

2021 22nd IEEE International Conference on Industrial Technology

Wednesday, 10 March 2021

11:45-12:00	<p>Plenary Sessions</p> <p>Opening Ceremony Prof. Teresa Riesgo Alcaide, General Secretary of Innovation, Spanish Ministry of Science Dr Sonia Tirado González, Director General for Innovation, Generalitat Valenciana Prof. Francisco Mora Mas, Rector of the Technical University of Valencia Chairs: Prof. Ramon Blasco-Gimenez, Prof. José Antonino-Daviu</p>
12:00-13:15	<p>Plenary Sessions</p> <p>Keynote: Prof. Josep M. Guerrero - Space Microgrids – NanoSats, Lunar Bases and Closed Ecosystems This talk will begin by introducing the control of microgrids, the parallelisms with the human brain and the research for possible sources of inspiration in last frontiers of neuroscience. Then, control in electric power systems of satellites and space platforms will be presented, showing approaches that are extended from terrestrial microgrids and explaining the differences and challenges when it comes to apply them out in the space. Further, multi-microgrid systems will be discussed for moon craters in future lunar man-made bases. Finally, the extension from the hierarchical control of microgrids to bioastronautics in the control of closed ecological systems to support with oxygen, water, and food to the astronauts and creating thus creating new ecosystems for the moon and future Mars bases. Chairs: Prof. Ramon Blasco-Gimenez, Prof. Eric Monmasson</p>
13:15-13:45	<p>Plenary Sessions</p> <p>Meet with friends</p> <hr/> <p>Room 3 Meet with friends</p> <hr/> <p>Room 1 Meet with friends</p> <hr/> <p>Room 2 Meet with friends</p> <hr/> <p>Room 4 Meet with friends</p>
13:45-15:00	<p>Room 3</p> <p>Power Electronics and Renewable Energy Conversion (V) Chairs: Ahmed Shahin, Jonas Huber Integration of Renewable Energy Sources to Wireless Charger of Electrical Vehicle <i>Ahmed Shahin, Jean-Phillipe Martin, Serge Pierfederici, Adel Sharaf</i> End-to-End Efficiency Improvement Technique for Supercapacitor Energy Stores in Renewable Energy Applications <i>Chamara Dassanayake, Sachinda Ekanayake, Prabath Wijesinghe, Nicoloy</i></p>

Wednesday, 10 March 2021

Gurusinghe, Nihal Kularatna

Optimal Utilization of the Dual-Active Bridge Converter with Bidirectional Charge Control *Remco Bonten, Jan Schellekens, Henk Huisman*

Optimization of Bidirectional Modular DC/DC Converter for Low and High Power Operation in Aircraft Applications *Gustavo S. Zappulla, Bernardo Cougo, Antonio L. R. Vázquez, Antonio Russo, Beniamino Guida*

Modular Multilevel Converter Circulating Current Control with Single Active Filter Module per Phase *Jonas E. Huber, Johann W. Kolar*

Simple Model Predictive Control of High Power Direct-Driven PMSG Wind Energy Systems *E. G. Shehata*

Room 1

Electrical Machines and Drives (I)

Chairs: Jose Antonino-Daviu, Hubert Razik

Detection and Discrimination of Inter-Turn Short Circuit and Demagnetization Faults in PMSMs Based on Structural Analysis *Saeed Hasan Ebrahimi, Martin Choux, Van Khang Huynh*

Harmonic current injection for torque ripple reduction with optimum current trajectory for minimum induced voltage *Andreas Langheck, Dominik Stretz, Jie Zhou, Thorsten Rittgerott, Johannes Kolb, Martin Doppelbauer*

Bispectrum and Kurtosis Analysis of Rotor Currents for the Detection of Field Winding Faults in Synchronous Motors *Miguel Enrique Iglesias Martínez, Jose Antonino-Daviu, Carlos A. Platero, Larisa Dunai, J. Alberto Conejero, Pedro Fernández de Córdoba*

Improved DC-link Voltage Utilization for Dual Three-phase Drives with Full Anti-windup and Harmonic Compensation *Kai Cui, Hisham Eldeeb, Mohamed Abdelrahem, Ralph Kennel*

Reliability Model Development for Wind Turbine Drivetrain with Brushless Doubly-Fed Induction Machine as Generator *Salman Abdi Jalebi, Sara Sharifzadeh, Sam Amiri*

Automatic Detection of Rotor Faults in Induction Motors by Convolutional Neural Networks applied to Stray Flux Signals *Dario Pasqualotto, Angela Navarro Navarro, Mauro Zigliotto, Jose A. Antonino-Daviu*

Room 2

Cloud Computing, Big Data and Software Engineering (I)

Chairs: Alessio Bucaioni, Francisco Blanes-Noguera

Fault-tolerant Permanent Storage for Container-based Fog Architectures *Zeinab Bakhshi, Guillermo Rodriguez-navas, Hans Hansson*
Implicit Templates for Conformance Units in OPC UA Companion Specifications *Sebastian Friedl, Tonja Heinemann, Armin Lechler, Olivier Riedel*

Factory data management: Definition and differentiation from manufacturing operations management *Alexander Nowitschkow, Christopher Saal, Oliver Lohse*

Transferring a model-based development methodology to the automotive industry *Alessio Bucaioni, Vlatko Dimic, Mattias Gålnander, Henrik Lönn, John Lundbäck*

Triton: a Domain Specific Language for Cyber-Physical Systems *Bradley Wood, Akramul Azim*

Wednesday, 10 March 2021

Prototyping intrusion detection in an industrial cloud-native digital twin *William Tärneberg, Per Skarin, Christian Gehrman, Maria Kihl*

Room 4

Power Systems, Smart Grids and Energy Storage (I)

Chairs: H. Khooban, Cyril Spiteri Staines

A Novel Method for Stabilizing Buck-Boost Converters with CPL using Model Prediction Control *Milad Andalibi, Mojtaba Hajhosseini, Meysam Gheisarnejad, Mohammad Hassan Khooban, Jalil Boudjadar*

Analysis of Droop controlled paralleled Aircraft Generators through common DC Bus *Daniel Lendi, Cyril Spiteri Staines, Cedric Caruana, John Licari*

Flexible Control Structure of a Smart Transformer for Universal Operation *Francisco Huerta, Rongwu Zhu, Marco Liserre, Daniel Santamargarita, Emilio J. Bueno*

Control and Power Management of a 24-Hour DC Microgrid Improved Model *Elie Hleihel, Maurice Fadel, Hadi Y. Kanaan*

Generator Available Inertia Estimation Based on Various Disturbance Measurements of PMU *Hongbo Ye, Xuemei Chen, Yong Cui, Chao Lu, Jun Gu, Xiaobo Ling*

Sequence-Frame Coupling Admittance Analysis and Stability of VSC Connected to Weak Grid *Yin Chen, Lie Xu*

15:00-16:15

Room 3

Power Electronics and Renewable Energy Conversion (VIII)

Chairs: Enrique Romero-Cadaval, Joao Martins

A Low-Voltage-Deviation and Small-Output-Voltage-Ripple DC-DC Converter with Reduced Output Capacitance in Automotive Applications *Daisuke Nakashima, Yoichi Ishizuka*

