IECON 2022 – 48th Annual Conference of the IEEE Industrial Electronics Society

V1.2b

Monday, 17 October 2022	
08:45-10:15	*Studio 204* **T3 Part 1: Advanced AI/ML/IoT Techniques for Battery Management and Fast Charging Systems for Transportation Electrification and E-mobility (1.5h)**
	Studio 201 **T6 Part 1: Utilizing Medium Voltage SiC MOSFETs in Power Conversion Applications: State of the art, Challanges, and Future perspective**
	Studio 206 **T2 Part 1: Advances in Design and Control for Linear Machines and Drive Systems**
08:45-18:00	*Studio 211 & 212* **DIGITAL HEALTH INFORMATICS WORKSHOP**
	Studio 214&216 **WORKSHOP ON INDUSTRIAL WIRELESS TECHNOLOGIES AND SYSTEMS**
	Studio 202 **INTEROP Presentations**
10:15-10:30	*Studio 204* **Coffee Break**
	Studio 201 **Coffee Break**
	Studio 206 **Coffee Break**
10:30-12:00	*Studio 204* **T3 Part 2: Advanced AI/ML/IoT Techniques for Battery Management and Fast Charging Systems for Transportation Electrification and E-mobility (1.5h)**
	Studio 201 **T6 Part 2: Utilizing Medium Voltage SiC MOSFETs in Power Conversion Applications: State of the art, Challanges, and Future perspective**
	Studio 206 **T2 Part 2: Advances in Design and Control for Linear Machines and Drive Systems**
12:00-13:00	*Studio 204* **Lunch**

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	Studio 201 **Lunch**
	Studio 206 **Lunch**
13:00-14:30	*Studio 204* **T8: Hands-on Deep Learning for Industrial Applications**
	Studio 201 **T7 Part 1: Motion-based Machine Learning and Its Application to Motion Control**
	Studio 206 **T5 Part 1: Hairpin Windings: an opportunity for Next Generation E-Motors in Transportation**
14:30-16:00	*Studio 204* **T10: Ethics of Artificial Intelligence and Automation for Industrial Applications**
	Studio 201 **T7 Part 2: Motion-based Machine Learning and Its Application to Motion Control**
	Studio 206 **T5 Part 2: Hairpin Windings: an opportunity for Next Generation E-Motors in Transportation**
16:00-16:15	*Studio 204* **Coffee Break**
	Studio 201 **Coffee Break**
	Studio 206 **Coffee Break**
16:15-18:15	*Studio 204* **T1:Electromechanical Systems Fault Diagnosis and Prognosis**
	Studio 201 **T4: Key Technologies of High Efficiency and High Power Density Converters (VIDEO-TUTORIAL)**
	Studio 206 **T9: Using IOPT-Tools for Petri nets driven controller**

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	development.

