

CONFERENCE PROGRAM

08:00-09:00

REGISTRATION

Plenary Session (Chair: Mahendra Gooroochurn)

Opening Speech

09:00-09:30

Keynote Speaker: *Prof. Dr. Khedo Kavi Kumar*
(University of Mauritius, Mauritius)

At the intersection of IoT, Big Data and AI: Trends and Open Challenges

09:30-11:00

Session A-I: Renewable Energy

ROOM A

Chair: *Kristina Berzina*

ID	Authors	Title
83	Mauro Bonfanti , Sergej Antonello Sirigu and Giuliana Mattiazzo	ISWEC Approaching the Spectral-Domain: Modelling and Numerical Experiments
87	David Helman and Yehuda Youngshtein	Monitoring Environmental Impacts of an Indoor Vertical Green Living Wall With Precision Agriculture Technologies
89	Marius Siemonsmeier , Kevin Pacco, Lukas Weber and Albert Moser	Impact of Capacity Calculation Methods on Grid Operation Studies: Flow Based versus Net Transfer Capacity
125	Michael Davis and Mohammad Madani	Wind Energy Harvesting Capability of a Novel Cascaded Dual-Rotor Horizontal-Axis Wind Turbine
243	Giuseppe Giorgi , Nicolás Faedo and Giuliana Mattiazzo	Time-varying damping coefficient to increase power extraction from a notional wave energy harvester
305	Kristina Berzina	The Process of Assessing Professional Competencies of Specialists in the Field of Renewable Energy

09:30-11:00

Session B-I: Mixed - 2

ROOM B

Chair: *Tulsi Pawan Fowdur*

ID	Authors	Title
507	Edoardo Pasta, Nicolas Faedo, Luca Parrinello , F. Carapellese, John V. Ringwood, G. Mattiazzo	Constraint handling in extremum-seeking control for wave energy systems: A case study
592	Francesco Niosi , Luca Parrinello, Bruno Paduano, Edoardo Pasta, Fabio Carapellese and Giovanni Bracco	On the Influence of Mooring in Wave Energy Converters Productivity: the PeWEC case
643	Gabriele Cepeliauskaite, Benno Keppner, Zivile Simkute, Zaneta Stasiskiene	Smart-Mobility Services for Climate Mitigation in Urban Areas: Case Studies of Baltic Countries and Germany
576	Thomas M. Deserno , Nadja Stachowiak and Ju Wang	Beyond a Three-Dimensional Digital Rescue Sheet
641	Robert Karpiński , Przemysław Krakowski, Józef Jonak, Anna Machrowska, Marcin Maciejewski, Adam Nogalski	Diagnostics of degenerative changes in the knee joint based on the generated vibroacoustic signals
62	Visham Hurbungs , Tulsi Pawan Fowdur and Vandana Bassoo	A power model for monitoring environmental parameters on the Edge

11:00-11:15

COFFEE BREAK

11:15-12:45

Session A-II: Communications**ROOM A****Chair: Jürgen Jahns**

ID	Authors	Title
75	Christian Hoyer , Jens Wagner and Frank Ellinger	A 60 GHz VCO with 654 MHz direct Frequency Modulation Bandwidth in 0.13-um SiGe BiCMOS
119	Ulrich Lohmann and Jürgen Jahns	Adaptive optical interconnect for digital systems using integrated MOEMS technology
151	Anna Jodejko-Pietruczuk and Sylwia Werbińska-Wojciechowska	Availability assessment for a multi-AGV system based on simulation modeling approach
265	Peter Narins	Adaptive variability of the frog call oscillator provides advantages for communication in noise
578	Adela Puscasiu, Alexandra Fanca, Dan-Ioan Gota , Claudiu Domuta, Honoriu Valean, Ovidiu Stan and Liviu Miclea	Data Transmission and Remote Control of Android Mobile Devices
258	Tomasz Kisiel and Artur Kierzkowski	A preliminary study on evaluation of passenger orientation at the airport terminal using the eye tracking technology

11:15-12:45

Session B-II: Robotics and Control Systems**ROOM B****Chair: Roman Čečil**

ID	Authors	Title
380	Stefano Rinaldi , Marco Pasetti, Alessandra Flammini, Paolo Ferrari, Emiliano Sisinni, Alessandro Depari and Giulio Maternini	Analysis of Communication Requirements for Enabling the Coordinate Charge of Sustainable Multimodal Electric Vehicle Supply Equipment
74	Roman Čečil , David Tolar and Miloš Schlegel	RF Synchronized Active LED Markers for Reliable Motion Capture
244	Kamil Staszek , Sebastian Koryciak, Artur Rydosz, Krzysztof Wincza and Sławomir Gruszczynski	Microwave Eight-Port Reflectometer for Air Pollution Sensor
617	Yoan Juganaikloo and Mahendra Gooroochurn	An image-guided mobile robotic system for underground pipe navigation and condition monitoring
416	Isabela Birs , Cristina Muresan, Ioan Nascu and Robin De Keyser	Experimental comparison between discrete time and event-based PID controllers on a nonlinear process
602	Domenico Coiro and Guido Lazzarini	Effect of Blade Design and Control Strategies On Levelized Cost of Energy of Tidal Stream Turbines