Modulation strategy and control of Modular Cascade H-Bridge

Converters as Input-side of a Multi-port Smart Transformer *Selene Sanchez-Cruz, Enrique Romero-Cadaval, Begoña Montes-Cabrera, Eva Gonzalez-Romera, María-Isabel Milanes-Montero, Fermin Barrero-Gonzalez*

Energy Routers in Transactive Energy Communities *Joao Martins, Gonçalo Santos, Vitor Fernão Pires, Anabela Pronto*

On the potential of parallel multilevel Current Source Inverter using SiC devices for renewable applications *Louis-Alexis Gomez, Luis Gabriel Alves Rodrigues, Guillaume Gateau, Sébastien Sanchez*

Direct Active and Reactive Power Control for Grid-Connected PEC9 Inverter Using Finite Control Set Model Predictive Method *Mohammad Babaie, Majid Mehrasa, Kamal Al-Haddad*

Z Packed U-cell (ZPUC) topology, configuration of single DC Source single-phase and three-phase Multilevel Converter *Saeed Arazm, Kamal Al-Haddad*

Room 1

Power Electronics and Renewable Energy Conversion (I)

Chairs: Francisco Huerta Sanchez, Mattia Ricco

High-Frequency Spread-Spectrum Modulations for Wide-Bandgap Voltage Source Converters *David Lumbreras, Jordi Zaragoza, Néstor Berbel, Juan Mon, Eduardo Gálvez, Alfonso Collado*

Wednesday, 10 March 2021

LQG digital state-feedback control of a Dual-Active-Bridge Series-Resonant Converter *Francisco Huerta, Pablo Zumel, Leonardo Ortega, Daniel Santamargarita, Cristina Fernández*

Model Predictive Control for paralleled UPS systems with load-side neutral wire *Tiago Oliveira, Luís Caseiro, André Mendes, Sérgio Cruz, Marina Perdigão*

Large-Signal Electrical Parameter Characterization in Inductive Power Transfer Systems *Alexis Adrian Narvaez Acaro, Claudio Carretero Chamarro, Jesus Acero Acero, Jose Miguel Burdio*

Control of a Single Phase Modular Multilevel Converter based on a New Modulation Technique. *Anthony Abdayem, Jean Sawma, Flavia Khatounian, Eric Monmasson*

Primary Control and Large-Signal Stability Criteria of an Enhanced Electrical Power System for Space Applications *Quentin Hilpert, Stéphane Caux, François Bonnet, Marc Malagoli*

Room 2

Industrial Automation, Communication, Networking and Informatics (II)

Chairs: Jan Olaf Blech, Paulo Leitao

Advanced Grandmaster Selection Method for Converged Wired and Wireless Networks *Maximilian Schuengel, Steven Dietrich, Ludwig Leurs, David Ginthoer, Shun-Ping Chen, Michael Kuhn*

Survival Time-aware Dynamic Multi-connectivity for Industrial Control Applications *David Ginthoer, Marie-Theres Suer, Maximilian Schuengel, Rene Guillaume, Hans-Dieter Schotten*

Knowledge Internalization using Virtual Training on the HoloLens *Fernando Arévalo N., Christian Alison M. Piolo, Joachim Arens, Andreas Schwung, Matthias Hermes*

Dynamic Adapter Connections for IEC61499 *Paavo Kajola, Jan Blech, Udayanto Atmojo, Valeriy Vyatkin*

Simulation Components in Gazebo *Ian Peake, Joseph La Delfa, Ronal Bejarano, Jan Olaf Blech*

Statistical analysis of execution time profile for temporal validation of a distributed hard real-time system *Arpitha Prabhakara, Benjamin Steinwender, Wilfried Elmenreich*

Room 4

SS Advances in Digital Transformation of Manufacturing Environments. Integrated Development 4.0

Chairs: Haris Isakovic, Germar Schneider

Benefits of Digitalisation for Business Processes in Semiconductor Manufacturing *Germar Schneider, Sophia Keil, Fabian Lindner*

Adaptive Signal Filtering Platform for a CPS/IoT Ecosystem *Haris Isakovic, Stefan Dangl, Zlatan Tucakovic, Radu Grosu*

Investigation of Predictive Maintenance for Semiconductor Manufacturing and its Impacts on the Supply Chain *Daniel Fischer, Patrick Moder, Hans Ehm*

AI-Supported Marketplace For Industrial Asset Capabilities *Eric Brandt, Felix Brandt, Konstantin Clemens, Dirk Reichelt*

Using representative process flows for simulation model simplification *Igor Stogniy, Wolfgang Scholl*

Smart platform for rapid prototyping: solutions in the dilemma of

Wednesday, 10 March 2021

	<p>flexibility and standardisation <i>Sabrina Anger, Felix Klingert, Volker Häublein, Markus Pfeffer, Martin Schellenberger</i></p> <p>Control of heterogenous AMHS in semiconductor industry under consideration of dynamic transport carrier transfers <i>Patrick Boden, Sebastian Rank, Thorsten Schmidt</i></p>
16:15-16:30	<p>Plenary Sessions</p> <p>Networking - Meet with friends</p>
	<p>Room 3</p> <p>Networking - Information and Communication Tech</p>
	<p>Room 1</p> <p>Networking - Energy</p>
	<p>Room 2</p> <p>Networking - Sensors and Control</p>
	<p>Room 4</p> <p>Networking - Cross-Disciplinary</p>
16:30-17:45	<p>Room 3</p> <p>Power Electronics and Renewable Energy Conversion (IV) Chairs: Christian Rojas, Kamal Al-Haddad</p> <p>Binary Capacitor Voltage Control-based MMC with a Hybrid Arm Design for Low Nominal DC Voltage Applications <i>Sanghun Choi, A. P. Meliopoulos</i></p> <p>Three-level DC-DC GaN-based Converter with Active Thermal Control for Powertrain applications in Electric Vehicles <i>Ruben Gonzalez, Christian Rojas, Leonardo Callegaro</i></p> <p>ZPUC9-MMC: An Increased Voltage Level Modular Multilevel Converter <i>Saeed Arazm, Kamal Al-Haddad</i></p> <p>Modeling and dynamic feedback linearization of a 5-switch tri-state buck-boost bidirectional DC-DC converter <i>Gabriel R. Broday, Gilney Damm, William Pasillas-Lépine, Luiz A. C. Lopes</i></p> <p>A Ripple-Free Output Current Interleaved DC/DC Converter Design Algorithm for EV Charging <i>Riccardo Mandrioli, Mattia Ricco, Manel Hammami, Aleksandr Viatkin, Gabriele Grandi</i></p> <p>Bidirectional Partial Power DC-DC Configuration for HESS Interface in EV Powertrains <i>Héctor Ferreira, Samir Kouro, Christian Rojas, Nicolás Müller, Sebastián Rivera</i></p> <p>A Performance Comparison of GaN FET and Silicon MOSFET <i>Shima Khoshzaman, Ingo Hahn</i></p>
	<p>Room 1</p> <p>Signal and Image Processing and Computational Intelligence (I) Chairs: Vincenzo Piuri, Antonio Sanchez-Salmeron</p> <p>Performance Evaluation of Adversarial Learning for Anomaly Detection using Mixture Models <i>Yogesh Pawar, Manar Amayri, Nizar Bouguila</i></p>