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08:30-09:30	*Copper Hall* **Keynote**
09:30-10:00	*GRAND HALL* **Coffee Break**
10:00-12:30	*Studio 204* **EESS1: Electric Energy Storage Systems (ORAL SESSION)** **Coordinated Charging Strategy of Cascaded H-bridge With Bidirectional DC-DC Converter for Supercapacitor Energy Storage Applications** *Ye Zhang, Zixin Li, Fanqiang Gao, Yaohua Li* **A Novel Voltage Balancing Method of Cascaded H-bridge Multilevel Converter With Supercapacitors Energy Storage System for Capacitor Voltage Ripple Reduction** *Ziqiang Li, Fanqiang Gao, Cong Zhao, Zixin Li, Yaohua Li* **A unified controller framework design for Grid-tied and Grid-forming battery energy storage system** *Mohammad Rezwan Khan, Mustapha Amine RAHMANI, Moataz EL SIED, Carlos Eduardo CARREJO GONZALEZ* **A Decentralized SoC Balancing Technique for Precharging Series Energy Storage Systems** *yao li, Donghua Wu, Yang Qi, Weilin Li* **Peukert's Law for Supercapacitor Modules: Applicability and Physics** *Hengzhao Yang* **Experimental analysis of the effects of discharge current-rates on the parameters of the electrical equivalent circuit for NMC and LCO Li-ion batteries** *Abdelilah HAMMOU, Raffaele Petrone, Demba Diallo, Hamid Gualous* **Jointly Estimation Method of the SOC and SOH of Lithium-ion Battery based on Fractional Order Multi-Innovation Dual Unscented Kalman Filter** *Wei Li, Yonglong Zhu, Xiaoheng Guo, Xibeng Zhang, Yanyu Zhang, Yi Zhou* **Supercapacitor based approaches for arc energy absorption in direct current circuit breakers** *Chamara Dassanayake, Rusiru Gunathilaka, Nicoloy Gurusinghe, Nihal Kularatna* **Novel Multiple Parameter Optimization for Improving Accuracy of Battery Ageing Model and Lifetime Prediction** *Huma Goyal, Akira Kikuchi, Kohei Honkura, Jun Kawaji, Suguru Ueda* **Techno-Economic Selection of Energy Storage Providing Multiple Services** *Yichao Zhang, Saeed Peyghami, Amjad Anvari-Moghaddam, Menglin Zhang, Tomislav Dragi ÖPvirâ, Frede Blaabjerg*
	Studio 312 **ISAS_1:Instrumentation,Sensors,Actuators, Systems Integration and Nano Technologies** **Measurement and analysis method of the residual moment of the spacecraft active load** *Xu Xu, Danfeng Sun, Li Li, Guangcheng Ma, Hongwei Xia* **Cost-effective, Accuracy Preserving Scalar Characterization for mmWave Transceivers** *Mohammad Salah Abdullatif, Salam Hajjar, Paul*

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Khanna

Kinematic Modeling of Scissor-Mechanism-Based Curvilinear Actuator *Yilun Sun, Felix Pancheri, Tim Lueth*

Circuit Modeling and Inductance Calculation for Energy Harvesting of Dual-Coil RFID Systems *Alireza Namadmalan, Maeve Duffy*

Mixing Determination for Solid Rocket Fuel Production by Peristaltic Mixing Pump Using Packing Method *Sana Oshino, Iori Terayama, Rie Nishihama, Manabu Okui, Taro Nakamura*

Method and System for Measurement of Ground Impedance Under the Shoes for Automatic Terrain Recognition: A Feasibility Study *Shubhanshu Sharma, Boby George*

Design, Fabrication, and Control of Micro-Heater Based on Joule Effect for Low-Cost Medical Device *Muhammad Tolba, Mohamed Fanni, Gamal A. Nasser, Umezu Shinjiro, Ahmed M. R. Fath El-Bab*

Disturbance and Particle Detection in LiDAR Data *Jannis Egelhof, Patrick Wolf, Karsten Berns*

Studio 313

SS12_1-Emerging Technologies of Wireless Power Transfer for Vehicle Charging Applications (ORAL SESSION)

Reduction of Standby Current for LCC-S Compensated Inductive Power Transfer Electric Vehicle Charger *Yang Yang, Hai Xu, Zhenwei Huang, Zhicong Huang*

Current Balance Design for Inductive Power Transfer Systems with Secondary Multiple Parallel Branches *Mengna Luo, Zhenwei Huang, Bowei Zou, Zhicong Huang*

Position Sensing of Wirelessly Charged Electric Personal Transporters on a Charging Pad Array *Thomas Rajan P, Boby George*

Ensuring Soft Switching During Transient Operation of Wireless Power Transfer Systems with Frequency Control *Shuxin Chen, Jiayu Zhou, Yaohua Li, Giuseppe Guidi, Jon Are Suul, Yi Tang*

A Hysteresis ON-OFF Control Method of Inductive Power Transfer Systems with Low Output Ripples and Fast Transient Responses *Jiayu Zhou, Giuseppe Guidi, Shuxin Chen, Yi Tang, Jon Are Suul*

