smart cities, buildings, transport, agriculture, energy efficiency and sustainability
- Human centric ICT enabling smart medicine, assistive robotics, security, education and ethics

Tutorial and Workshop Proposals

The ISIE 2023 Organizing Committee solicits tutorial and workshop proposals from field experts in all areas of interest for IES. The tutorials could cover research in emerging areas, as well as more established cutting-edge techniques with strong practical and industrial relevance.

Work-in-Progress (WIP) Papers

Work in progress (WIP) paper provides the opportunity to share early-stage research work that have not yet produced the full results to the community. Submissions that showcase only ideas without supporting results will not be accepted.

WIP paper should be submitted to separate WIP technical tracks and Special Session tracks. In the submission page, the WIP tracks are:
- WIP TT01 - WIP TT13 for technical tracks
- WIP SS01 - WIP SS14 for special sessions tracks

WIP paper submissions need to follow the regular paper submission guidelines, with a page limit of four (4) pages. Accepted and registered WIP papers will be published in the conference proceedings and in the IEEE Xplore Digital Library.

Regular Paper Submission Deadline: Feb 28, 2023 (Extended)
Submission Deadline for Work-in-Progress: Mar 20, 2023 (Extended)
Paper Acceptance Notification: April 15, 2023
All Final Paper Submission Deadline: Apr 30, 2023
Tutorial Proposal Deadline: Mar 15, 2023
Tutorial Acceptance Notification: Mar 30, 2023

In cooperation with

2023.ieee-isie.org
Technical Tracks and Track Chairs

Track 1. New Technologies for Electric Transportation
Chair: Yiying Huangfu, Giambattista Grussos, Zedong Zheng, Ritesh Kumar Keshri
Electric propulsion, marine drive trains, railway drive trains, more electric aircraft, Vehicle to Home (V2H), power electronics for drive train, Vehicle to Grid (V2G), Vehicle to Vehicle (V2V), emerging charging technologies, charging infrastructure, wireless charging, energy storage for automotive, modeling, simulation of vehicle systems, intelligent vehicle control and autonomous vehicles.

Track 2. Electric Energy Storage Systems
Chair: Bharat Balagopal, Federico Baronti, Fei Gao, Annukka Santasalo-Aarnio
Energy storage technologies, hybrid energy storage systems, battery charging, battery management systems, battery modelling, battery state estimation, energy storage systems for power electronics and energy storage applications.

Track 3. Power Systems and the Smart Grid, Renewable Energy Systems and Smart Grid
Chair: Andrea Benigni, Thomas Strasser, Joao Martins, Javier Contarros, Hossein Fazlollah
Large and small hydro generators, energy transmission and distribution, static VAR and harmonic compensations, FACTS, active and hybrid filtering, power quality devices, power management, modeling, simulation and control of power grids, grid connect, distributed power generation, diagnostics, smart grid technologies, intelligent control systems, multi-agent systems, global and constrained optimization, electricity market liberalization.

Track 4. Electrical Machines and Drives
Chair: Shafqat Naseh, Thomas Wolbank, Marko Hinkkanen, Jose Antonino-Davui, Bruno de Oliveira e Sousa
Special machines and actuators, multiphase machines, AC motor drives control and applications, observers and sensor-less methods, electrical machine design and modelling, thermal, noise and vibration issues in electrical machines; reliability, testing and diagnostics; fault detection in machines and drives; motion control; special application of machines and drives; HVAC, traction drive systems; electrical drives for ship and for aerospace; real-time and off-line simulation of electrical drives.

Track 5. Power Electronics & Energy Conversion
Chair: Antonio Cardoso, Chi-Sang Lam, Oscar Lucia
Power electronic devices, Inverter/rectifiers; DC-DC converters; Control techniques; Integrated power electronics; Multilevel inverters; Matrix converters; Impedance source converters; Multiphase converters; Resonant and soft-switching converters; Power supplies; Power electronics for Smart Grids; EMI and EMC issues; Diagnostics and fault tolerance; Integrated renewable energy systems; Automotive applications; Fuel cells; HDVC&FACTS; Motor drives; Power quality; Wireless Power Transfer.