Wednesday, 10 March 2021

Spatial image segmentation based on Beta-Liouville mixture models and Markov Random Field *Muhammad Azam, Jai Puneet Singh, Nizar Bouguila*

A novel optimization robust design of artificial neural networks to solve the inverse kinematics of a manipulator of 6 DOF *Teodoro Ibarra-Pérez, María del Rosario Martínez-Blanco, Fernando Olivera-Domingo, José Manuel Ortiz-Rodríguez, Javier Gomez-Escribano*

Driver Attention Assistance by Pedestrian/Cyclist Distance Estimation from a Single RGB Image: A CNN-based Semantic Segmentation

Approach *Angelo Genovese, Vincenzo Piuri, Francesco Rundo, Fabio Scotti, Concetto Spampinato*

Interaction by Hand-Tracking in a Virtual Reality Environment *Mateus Cândido Lima de Castro, João Pedro de Araújo Xavier, Paulo Fernando Ferreira Rosa, Jauvane Cavalcante de Oliveira*

A New Method for Semi-Supervised Segmentation of Satellite Images *Sara Sharifzadeh, Sam Amiri, Salman Abdi*

Room 2

Industrial Automation, Communication, Networking and Informatics (I)

Chairs: Paulo Leitao, Jan Olaf Blech

Curiosity Based Reinforcement Learning on Robot Manufacturing Cell *Mohammed Sharafath Abdul Hameed, Md Muzahid Khan, Andreas Schwung*

A Design Pattern for Monitoring Adapter Connections in IEC 61499 *Pranay Jhunjunwala, Jan Olaf Blech, Alois Zoitl, Udayanto Dwi Atmojo, Valeriy Vyatkin*

Recommendation of best practices for Industrial Agent Systems based on the IEEE 2660.1 Standard *Paulo Leitao, Thomas Strasser, Stamatis Karnouskos, Luis Ribeiro, Jose Barbosa, Victor Huang*

An Industrial HMI Temporal Adaptation based on Operator-Machine Interaction Sequence Similarity *Daniel Reguera, Iñaki Garitano, Roberto Uribeetxeberria, Carlos Cernuda*

Implementation of a Model Based Numerical Control for the Gravity Die Casting Process *Anja Elser, Armin Lechler*

Dynamically Wiring CPPS Software Architectures *Michael Mayrhofer, Christoph Mayr-Dorn, Oujidane Guiza, Alexander Egyed*

Room 4

Control Systems, Robotics and Mechatronics (I)

Chairs: Gabor Sziebig

Robust Control Design Toolbox for General Time Delay Systems via Structured Singular Value: Unstable Systems with Factorization for Two-Degree-of-Freedom Controller *Marek Dlapa*

Autonomous Vehicle Control Design Framework for Performance and Driveability *Ayhan Arda Araz, Erhan Ozkaya, Furkan Kocyigit, Enes Emre Bulut, Mertcan Cibooglu, Ahmetcan Erdogan*

Design, Characterization, and Control of a Size Adaptable In-pipe Robot for Water Distribution Systems *Saber Kazeminasab, Ali Akbari, Roozbeh Jafari, M.Katherine Banks*

Design Guidelines for the Evolutionary Integration of Physical Behaviour Models into Plant Simulations for Production

Engineering *Felix Auris, Christian Diedrich*

Model predictive control of vehicle dynamics based on the Koopman

Wednesday, 10 March 2021

operator with extended dynamic mode decomposition *Marko Švec, ŠAndor Ileš, Jadranko Matuško*
Design of a Model Predictive Control for a Boost Type Matrix Converter *Ahmad Rammal, Hadi Y. Kanaan*
Computationally Efficient Set-based Predictive Control for Grid-tied Inverters *Renato Babojelic, Sandor Iles, Viktor Sunde, Jadranko Matusko*

Thursday, 11 March 2021

11:00-12:15

Room 3

Power Electronics and Renewable Energy Conversion (VI)

Chairs: Andrea Trovo', Riccardo Mandrioli

Numerical Analysis of Renewable Generation Variability for Energy Storage Smoothing Applications *Andrés Peña Asensio, Manuel García Plaza, Jesús López Merino, Fernando R. Martínez Mendoza, Maciej Marek Niegowski, Pedro Luis Camunas Garciamiguel*

A vanadium redox flow battery bracing the pilot microgrid at Eni Renewable Energy & Environmental R&D Center *Joseph Epoupa Mengou, Andrea Trovò, Chiara Gambaro, Massimo Guarnieri*
Influences of Cell to Cell Variances and the Battery Design on thermal and electrical imbalances among parallel Lithium-Ion Cells *Alexander Fill, Kai Peter Birke*

A Novel Three-Port DC-DC Converter for Integration of PV and Storage in Zonal DC Microgrids *Pouya Zolfi, Sina Vahid, Ayman EL-Refaie*

3D Space Vector Pulse Density Modulation Scheme for Two-Level Four-Leg Inverter *Jeeshma Mary Paul, Biji Jacob*

Application of Variable Carrier Frequency Control by Using Wide Bandgap Semiconductors Inverter for WLTC Mode Driving *Shota Hori, Yasuki Kanazawa, Hiroyasu Akatuka, Shen Wang, Shinji Doki, Hiroshi Tadano, Koji Shiozaki*

Room 1

Control Systems, Robotics and Mechatronics (II)

Chairs: Antonio Russo, Jorge Bondia

Implementation and Comparison of PID, PI-PD, LQR and MPC on Separation Clutch System in Slip *Berkan Kaçmaz, Mehmet Turan Söylemez*

Robust Simple Adaptive Control with Augmented Output Signal and Friction Compensation for Industrial Feed Drive Systems *Shogo Harada, Naoki Uchiyama*

Perturbation and Observer Based Sliding Mode Controller for Excitation control in Single Machine Infinite Bus System *Raju Wagle, Pawan Sharma, Charu Sharma, Chittaranjan Pradhan*

Generalized Iterative Super-Twisting Sliding Mode Control: A Case Study on Flexure-Joint Dual-Drive H-Gantry Stage *Wenxin Wang, Jun Ma, Zilong Cheng, Xiacong Li, Abdullah Al Mamun, Tong Heng Lee*

Time-varying group formation-tracking control for general linear multi-agent systems with switching topologies and time-varying delays *Shiyu Zhou, Xiwang Dong, Qingke Tan, Qing Wang, Zhang Ren*

MPC based Sliding Mode Control for More Electric Aircraft application *Antonio Russo, Giacomo Cenciello, Alberto Cavallo*

Room 2

Thursday, 11 March 2021

Industrial Automation, Communication, Networking and Informatics (III)

Chairs: Christian Raffelsberger, Xi Chen

Long-Term LoRa Experiments in a Chemical Plant *Jessica Breitegger, Christian Raffelsberger, Siddhartha Borkotoky, Ingomar Rogler, Christian Bettstetter*