High-Performance Multistage Constant Current Charging for Wireless Power Transfer Systems *Chi-Fong Ieong, Io-Wa Iam, Zhaoyi Ding, Chi-Seng Lam*

A Bivariate Control Strategy on Inductive Power Transfer Converter for Multi-Stage Constant Current Charging *Zhaoyi Ding, Io-Wa Iam, Chi-Fong Ieong, Chi-Seng Lam*

An Omnidirectional WPT System Based on Three-Phase Frustum-shaped Coils *Chao Qi, Funing Yang, Hongyu Duan, Jiantao Zhang*

Research on WPT foreign object detection method based on thermal infrared images *Chao Qi, wenwu wang, Tian Sun, Kai Song, Fan Yang, Hongyu Duan*

2.1 kW 3 MHz Capacitive Power Transfer with Sleeve-Type Coupler for Rotary Applications *Yao Wang, Hua Zhang, Fei Lu*

Studio 213 & 215

PEEC_1b:Power Electronics & Energy Conversion (ORAL SESSION)

An Early Fault Diagnosis Approach for PEM Stack based on Phase Measurement of Single-Frequency Impedance *Zhenjie Liao, Kai Li,*

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Jishen Cao, Yan Gao, Cong Yin, Hao Tang

Electrothermal analysis of temperature-limited loads for domestic induction heating applications *Alberto Pascual*

Level-phase-shifted pulse-width modulation for cascaded H-bridges *Juhamatti Korhonen, Heikki Järvisalo, Janne Jäppinen, Pertti Silventoinen*

An AC fault-ride-through strategy for MMC intergrated with energy dissipating resistors in offshore wind power system *Rui Xie, Bin Lin, Xiaohe Wang, Qing Chen, Chenghao Zhang, Song Tang, Min Chen*

A Single-stage Three-phase Bidirectional AC-DC IPT Converter based on SWISS-Rectifier for EV Charging Applications *Chi Shing Wong, Ka-Hong Loo, Lingling Cao*

MOSFET Modelling for a Three-Level Inverter Circuit: A Hybrid Bond Graph Approach *Gerardo Jaimes, Gilberto Gonzalez-Avalos*

Model Predictive Control for Master-Slave Inverters in Microgrids *Fernanda Carnielutti, Jose Rodriguez, Margarita Norambuena, Mokhtar Aly*

Bidirectional Electric Vehicle Charger Control Design with Performance Improvement *Houssein Al Attar, Mohamed Hamida, Malek Ghanes, Miassa Taleb*

Optimization-based Overmodulation Strategies for Harmonic Distortion Reduction in VSIs *Felipe Calderon, Alejandro Angulo, Andres Mora*

Studio 201

CSYS1: Control Systems (ORAL SESSION)

Reward Shaping-based Double Deep Q-networks for Unmanned Surface Vessel Navigation and Obstacle Avoidance *Zihan Gan, Jinghong Zheng, Zhenyu Jiang, Renzhi Lu*

Synthesis of Decentralized Variable Gain Robust Controllers with Guaranteed L2 Gain Performance via Piecewise Lyapunov Functions for a Class of Uncertain Large-Scale Interconnected Systems *Shunya Nagai, Hidetoshi Oya, Tomohiro Kubo, Tsuyoshi Matsuki*

Comparative Study on Collision Avoidance Methods in Path Planning for Warehouse Robots Using MPC *Shinji Ishihara, Masaki Kanai, Ryu Narikawa, Toshiyuki Ohtsuka*

Robust control and energy management in a hybrid DC microgrid using second-order SMC *KASSIR Sarah, Moustapha DOUMIATI, Mohamed MACHMOUM, Clovis Francis, Maher EL RAFEI*