Track 6. Control Systems
Chair: Hao Luo, Lei Ding, Bin Zhang, Gianluca Rizzello
Advanced control techniques; nonlinear and adaptive control; optimal and robust control; fuzzy control; distributed control, cooperative control; intelligent control; switched and hybrid control; complex systems control; networked control systems; process control; filtering, estimation and identification techniques; multi-agent systems; industrial control applications; data-driven control; model-free control; model predictive control, learning control, statistical signal processing techniques; health condition monitoring; information fusion for diagnostics and prognostics; configuration techniques; fault management and control; model predictive control; fault diagnosis, fault prognosis, fault-tolerant control systems and applications.

Track 7. Motion Control, Robotics and Mechatronics
Chair: Kenta Seki, Gabor Sziebig, Valentin Ivanov, Mihoko Niitsuma, Tomasz Kucner
Mechatronic systems; motion control; robotics; autonomous mobile systems; telerobotic and teleoperation; multi-agent systems; navigation and environment perception in mobile robots; anthropomorphic collaborative systems; human-robot interface; perception for robotics; robotics application; precision motion control; test methods for mechatronic systems; robotic manipulation; collaborative robotics.

Track 8. Instrumentation, Sensors, Actuators, Systems Integration and Nano-Technology
Chair: Emre Sarıyıldız, Hiroaki Nishi, Carmen Aracil, Yunjie Li
Micro-sensors & micro-actuators; micro-nano technology; micro-macro-mechanical systems (MEMS); system integration; integrated optics and related technologies; polymer electronics; nanotechnology; microfluidics; MOEMS; RF-MEMS; embedded instruments; fault-tolerant sensors.

Track 9. Signal and Image Processing and Computational Intelligence
Chair: Alin Tisan, Alessia Saggese, Khan Muhammad
Computer vision; virtual reality systems; industrial vision; system-on-chip design; platforms for industrial AI applications; virtual instrumentation; image & sound processing; digital signal processing; remote sensing; HDL and HLS accelerated hardware; multimedia applications; artificial neural networks; fuzzy logic; genetic algorithms; industrial applications.

Track 10. Industrial Informatics: Cloud Computing, Big Data, AI, Informatics and Software Engineering
Chair: Haiyang Wang, Fei Gao, Ziyang Zhang, Daxing de Haan, Mauro Penta
Machine Learning, Learning and Generalisation in Industrial Informatics, Automated Machine Learning, Deep Learning in Industrial Technology, Online Learning from Data Streams, Machine Learning on Edge Devices, Embedded Vision in Industrial Informatics, Interpretability and Explainable Machine Learning, Computer Vision in Industrial Informatics, Text, Image, Audio, Video and Social Media Applications in Industrial Informatics, Reasoning on Internet of Things (IoT), Reinforcement Learning in Industrial Informatics, Cloud Computing, Big Data, Data Analysis and Extraction, Industrial Database Applications, Service Oriented Architecture, Software Engineering Methodologies and Techniques.

Track 11. Intelligent Factory Automation
Chair: Moris Behnam, Bilal Ahmad, Paulo Latto, Antoni Grau

Track 12. ICT and AI Enabling Smart Cities, Buildings, Transport, Agriculture, Energy Efficiency and Sustainability
Chair: Kim Fung Tsang, Lei Shi, Jan Haase, Chen-wei Yang
AI powered smart cities services, Smart buildings, Smart mobility and transportation, Smart healthcare, Open data and big data analytics, IoT in Agriculture, AI in Agriculture, Security and Physical Safety for Outdoor Devices, Safety Requirements for Autonomous Agricultural Machinery, Unmanned Aerial Vehicles (UAVs), Intelligent infrastructure, Connected Vehicle (CV) technologies, Safety and Security Systems, Environmental Monitoring Technologies, Smart Traffic System Operations.

Track 13. Human Centric ICT Enabling Smart Medicine, Assistive Robotics, Security, Education and Ethics
Chair: Geng Yang, Hao Wang, Liliana Donisi, Dinhua Shi