Operations for non-disruptive modification of real-time network schedules *Christian von Arnim, Armin Lechler, Oliver Riedel*

Flexible Tool Manipulation for High-Accuracy Removal Processing of Unknown Shape Convex Defects *Taichi Shimura, Ryosuke Tasaki, Harumo Sasatake, Takahito Yamashita, Masakazu Fujimoto*

Leader-Follower Formation for UAVs with FOVs Constraint *Chengxi Yu, Xi Chen*

A Practical Deep Reinforcement Learning Approach to Semiconductor Equipment Scheduling *Changhee Lee, Sunghee Lee*

SSL-SP: A Semi-Supervised-Learning-Based Stream Partitioning Method for Scale Iterated Scheduling in Time-Sensitive

Networks *Jingzheng Tu, Qimin Xu, Lei Xu, Cailian Chen*

Room 4

Signal and Image Processing and Computational Intelligence (II)

Chairs: Shen Yin, Sho Yokota

Recursive Subspace-aided Frequency Estimator Based on the Propagator Method *Kuan Li, Hao Luo, Xianling Li, Shen Yin*

An On-board Monitoring System for Driving Fatigue and Distraction Detection *Bing-Ting Dong, Huei-Yung Lin*

A Robust Passive Target Localization for Substation Inspection of UAV in a GPS-denied Environment *Ui-Suk Suh, Tae-Wan Kim, Dong-Hwa Kang, Kang-Min Lee, Won-Sang Ra, Taewook Kim*

Research on Automatic Recognition Method of Icon Style *Pinjie Lv, Xinyue Wang, Chengqi Xue*

VIO-Aided Structure from Motion Under Challenging Environments *Zijie Jiang, Hajime Taira, Naoyuki Miyashita, Masatoshi Okutomi*

Development of a Walking Promotion Device using Arm Swing Induced by Parametric Excitation Second report: Design of second prototype *Kazuki Yamada, Sho Yokota, Akihiro Matsumoto, Daisuke Chugo, Hiroshi Hashimoto*

12:15-13:30

Plenary Sessions

Keynote: Prof. Peter Palensky - Cyber-physical Security of Electrical Energy Systems

The power system - man's largest machine - receives increasing attention from questionable parties. Activist hackers, terrorists, digital vandals, state player attacks: they all aim at the digital assets of modern power systems in order to impact the physical half of it. Industrial control systems for power systems are one element in this landscape that is targeted.

This talk will introduce you to cyber-physical power systems and explain which threats we have to deal with now and in future. It will also explain some known attacks of recent years and demonstrate you how to hack digital power system protection and that this could lead to cascading outages - more prominently known as blackouts.

Thursday, 11 March 2021

	Chairs: Prof. Jose Antonino-Daviu, Prof. Eric Monmasson
13:30-14:00	Plenary Sessions Meet with Friends
	Room 3 Meet with Friends
	Room 1 Meet with Friends
	Room 2 Meet with Friends
	Room 4 Meet with Friends
14:00-15:15	Room 3 Power Systems, Smart Grids and Energy Storage (II) Chairs: Ahmad Hably, Thomas Strasser Smart charging impact on electric vehicles in presence of photovoltaics <i>Khaled Hajar, Baoling Guo, Ahmad Hably, Seddik Bacha</i> Optimisation of Location and Size for Distributed Generation in Unbalanced Grids <i>Isla Ziyat, Patrick Palmer, Gary Wang</i> Study on the Planning Method of Electric Vehicle Charging Station considering the Efficiency of Peak Shaving and Frequency Regulations <i>Peng Peng, YuXuan Li, ZhenKai Hu, ChangHong Deng, LiWen Zhu, Jun He</i> A Novel Approach of Loss Sensitivity Factor for Optimal Placement of Battery Energy Storage System <i>Claysius Dewanata Widjaja, Fathin Saifur Rahman, Kevin M. Banjar-Nahor, Nanang Hariyanto</i> Lifetime-Oriented Control Strategies for Hybrid Energy Storage Systems in an Islanded Microgrid <i>Nazli Cinay, Tobias Häring, Argo Rosin, Tarmo Korõtko, Roya Ahmadiyahangar, Helmuth Biechl</i> Allocation and Optimal Sizing of Flexible Capacitor Banks for the Minimization of Active Power Losses in Long Unbalanced Rural Medium Voltage Distribution Feeders using Heuristic Algorithms <i>Javier Urquiza, Kevin Lopez, Walter Mariscal, Juan Plazarte</i>
	Room 1 Industrial Electronics and Education Chairs: Larisa Dunai, Martin Novák Telepresence robot, nano-computers and advanced cameras as educational tools <i>Julien Marot, Michel Bensoam</i> High precision, geometry independent analytical method for self-inductance calculation in planar coils <i>Andreia Faria, Luís Marques, João Gaspar, Filipe Alves, Jorge Cabral</i> E-Learning in Industrial Electronics during Covid-19 <i>Larisa Dunai Dunai, Joao Martins, Kazuhiro Umetani, Oscar Lucia, Yousef Ibrahim, Gayan Kahandawa Appuhamillage</i> Relationship between Trends, Job Profiles, Skills and Training Programs in the Factory of the Future <i>Joseane Pontes, Carla A.S. Geraldes, Florbela P. Fernandes, Paulo Leitão, Lukas Sakurada, Ann Lilith</i>

Thursday, 11 March 2021

Rasmussen, Lasse Christiansen, Sabine Hafner-Zimmermann, Kieran Delaney
Development of Aerospace Power System Laboratory for Advanced Research and Undergraduate Education *Tao Lei, XiaoBin Zhang, Jing Chang*
Laser Distance Meter and LIDAR Demonstrator Module for Teaching of Sensors *Martin Novak, Sarka Nemcova, Petr Pizarik*

Room 2

Industrial Automation, Communication, Networking and Informatics (IV)

Chairs: Shen Yin, Changhee Lee

Adaptive Boosting Based on Multi-class Neural Networks for IGBT Health Parameter Prediction *Jilun Tian, Yuchen Jiang, Hao Luo, Shen Yin*
Agent-Based Decentralised Process Planning and Evolutionary Change Propagation *Felix Gehlhoff, Lukas Wiegandt, Alexander Fay*
A Stealth Program Injection Attack against S7-300 PLCs *Wael Alsabbagh, Peter Langendörfer*
Evaluation of Industrial Energy Flexibility Potential: A Scoping Review *Daniel Anthony Howard, Zheng Ma, Bo Nørregaard Jørgensen*
Real-time Alarm Dissemination in Mobile Industrial Networks *Christian Sauer, Eike Lyczkowski, Marco Schmidt*
The Effects of Brightness Difference on Visual Perception of Characters *Siyu Gao, Haiyan Wang, Chengqi Xue*

Room 4

Electrical Machines and Drives (II)