Comparison of Three Speed Loop Designs for a High Speed Nine-phase Permanent Magnet Synchronous Machine in More Electric Aircraft *Mi Tang, Yuzheng Chen, Tao Yang, Mohammad Ilkhani*

A nonlinear optimal control approach for the Lotka-Volterra dynamical system *Gerasimos Rigatos, Patrice Wira, Pierluigi Siano, Masoud Abbaszadeh*

Adaptivity Schemes for Model Predictive Speed Control of PMSM *Michal Kozubík, Pavel Václavek, Inigo Garcia de Madinabeitia Merino*

INSERTION OF RFID TAGS INTO PLASTIC PARTS USING ULTRASONIC WELDING *Sérgio Pereira, Pedro Morais, Fernando Veloso, António Moreira, Daniel Miranda, João Machado, João Martins, João Vilaça*

Discrete-time Binary Controller using Variable-order Delta-Sigma Modulator *Shuto Ota, Akihiko Yoneya*

Studio 315

Tuesday, 18 October 2022

SS7: Advanced Control of Grid Connected Converters for Distributed Generation and Power Quality (ORAL SESSION)

A Deadbeat Current Controller for Thyristor-Controlled LC-Coupling Hybrid Active Power Filter *Wai-Kit Sou, Cheng Gong, Chi-Kong Wong, Chi-Seng Lam*

Stability Analysis and Design of Volt-VAR Controller for Grid Connected PV Systems with Consideration of the Impact of Voltage Feedforward *Amin Amanipoor, Mohammad Sadegh Golsorkhi*

Selective Harmonic Mitigation (SHM-PWM) and THD Minimization: Performance Comparison of Different Formulations *Angel Perez-Basante, Irati Ibanez-Hidalgo, Salvador Ceballos, Alain Sanchez-Ruiz, Georgios Konstantinou, Josep Pou*

High-Performance Grid Current Feedback Control for Three-Phase Voltage-Source Converter with an LCL Filter Under Distorted Grid Conditions *Ahmad Ali Nazeri, Christian Noeding, Peter Zacharias*

A Novel Switching Control Technique for a Packed E-Cell (PEC) Inverter Using Signal Builder Block *Bushra Masri, Hiba Al Sheikh, Nabil Karami, Hadi Kanaan, Nazih Moubayed*

Evaluation of SiC-Based Three Phase Power Converter for Microgrid Applications *Alfonso Damiano, Mauro Boi*

PUC9-MMC: A Reduced-Switch-Count Modular Multilevel Converter with DC Fault Current Handling Capability *SAEED ARAZM, Fadia Sebaaly, Kamal Al-Haddad*

Comparative Analysis of PV Parameter Extraction Algorithms *Muhammad Adeel, Hadeed Sher, Ahmed Kamal Hassan, Kamal Al-Haddad*

Modeling and Control of Voltage Stress for Compact Multilevel Converters using a Predictive Approach *Mohammad Babaie, Mostafa Abarzadeh, Kamal Al-Haddad*

A New Fault Tolerant Control Method for a Three Phase Modular Multilevel Converter Under an Arm Failure. *Anthony ABDAYEM, Jean Sawma, Eric Monmasson, Flavia Khatounian, Ragi Ghosn*

Studio 210

PSSG_1:Power Systems and Smart Grid ... (ORAL SESSION)

Research on the Stochasticity Control Strategy of Wind Farm Incorporating System Contingencies *Runsheng Zheng, Qunying Liu, Rui Xia, Zhen Guo, Xin Ge*

Model-based Approach for Differential Power Processing (DPP) Converters *Yousef Mahmoud*

Differential Power Processing (DPP) with Reduced Number of Converters *Yousef Mahmoud*

Power Loss Estimation Approach for PV Systems Operating Under Faults *Yousef Mahmoud*

Deep Learning with Recurrent Expansion for Electricity Theft Detection in Smart Grids *Tarek Berghout, Mohamed Benbouzid, Mohamed Amine Ferrag*

