IEEE ONCON 2022 is the 1st Annual Online Conference of the IEEE Industrial Electronics Society (IES), focusing on the advanced theory, concepts, and applications of advanced Industrial Electronic Systems. The conference has a wide scope and brings together, scientists, practitioners, industry engineers and inventors that apply electronic concepts within an industrial context. The objectives of the conference are to provide high quality research and professional interactions for the advancement of science, technology, and fellowship. Papers with new research results are encouraged for submission.

The conference is scheduled to take place online from 9-11 December 2022.

The scope of the conference will cover, but will not be limited to, the following topics:

Power Electronics & Energy Conversion
Power converters, power electronic devices, SiC MOSFET & SiC JFET technologies, PWM converters, integrated power electronics, modeling, simulation and control of power electronics, DC/DC, DC/AC, AC/DC conversion, AC/AC matrix converters, multilevel converters, high frequency links, soft switching techniques, active rectifiers, inverters, UPS, energy efficiency, power electronics for smart grid, EMI and EMC issues.

Electrical Machines and Drives
Special machines and actuators, multiphase motors, 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, advanced traction control of electric vehicles and electric trains, electrical drives for ships and for aerospace. Advance techniques in real and offline simulation of industrial drives power system and electromechanical devices.

Power Systems and Smart Grid
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 system, grid connect, distributed power generation, diagnostics, smart grid technologies, intelligent control systems, multi-agent systems, global and constrained optimization, electricity market liberalization.

Renewable Energy Generation and Harvesting
Wind, solar, and wave energy converters, nano-, pico-, and micro-hydro power generators, integrated renewable systems, hybrid electric vehicles, fuel cells, advanced batteries, energy storage devices and systems, offshore underwater converters and energy harvesting.

Electrical Energy Storage Systems
Specialty batteries, fuel cells, ultra-capacitors, battery technologies, fly wheels, hybrid storage, flow batteries, battery management systems, cell balancing technologies, energy storage for renewables, energy storage for transportation, power electronics for energy storage, uninterruptible power supplies and small storage systems.

Electric Transportation
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, modelling, simulation of vehicle systems, intelligent vehicle control and autonomous vehicles.

Sensors, Actuators, Systems Integration and Nano Technologies
Intelligent sensors, actuators and multi-sensor fusion, micro-sensors and micro-actuators , micro-nano technology, electronic instrumentation, micro-electro-mechanical systems (MEMS), systems on chip (SoC), RF systems integration - integrated optics and related technologies. wireless and wire line communication circuits, polymer electronics.

Control, Robotics, and Mechatronics
Advanced control techniques, nonlinear and adaptive control, optimal and robust control, estimation and identification techniques, neural networks, fuzzy algorithms, evolutionary computing, intelligent control of robotics, autonomous mobile robots, tele robotics and teleoperation, humanoid robots, multi-robot systems, intelligent transportation, distributed collaborative systems, security & safety applications, human-robot interface, vision-based robots.

Cloud Computing, Big Data and Software Engineering
Cloud computing, deep learning, machine learning, convolutional learning, big data, data mining, text mining, artificial intelligence, social computing, decision support systems, data analytics and software engineering.

Signal and Image Processing and Computational Intelligence
Computer vision, virtual reality systems, industrial vision, virtual instrumentation, image & sound processing, digital signal processing, remote sensing, multimedia applications, neural networks, fuzzy logic, genetic algorithms, industrial applications of intelligent controllers.

Electronic System on Chip and Embedded Control
Real time simulation algorithms, DSP and FPGA technologies, microprocessor and FPGA based control, real time implementation and control, VHDL applications, embedded systems, real-time distributed embedded systems, technologies for system design, electronic system on chip, design methodologies and tools.

Industrial Automation, Communication, Networking, and Informatics
Building automation, factory automation and communications, flexible manufacturing systems, industrial vision, motion control, autonomous mobile robots, electrical vehicles, intelligent transportation, industrial agents, integrated systems and processes, distributed collaborative systems, human-machine interfaces, security & safety applications, infrastructures for industrial informatics portable electronics, automation systems for power distribution, industrial applications of internet technologies, multimedia, and wireless communications.

Important Timelines

Opening Date of Submission of Paper: 20-06-2022

Last Date of Submission of Digest: 01-08-2022

Acceptance Notification of Digest: 30-09-2022

Submission of Final Manuscript and Copyright Form: 31-10-2022