Chairs: Thomas Wolbank, Shafigh Nategh

Stability Analysis of a Non-Linear PWM-Controlled Buck Converter with LC Input Filter *Daniel Lendi, Reiko Raute, Simon Fabri, Roger Galea*
Design of a FPGA-based Inverter Drive for HF Injection Based Sensorless Control *Brendon Sultana, Kris Scicluna, Joe Attard, Clive Seguna, Jeremy Scerri*
Sensorless speed control of single-inverter dual motors based on slotting saliency harmonic *Eduardo Rodriguez Montero, Markus Vogelsberger, Thomas Wolbank*
High Performance Finite Control Set Model Predictive DTC for Three-to-Five Phase Direct Matrix Converter Fed Induction Motor Drive *Utkal Ranjan Muduli, Ranjan Kumar Behera*
Numerical modeling for 3D eddy current calculation in magneto-quasistatic approximation *Jaeho Ryu, Ingo Hahn*
Carrier Modulation Schemes of Asymmetric, Multileveled, Switched Reluctance Machine Drives *Pieter Antonie Scholtz, Michael Njoroge Gitau*
An Application of Active Disturbance Rejection Control to Stepper Motors with Field Oriented Control *Jorge Sola Merino, Mario di Castro, Alessandro Masi*

14:40-15:10

2021 Women in IES Workshop (WiE)

Welcome and Introduction to the Women in IES Initiative

Prof. Lucia Lo Bello - Chair of Woman in IES

Prof. Magdalena Salazar Palma - Past Director IEEE Region 8 Committee.

Chairs: Prof. Lucia Lo Bello (University of Catania)

Thursday, 11 March 2021

15:10-16:00	<p>2021 Women in IES Workshop (WiE)</p> <p>Breakout session - Renewable Energy</p> <p>15:10-15:20 Invited Speech: Loreto Valenzuela Gutiérrez (Plataforma Solar de Almería). “How CSP contributes to energy transition”</p> <p>15:20-15:30 Invited Speech: Isabel Moreno García. (Universidad de Córdoba). “Solutions for power quality reliability assessment.”</p> <p>15:30-15:40 Invited Speech: Maria del Carmen Bella Hernandez. (Ørsted). “The offshore wind energy industry”</p> <p>15:40 - Panel Discussion Chairs: Dr Soledad Bernal-Pérez (Universitat Politècnica de València)</p>
16:00-16:50	<p>2021 Women in IES Workshop (WiE)</p> <p>Breakout session - Power Electronics</p> <p>16:00-16:10 - Invited Speech: Regina Ramos (Universidad Politécnica de Madrid UPM). “Power electronics: from water molecules to aircraft applications.”</p> <p>16:10-16:20 - Invited Speech: Marta Hernando (Universidad de Oviedo). “From the laboratory to the office.”</p> <p>16:20-16:30 - Invited Speech: Prof. Cristina Fernández Herrero (Universidad Carlos III). “From the component to the system... and back to the component”</p> <p>16:30 - Pannel Discussion Chairs: Prof. Cristina Fernández Herrero (Universidad Carlos III).</p>
16:30-16:45	<p>Plenary Sessions</p> <p>Meet your friends</p> <hr/> <p>Room 3 Networking - Information and Communication Tech</p> <hr/> <p>Room 1 Networking - ENERGY</p> <hr/> <p>Room 2 Networking - Sensors and Control</p> <hr/> <p>Room 4 Networking - Cross-disciplinary</p>
16:45-18:00	<p>Room 3</p> <p>Power Systems, Smart Grids and Energy Storage (IV) Chairs: Alfonso Damiano, Pierluigi Siano</p>

Thursday, 11 March 2021

Real-time Smart Microgrid Simulation: The integration of communication layer in electrical simulation *Harshavardhan Palahalli Mallikarjun, Enrico Ragaini, Giambattista Grusso*

Statistical simulation of Electric Vehicle behaviour applied to low voltage distribution network *Harshavardhan Palahalli Mallikarjun, Paolo Maffezzoni, Giambattista Grusso*

Load modeling from smart meter data using neural network methods *Nasrin Kianpoor, Bjarte Hoff, Trond ØStrem*

A Symmetric Block Resampling Method to Generate Energy Time Series Data *Steven O. Kimbrough, Hasan Ümitcan Yilmaz*

Potential Hazards of Transient Overvoltages in an Industrial DC Grid and Basic Protective Measures *Simon Puls, Johann Austermann, Holger Borcherding*

Adapted Operational Management of Wind Turbines for the Provision of Primary Power Reserve *Katharina Günther, Benedikt Spichartz, Constantinos Sourkounis*

Room 1

Cloud Computing, Big Data and Software Engineering (II)

Chairs: Nohpill Park, Ramiro Liscano

Improve test quality by applying a clustering-based test planning procedure for customer experience vehicle functions *Simone König, Birgit Vogel-Heuser, Rainer Mäckel, Dominik Schnittger*

A Queueing Model for Industrial Public Blockchains and Validation *Zuqiang Ke, Nohpill Park*

Rigid Body Movement Prediction Using Dual Quaternion Recurrent Neural Networks *Andreas Schwung, Johannes Pöppelbaum, Pradeep C. Nutakki*

A Feature-Based Machine Learning Approach for Mixed-Criticality Systems *Nelson Vithayathil Varghese, Akramul Azim, Qusay Mahmoud*

Multi-Access Edge Computing: An Overview and Latency Evaluation *Igor Miladinovic, Sigrid Schefer-Wenzl, Thomas Burger, Heimo Hirner*

A Microservice-Based Architecture for Performance and Energy Benchmarking of Docker-Host Linux Distributions on Internet-of-Things Devices *David Lennick, Akramul Azim, Ramiro Liscano*

Room 2

Industrial Automation, Communication, Networking and Informatics (IX)

Chairs: José Lima, Francisco Blanes-Noguera

A Fault Diagnosis Strategy based on Qualitative Trend Analysis Integrating Andrews Plot for Industrial Processes *Shengkai Wang, Jie Zhang*

Industrial Robotic Arm in Machining Process Aimed to 3D Objects Reconstruction *Matheus Zorawski Silva, Thadeu Brito, Jose Lima, Manuel F. S. Silva*

Feasibility Study on Virtual Process Controllers as Basis for Future Industrial Automation Systems *Michael Gundall, Calvin Glas, Hans Dieter Schotten*

Vibration Measurement and Visualization in Semiconductor AMHS on the basis of IoT *Thomas Wagner, Jonathan Seitz, Germar Schneider*