Large Size Optimization Problem for Power Management in a Fuel Cell Electric Race Car Using Combinatorial Approach *Essolizam PLANTE, Eric BIDEAUX, Mylène DELHOMMAIS, Mathias GERARD*

Optimal sizing and real-time EMS for low carbon emissions of a hybrid islanded microgrid *Fouad Boutros, Moustapha Doumiati, Jean-Christophe*

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Olivier, Imad Mougharbel, Hadi Kanaan

Electric bus smart charging under a bi-level optimisation model to set dynamic tariffs *Jônatas Augusto Manzolli, Carlos Henggeler Antunes, João Pedro Trovão*

Bearing Faults Detection Using Statistical Feature Extraction and Probability Based Distance: A Comparative Study *Junjie YANG, Claude DELPHA*

Active Synchronization of Islanded Microgrid using Droop-controlled Grid-forming Inverters *Soham Chakraborty, Mohammed Tuhin Rana, Murti V. Salapaka*

Studio 316

SS14_1:Machine Vision, Control and Navigation (ORAL SESSION)

UAV Embedded Real-Time Object Detection by a DCNN Model Trained on Synthetic Dataset *Ricardo Maroquio Bernardo, Luis Claudio Batista da Silva, Paulo Fernando Ferreira Rosa*

Evaluation of ORB-SLAM based Stereo Vision for the Aircraft Landing Status Detection *Chao-Chung Peng, Rong He, Chin-Sheng Chuang*

Vision-based targeting system for automatic fire fighting: concept and evaluation *Fabian Stoller, Marvin Höhner, Felix Kümmerlen, Alexander Fay*

Enhanced V-SLAM combining SVO and ORB-SLAM2, with reduced computational complexity, to improve autonomous indoor mini-drone navigation under varying conditions *Amin Basiri, Valerio Mariani, Luigi Glielmo*

Confidence Estimator Design for Dynamic Feature Point Removal in Robot Visual-Inertial Odometry *Niraj Reginald, Omar al-Buraiki, Baris Fidan, Ehsan Hashemi*

Social Aware Navigation Based on Proxemic Interaction *Giovane Moreira, Yudith Cardinale, Marcelo Sampaio, Anderson Leite, Érika Correia, Adriel Souza, João Pedro Vilasboas, José Díaz Amado, João Marques*

Evaluation of Feature Detection Algorithms and Epipolar Geometry Based Camera Pose Estimation *Sharu Susan Jacob, Sreeja S, Nisha S Dathan*

The Arc

ICELIE CONFERENCE -TOOLS AND PLATFORMS - HYBRID LEARNING (ORAL SESSION)

Studio 211 & 212

PEEC_1a:Power Electronics & Energy Conversion (ORAL SESSION)

Magnetic Integrated Superbuck with Low Current Ripple using Linear-nonlinear Coordinated Control *Yu Gu, Zhenqi Wang, Liying Zhu, Yanjun Xing, Zhenqi Wang, Anshou Li*

A Regulated 24V-to-1V Series-Capacitor Buck Converter with Coupled-Inductor for Point-of-Load Applications in Data Centers *Zhenxin Wu, Yueshi Guan, Chang Liu, Jing Ou, Yijie Wang, Dianguo Xu*

Influence of PWM techniques on the DC-Link capacitor power losses of multiphase VSIs *Ander de Marcos, Unai Ugalde, Jon Andreu, Markel Fernandez, Endika Robles*

650 V CoolSiCTM hybrid discretes in the bridgeless totem-pole PFC *Jaeeul Yeon, SyedaQuratulain Akbar*

A DCX-LLC Resonant Converter with High Input-Output Voltage Ratio

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Based on an Integrated Matrix Transformer *Yuyang Jiang, Xinbo Ruan, Renxi Dong, Ye Xu*

Frequency Predistortion Strategy Based Digital Phase Locked Loop for PFC Converter *Baining Fu, Gaolin Wang, Binxing Li, Guoqiang Zhang, Wensheng Luo, Shijie Li, Dianguo Xu*