12:45-13:45

LUNCH

13:45-15:15

Session A-III: Machine Learning, Deep Learning
ROOM A **Chair: Peter Bentley**

ID	Authors	Title
100	Mathias Laile and Johannes Fottner	Using Machine Learning to Predict Accurate Load Collectives for the Rail/Wheel System of Stacker Cranes
210	Marek Ružička , Marcel Vološin, Juraj Gazda and Taras Maksymyuk	Deep Learning-Based Blockchain Framework for the COVID-19 Spread Monitoring
266	Peter Bentley , Soo Ling Lim, Shrey Jindal and Sid Narang	Generating Synthetic Energy Usage Data to Enable Machine Learning for Sustainable Accommodation
462	Patrick Werner, Wolfgang Heiden, Ernst Kruijff and Andre Hinkenjann	Deep Learning in Mobile Sketch-Based Modelling
557	Manoj Singh , Subhash Panwar, Sanju Choudhary and Pankaj Ojha	Textual Conversational Sentiment Analysis in Deep Learning using capsule network

13:45-15:15

Session B-III: IoT, Neural Networks
ROOM B **Chair: Emre Arslan**

ID	Authors	Title
102	Ruslans Muhitovs , Mareks Mezitis, Andrejs Baranovskis and Andrejs Spunitis	Modelling point electric heating algorithm using Matlab's Fuzzy Logic
39	Michal Rogala, Jakub Gajewski and David Vališ	The application of neural networks in the analysis of the crashworthiness of thin-walled aluminum profiles with hexagonal triggers
294	Valentina Forte, Nicolò Maunero , Paolo Prinetto and Gianluca Roascio	PROLEPSIS: Binary Analysis and Instrumentation of IoT Software for Control-Flow Integrity
296	Fabian Humberto Fonseca Aponte, Serena Ferracci , Federico Palmaro , Luca Iocchi, Daniele Nardi and Luisa Franchina	Static Analysis of PE files Using Neural Network Techniques for a Pocket Tool
312	Simon Stock , Florian Mazura, Fernando Gomez, Marius Gerdes, Markus Schinle and Wilhelm Stork	MMAI - Mobile Moods AI Electroencephalography Artifact Detection Towards Objective Assessment of Mental States

15:15-15:30

COFFEE BREAK

15:30-17:00

Session A-IV: Mixed - 1
ROOM A **Chair: Thibault Carron**

ID	Authors	Title
7	Laurie Butgereit	Covid Cases and Covid Deaths as seen through Benford's Law – With a Special View to Africa
349	Hans Herrmann , Hartmut Ewald and Sebastian Koball	Continuous Cardiovascular Monitoring with Pulse-Transit-Time to prevent Intradialytic Hypotension of Dialysis Patients
355	Simon Rerucha , Miroslava Hola, Martin Sarbort, Jan Kur, Pavel Konecny, Josef Lazar and Ondrej Cip	Laser-interferometric nanometre comparator for length gauge calibration in advanced manufacturing
383	Daive Cittanti , Enrico Vico, Eugenio Bossotto, Matteo Gregorio and Radu Bojoi	Design and Experimental Assessment of a 60 kW All-Si Three-Phase Six-Leg T-Type Rectifier for Electric Vehicle Ultra-Fast Charging
596	Philippe Pernelle, Thibault Carron , Stéphane Talbot and David Wayntal	Digital Twin and ecological transition integration in training process
616	Isabela Birs, Cristina Muresan , Mihaela Ghita, Dana Copot, Martine Neckebroek and Clara Mihaela Ionescu	Development and validation of preliminary fractional order impedance models for experimental pain assessment

15:30-17:00

Session B-IV: Mechatronics
ROOM B **Chair: Janusz Bobulski**

ID	Authors	Title
52	Andreas Rolle , Frantisek Paur, Dominik Staab and Klaus Bengler	A Simulation Methodology for the Numerical Determination of the Equivalent Temperature
60	Felix Top , Sebastian Pütz and Johannes Fottner	Human-Centered HMI for Crane Teleoperation: Empirical Study on the Operators' Mental Workload
90	Leonhard Feiner , Filippos Chamoulias and Johannes Fottner	Real-Time Detection of Safety-Relevant Forklift Operating States using Acceleration Data with a Windowing Approach
223	Anna Paleczek, Dominik Grochala, Kamil Staszek, Krzysztof Wincza, Slawomir Gruszczynski and Artur Rydosz	Microwave-based nitrogen dioxide gas sensor for automotive applications
360	Franciszek J. Restel and Szymon Haladyn	Operational Factors Affecting Undesirable Event Occurrence in the Railway System
441	Janusz Bobulski and Mariusz Kubanek	Vehicle For Plastic Garbage Gathering
642	Katarzyna Falkowicz	Stability and Failure of Thin-Walled Composite Plates weakened by Cut-Out

17:00-17:15

CLOSING CEREMONY