Thursday, 11 March 2021

	<p>Room 4</p> <p>Power Electronics and Renewable Energy Conversion (II)</p> <p>Chairs: Alan Wilson, Kamal Al-Haddad</p> <p>A Modular Multilevel Converter with a Clamping Switch for Quasi-Three-Level Operation <i>Malte Lorenz, Jakub Kucka, Axel Mertens</i></p> <p>Modular Multilevel Converters Based on Interleaved Half-Bridge Submodules <i>Aleksandr Viatkin, Mattia Ricco, Riccardo Mandrioli, Tamás Kerekes, Remus Teodorescu, Gabriele Grandi</i></p> <p>Comparison Between five MPPT Techniques for the Z-source inverter integrated into a PV system using MCBC control method <i>Moufek Khelifi, Omar Benzineb, El Madjid Berkouk</i></p> <p>A Novel Semi-Isolated Three-Port dc-dc Power Converter with Soft Switching Technique for Hybrid Energy Storage Applications <i>Sina Vahid, Ayman EL-Refaie</i></p> <p>Grid connected Photovoltaic System Based on SPUC5 Inverter <i>Hind El Ouardi, Mohammed El kasmi Alaoui, Mariam Nabaoui, Mohammed Habib, Ayoub El Gadari, Youssef Ounejjar, Kamal Al-Haddad</i></p> <p>Partial Power Converter for DCX-based High-Power LED Drivers <i>Alan Wilson, Hugues Renaudineau, Freddy Flores-Bahamonde, Ana Llor</i></p> <p>Topology Review of Grid-Connected Multilevel Inverters Supplied by Photovoltaic Panels using Switched-Capacitor based Circuits <i>Tala Hemmati, Milad Ghavipankeh Marangalou, Naser Vosoughi Kurdkandi, Arash Khoshkbar-Sadigh, Seyed Hossein Hosseini, Hossein KHoun Jahan</i></p>
17:00-17:50	<p>2021 Women in IES Workshop (WiE)</p> <p>Breakout session - One glance at the future</p> <p>17:00-17:10 - Invited Speech: María José Valero Sánchez (Talent Growth Management). "Technology, entrepreneurship, and efficient communication, necessary skills for the new era"</p> <p>17:10-17:20 - Invited Speech: Larisa Dunai (Universitat Politècnica de València). "Research is the key to all question."</p> <p>17:20-17:30 - Invited Speech: Paula Carsí (Ford Almussafes) ""</p> <p>17:30 - Panel Discussion Chairs: Larisa Dunai (Universitat Politècnica de València)</p>

Friday, 12 March 2021

11:00-12:15	<p>Room 3</p> <p>Power Electronics and Renewable Energy Conversion (III)</p> <p>Chairs: Hadi Kanaan, Riccardo Mandrioli</p> <p>Research on SIDO Converter and Its Power Decoupling Control Strategy <i>Xinyue Zhang, Jiacheng Sun, Xiaohua Wu, Xuanlyu Wu, Wenli Yao</i></p> <p>Active Damping Control for Variable-Speed Wind Turbines with VSM as Grid-Side Control <i>Katharina Günther, Constantinos Sourkounis</i></p> <p>Enhanced solar water-pumping system driven by a synchronous</p>
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Friday, 12 March 2021

reluctance motor *Dario Pasqualotto, Fabio Tinazzi, Mauro Zigliotto*
A Novel Reference Current Detection Algorithm (RCDA) in 9-Level PEC Converter-based Shunt Active Power Filter *Ali Zafari, Majid Mehrasa, Mohammad Sharifzadeh, Seddik Bacha, Kamal Al-Haddad, Nasser Hosseinzadeh*
Analysis and Design of Resonant Class ϕ_2 Inverter with Low-Voltage Stress *Hur Jedi*
Large-Scale Wind Turbine With Quasi-Z-Source Inverter and Battery *Emanuel P. P. Soares-Ramos, Laís de Oliveira-Assís, Raúl Sarrias-Mena, Pablo García-Triviño, Carlos Andrés García-Vázquez, Luis M. Fernández-Ramirez*

Room 1

Electrical Machines and Drives (III)

Chairs: Sashidhar Sampathirao, Alejandro Yepes

Reduction in Eddy Current Loss of Concentrated Windings in High-power Density IPMSM Using Rectangular Windings *Shinnosuke Kajii, Masatsugu Takemoto, Takehiro Jikumaru, Fuminori Suzuki, Satoshi Ogasawara, Koji Orikawa*

Comparison of Hybrid PM assisted Synchronous Reluctance Motors *Gowtham Vegireddy, Sashidhar Sampathirao*

Comparison of Synchronous Reluctance, PM assisted Synchronous Reluctance and Spoke-Type BLDC Motor for an E-Rickshaw. *Jitendra Kumar, Gowtham Vegireddy, Sashidhar Sampathirao*

A Comparison Between Conventional and Flux-Intensifying Interior Permanent Magnet Synchronous Machines *E. G. Shehata*

A phase based approach for machine inductance estimation via current slope detection of an inverter fed IPMSM *Jan P. Degel, Stefan Haehnlein, Christian Kloeffler, Martin Doppelbauer*

Modelling of Permanent Magnet Synchronous Generator with Non-linear Magnets *Anar Ibrayeva, Fausto Lopez, Sandra Eriksson*

Room 2

Control Systems, Robotics and Mechatronics (III)

Chairs: Ranko Zotovic, Giovanni Spagnuolo

Application of Augmented Reality based on Sensing Data to Teleoperation System for Operator Support *Kae Doki, Kenya Suzuki, Yuki Funabora, Shinji Doki, Akihiro Torii, Suguru Mototani*

Operability Evaluation of Human-Adaptive Impedance Control for Human-collaborative Robots *Misaki Hanafusa, Jun Ishikawa*

Adjusting the active joint stiffness of a collaborative robot arm for force control *Rodrigo Perez-Ubeda, Ranko Zotovic-Stanisic, Santiago Gutierrez Rubert, Joaquin Lluch-Cerezo*

Verification of the "AB-Wear" Semi-Exoskeleton-Type Power-Assist Suit in Providing Assistance to the Lower Back *Yuta Yamanaka, Masashi Kashima, Hirokazu Arakawa, Rie Nishihama, Kazuya Yokoyama, Taro Nakamura*

Development of a Wearable Four-Degrees-of-Freedom Force Feedback Device with a Clutch Mechanism Using Artificial Muscle

Contraction *Ryunosuke Sawahashi, Yuki Onozuka, Toshinari Tanaka, Manabu Okui, Taro Nakamura*

Versatile SoC architecture for integration of HW accelerators in power electronics applications *Edel Diaz, Javier Pavón, Daniel Calvo, Raúl Matéos*

Friday, 12 March 2021

	<p>Room 4</p> <p>Sensors, Actuators and MicroNanotechnology (I) Chairs: Yunjia Li</p> <p>Design and Validation of a Resonant Multi-Axis Force Sensor for Collaborative Robotics <i>Davinson Castano-Cano, Mathieu Grossard, Arnaud Hubert</i></p> <p>A novel method for in-home Gait Speed estimation in Health Monitoring Using Bluetooth Low Energy <i>Fernando J. Aranda, Fernando J. Álvarez, Felipe Parralejo, Raúl Montoliu, Emilio Sansano-Sansano</i></p> <p>Design and Manufacturing of a Wireless Temperature Monitoring System for Gas Insulated Switchgear <i>Ying Li, Ji Wu, Zengbin Wang, Hong Lv, Yuzhu Wang, Yunjia Li</i></p> <p>A ROS driver for Xsens wireless inertial measurement unit systems <i>Mattia Guidolin, Emanuele Menegatti, Monica Reggiani, Luca Tagliapietra</i></p> <p>Sensors' data fusion for smart decisions making: A novel bifunctional system for sensors' contribution evaluation in classification problems <i>Feryel Zoghlami, Germar Schneider, Harald Heinrich, Thomas Villmann, Marika Kaden</i></p>
12:15-13:30	<p>Plenary Sessions</p> <p>Keynote - Prof. Thilo Sauter - Industrial communications – the backbone for Industry 4.0 Industry 4.0 is a much-hyped buzzword aiming at comprehensive digitalization of factories and the entire industrial ecosystem. Its roots, however, date back some 50 years to the introduction of information technology in industrial automation. The corner stone that made this development possible is communication, in particular a long series of stepwise improving networks for automation. With the recent introduction of Internet of Things and Cyber-Physical System concepts in industrial application scenarios, automation is again undergoing a tremendous change. This is made possible in part by recent advances in technology that allow interconnection on a wider and more fine-grained scale. This keynote will review technology trends like IoT, next-generation Ethernet, 5G mobile networks, cloud and edge computing, and their impact on industrial automation. Specifically, it will shed light on the paradigm shift that these technologies enable to make Industry 4.0 indeed revolutionary, but also discuss associated challenges for practical use. Chairs: Prof. Eric Monmasson, Prof. Ramon Blasco-Gimenez</p>
13:30-14:00	<p>Plenary Sessions</p> <p>Meet with Friends</p> <hr/> <p>Room 3</p> <p>Meet with Friends</p> <hr/> <p>Room 1</p> <p>Meet with Friends</p> <hr/> <p>Room 2</p> <p>Meet with Friends</p> <hr/> <p>Room 4</p>

Friday, 12 March 2021**Meet with Friends**

14:00-15:15

Room 3**SS Electric drives for electrical mobility and green energy**

Chairs: Christoph Hackl, Ignacio Gonzalez Prieto

Nine-Phase-based Fractional-slot Winding Layouts for Integrated EV On-board Battery Chargers *Mohamed Metwly, Mahmoud Abdel-Majeed, Ahmed Hemeida, Ayman Abdel-Khalik, Shehab Ahmed***Symmetrical Six-phase Induction Machines: A Solution for Multiphase Direct Control Strategies** *Angel Gonzalez-Prieto, Ignacio Gonzalez-Prieto, Alejandro G. Yepes, Mario J. Duran, Jesus Doval-Gandoy***Anisotropy-based Sensorless Control for Electrical Drives – Part I: Basic Principle** *Qing Chen, Qi Li, Peter Stolze, Ralph Kennel, Dierk Schröder***A Novel Fault Tolerant Smart System for BLDC motor based Electric Vehicles** *Ashish Kumar Mohapatra, A. V. Ravi Teja***Generic loss minimization for nonlinear synchronous machines by analytical computation of optimal reference currents considering copper and iron losses** *Christoph M. Hackl, Julian Kullick, Niklas Monzen***Current Trajectory-Based Fault Detection and Fault Tolerant Control for Three-phase Induction Drives** *Mahdi Tousizadeh, Che Hang Seng, Nasrudin Abd Rahim***Room 1****Signal and Image Processing and Computational Intelligence (III)**

Chairs: José Lima, Nesrine Zoghlami

Low-cost 3D LIDAR-based scanning system for small objects *João Afonso Braun Neto, José Luís Lima, Ana Isabel Pereira, Paulo Costa***Development of Methods for Coil-Based Localization by Magnetic Fields of Miniaturized Sensor Platforms in Bioprocesses** *Sven Lange, Dominik Schröder, Christian Hedayat, Ulrich Hilleringmann, Harald Kuhn***Long Short-Term Memory based RNN for COVID-19 disease prediction** *Safa Bahri, Moetez Kdayem, Nesrine Zoghlami***Comparison of two semantic segmentation databases for smoke detection.** *Sebastien Frizzi, Eric Moreau, Moez Bouchouicha***Estimation of Stochastic Time Lags between Data Sources in Distributed Production Facilities Based on Cross-Correlated****Signals** *Johannes Zumsande, Karl-Philipp Kortmann, Tobias Ortmaier, Mark Wielitzka***A Comprehensive Review on Evolutionary Algorithm Solving Multi-Objective Problems** *Ying Qu, Zheng Ma, Anders Clausen, Bo Jørgensen***Room 2****Industrial Automation, Communication, Networking and Informatics (VI)**

Chairs: Jingpei Wang, Haris Isakovic

QoS for Dynamic Deployment of IoT Services *Haris Isakovic, Luis Lino Ferreira, Radu Grosu, Adam Dukkon, Irmin Okic, Zlatan Tucakovic***IO-Link Wireless Device Cryptographic Performance and Energy****Efficiency** *Thomas R. Doebbert, Dymtro Krush, Christoph Cammin, Jonas Jockram, Ralf Heynicke, Gerd Schöll*

Friday, 12 March 2021

	<p>Optimal Control with Linear Integer Programming for Reducing the Energy Consumption of Interdependent Mixing Machines in Foundry <i>Alexander Rose, Axel Schild, Bennet Luck, Martin Grotjahn</i></p> <p>Cooperative Jamming Attack Strategy against Power Balance of Wireless Smart Grid Networks <i>Hongquan Xu, Xueqi Jin, Qi Jin, Kai Luo, Wanbin Han</i></p> <p>Resilient Consensus-based Economic Dispatch Strategy for Power Security Monitoring <i>Xiang Zheng, Qiwei Du, Haiyuan Wang, Jingpei Wang</i></p> <p>A System For Drivers' Cognitive Load Estimation Based On Deep Convolutional Neural Networks and Facial Feature Analysis <i>Shyngyskhan Abilkassov, Merey Kairgaliyev, Bauyrzhan Zhakanov, Berdakh Abibullaev</i></p>
	<p>Room 4</p> <p>Electronic Systems on Chip and Embedded Control (I) Chairs: Alin Tisan, Mickael Hilairret</p> <p>Simultaneous Multiprocessing on FPGA-CPU Heterogeneous Chips <i>Sam Amiri, Salman Abdi, Sara Sharifzadeh</i></p> <p>Lean automated hardware/software integration test strategy for embedded systems <i>Florian Muttenthaler, Stefan Wilker, Thilo Sauter</i></p> <p>Reliable Software Design Aided by QEMU Simulation <i>Rui Almeida, Nelson Naia, Luís Novais, Rui Faria, Jorge Cabral</i></p> <p>An Automated Configuration Framework for TSN Networks <i>Bahar Houtan, Albert Bergström, Mohammad Ashjaei, Masoud Daneshtalab, Mikael Sjödin, Saad Mubeen</i></p> <p>Development of a New ASIC based, Multi-channel Data Acquisition and Real-Time Processing System <i>Clive Seguna, Edward Gatt, Giacinto de Cataldo, Ivan Grech, Owen Casha</i></p> <p>Multiple PRM-Based Lockstep/Performance Mode Switches for Critical/Non-Critical Real-Time Tasks <i>Jaehwan Jeong, Chang-Gun Lee</i></p>
15:15-16:30	<p>Plenary Sessions</p> <p>Keynote - Dr Akshay Kumar Rathore - Electrolytic Capacitorless Pulsating DC Link 3-Phase Inverter for Low Battery Voltage e-Mobility</p> <p>Sinusoidal Pulse Width Modulation (SPWM) and space vector modulation (SVM) have been widely adopted for three-phase sine AC output from a fixed dc link if the dc link voltage is much higher than desired three-phase output. However, if the source/dc link voltage is lower than the load voltage, then frond-end dc/dc converters becomes necessary leading to the design of the multistage power conversion system. To implement existing SVM or carrier based modulation, traditionally a large costly unreliable electrolytic capacitor is employed to develop a high voltage intermediate dc link. Novel Single-reference-Six-Pulse Modulation (SRSPM) completely eliminates the dc link electrolytic capacitor allowing pulsating dc link voltage waveform at the inverter input. It substantially reduces the cost, size, and weight and improves reliability of the system.</p> <p>Chairs: Prof. Giovanni Spagnuolo, Prof. Jose Antonino-Daviu</p>
16:30-16:45	<p>Plenary Sessions</p> <p>Networking - Meet with Friends</p> <p>Room 3</p>

Friday, 12 March 2021	
	<p>Networking - Information and Communication Tech</p> <p>Room 1 Networking - ENERGY</p> <p>Room 2 Networking - SENSORS AND CONTROL</p> <p>Room 4 Networking - Cross-disciplinary</p>
16:45-18:00	<p>Room 3 Power Systems, Smart Grids and Energy Storage (III) Chairs: Jean Marcos Ribeiro</p> <p>Distributed Economic Model Predictive Control of an Electric Power System Using ALADIN <i>Steffi O. Muhanji, Amro M. Farid</i></p> <p>A Case Study for maximizing Hydroelectric annual revenue on Brazilian Power Market <i>Jonas Pesente, Manuel Leonardo Sosa Rios</i></p> <p>Applications of AI-Based Forecasts in Renewable-Based Electricity Balancing Markets <i>Zeenat Hameed, Seyedmostafa Hashemi, Chresten Træholt</i></p> <p>Socio-economic and technological impact of amicrogrid in isolated communities using Simulation Modeling <i>Carlos Paredes, Andrés Bayona, Diego Martínez, Alfons Crespo, José Simo, Apolinar González</i></p> <p>Analysis of methods to improve energy storage arbitrage benefit considering capacity degradation <i>Pedro Luis Camuñas, Jesús López Merino, Andrés Peña Asensio, Manuel García Plaza, Santiago Arnaltes Gomez</i></p> <p>Single-Phase Bidirectional PEV Charger for V2G Operation with Coupled-Inductor Cuk Converter <i>Jhon Brajhan Benites Quispe, Guilherme de Asevedo e Melo, Rodrigo Cardim, Jean Marcos de Souza Ribeiro</i></p> <p>Room 1 Signal and Image Processing and Computational Intelligence (IV) Chairs: José Lima, Nesrine Zoghlami</p> <p>Recognition of human activity and the state of an assembly task using vision and inertial sensor fusion methods <i>James Male, Uriel Martinez-Hernandez</i></p> <p>Human Movement Direction Prediction using Virtual Reality and Eye Tracking <i>Julius Pettersson, Petter Falkman</i></p> <p>ToF/Radar early feature-based fusion system for human detection and tracking <i>Feryel Zoghlami, Okan Kamill Sen, Harald Heinrich, Germar Schneider, Emec Ercelik, Alois Knoll, Thomas Villmann</i></p> <p>Detection of Defects on Irregular Structured Surfaces by Image Processing Methods for Feature Extraction <i>Tom Sander, Sven Lange, Volker Geneiß, Christian Hedayat, Ulrich Hilleringmann, Harald Kuhn, Franz-Barthold Gockel</i></p> <p>Leveraging machine learning approaches to estimate the impact of thermostat setpoints on individual household gas consumption <i>Jueming Liu, Rik van der Vlist, Ellissa Verseput</i></p> <p>Respiratory control design to improve body haemoglobin levels <i>Javier</i></p>

Friday, 12 March 2021

Urquizo, Marcos Cevallos, Abraham Plua

Room 2

Industrial Automation, Communication, Networking and Informatics (V)

Chairs: Jetmir Haxhibeqiri, Simone König

Smart Valve Detection System for Water Distribution Networks *Rakiba Rayhana, Yutong Jiao, Zhila Bahrami, Zheng Liu, Angie Wu, Xiangie Kong*

Enabling TSN over IEEE 802.11: Low-overhead Time Synchronization for Wi-Fi Clients *Jetmir Haxhibeqiri, Xianjun Jiao, Muhammad Aslam, Ingrid Moerman, Jeroen Hoebeke*

Tunnelling and Mirroring Operational Technology Data with IP-based Middlewares *Patrick Denzler, Daniel Ramsauer, Wolfgang Kastner*

Concepts for Retrofitting Industrial Programmable Logic Controllers for Industrie 4.0 Scenarios *Bernhard Rupprecht, Emanuel Trunzer, Simone König, Birgit Vogel-Heuser*

A Design Methodology of Multi-Level Digital Twin *Stefano Centomo, Andrea Avogaro, Marco Panato, Carlo Tadiello, Franco Fummi*

Room 4

Power Electronics and Renewable Energy Conversion (VII)

Chairs: Arash Khoshkbar-sadigh, Mohammad Sharifzadeh

Improved Stability of DC Catenary Fed Traction Drivers and Auxiliary Converters using QFT Robust Technique *J.Manuel del Toro, Santiago Cobreces, Carlos de la Viesca, Francisco Huerta*

Space Vector Modulation (SVM)-exploited Binary Capacitor Voltage Control (BCVC)-based Flying-Capacitor-Clamped Multilevel Converter (FCCMC) for Low Nominal DC Voltage Applications *Sanghun Choi, A. P. Meliopoulos*

State Space Model For A Droop Control Strategy With Fault Ride-Through In Ups Parallel Inverters *Roberto Esteban Carballo, Fernando Botteron*

Design of a Gain Scheduling Pitch Controller for Wind Turbines by Using the Bode Diagram *Benedikt Spichartz, Constantinos Sourkounis*

An Intelligent Linearization Control Method for Grid-Tied Packed E-Cell Inverter under Load Variations and Parameters Mismatch *Majid Mehrasa, Mohammad Babaie, Mohammad Sharifzadeh, Seddik Bacha, Kamal Al-Haddad*

Two Level AC-DC-AC Converter Design with a New Approach to Implement Finite Control Set Model Predictive Control *Armin Ebrahimian, Sina Vahid, Nathan Weise, Ayman EL-Refaie*

A new Switched Capacitor Nine-Level Inverter Based on Flyback DC-DC converter *Milad Ghavipankeh Marangalou, Ataollah Samadian, Naser Vosoughi Kurdkandi, Arash Khoshkbar-Sadigh, Seyed Hossein Hosseini*

18:00-18:15

Plenary Sessions

CLOSING CEREMONY

Closing Ceremony and invitation to ICIT 2022

Chairs: Prof. Ramon Blasco-Gimenez, Prof. Jose Antonino-Daviu