A Novel Converter-level Online Junction Temperature Estimating Method for SiC MOSFETs Based on the Current Oscillation of DC and AC sides in a Single Phase Inverter *Qinghao Zhang, Pinjia Zhang*

Robust Control of Grid-Connected Inverter Based on ;ÊD Synthesis and Genetic Algorithm *Yu Zhang, Tianzhi Fang*

Impact of Operational Factors on the Lifetime of Power Semiconductor Devices in Electric Vehicles *Abhinav Arya, Abhishek Chanekar, Naveen Kumar Endla, Amit Verma, Sandeep Anand*

Power Control of Grid-Forming Converters Based on Full-State Feedback *Meng Chen, Dao Zhou, Frede Blaabjerg*

Studio 216

INTEROP Demos

Hall 300

EMD_1:Electrical Machines and Drives (ORAL SESSION)

Scalar Stator Voltage Control of Induction Machine Drives without Current Sensors *Michael Bierhoff, Johannes Büsch*

Adaptive Stability Control Strategy for Electrolytic Capacitor-less Permanent Magnet Motor Drives *Weixin Yue, Dawei Ding, Zekun Ren, Gaolin Wang, Dianguo Xu*

Pseudo-Random Frequency Pulse Voltage Injection for Sensorless IPMSM Drives at Low Speeds *Lianghong Zhu, Binxing Li, Guoqiang Zhang, Runhua Xiang, Hongpeng Zhang, Gaolin Wang, Dianguo Xu*

Thrust Ripple Suppression of PMLSM Drives Based on Fourier Transform Compensator Cascaded Improved ESO *Heng Zhang, Guoqiang Zhang, Xinru Zhao, Dawei Ding, Gaolin Wang, Dianguo Xu*

A High Power-Factor Permanent Magnet Vernier Machine with Hybrid Concentrated-Winding *Shuangchun XIE, Shun Cai, Yuefei Zuo, Libing Cao, Fawen Shen, Boon Siew Han, Chi Cuong Hoang, Christopher H.T. Lee*

A Variable-Period Inertia Identification Strategy Based on Landau Adaptive Method for PMSM Drives Under Low-Acceleration Conditions *Yuanming Huang, Qiwei Wang, Zhaobin Huang, Bin Hu, Guangdong Bi, Guoqiang Zhang, Gaolin Wang, Dianguo Xu*

Local demagnetization fault detection in PMASynRM based on finite element modeling and characterisation *Jérémy CREUX, Najla Haje Obeid, Thierry BOILEAU, Farid Meibody-Tabar*

Characterisation of Compressed Windings via High Resolution X-ray Computed Tomography and Semi-Automatic Segmentation *Joshua Hoole, Ria Mitchell, Dominic North, Nick Simpson, Philip Mellor*

Current-Based Analytical Model for Fault Detection and Diagnosis in 7-phase Machines *Claude DELPHA, Lu ZHANG, Demba DIALLO*

Mitigation of AC Winding Losses for Aircraft Propulsion Motors *Ahmed Hebala, Stefano Nuzzo, Peter Connor, Giuseppe Volpe, Michael Galea, Chris Gerada*

Studio 314

SS3_1: Distributed Control and Optimization in

Tuesday, 18 October 2022

Networked Systems and their Applications (ORAL SESSION)

Secure Event-Triggered Distributed Cooperative Control of High-Speed Trains Under DoS attacks *Shunyuan Xiao, Xiaohua Ge, Qing-Long Han, Zhenwei CAO*

Load Distribution and Voltage Adjustment of Microgrid Based on Reference Voltage Compensation Strategy *Kaijian Tian, Xinying Lei, Shangpeng Zhong, Zibao Lu, Youhong Feng*

Security Platoon Control of Connected Vehicle Systems under DoS Attacks and Dynamic Uncertainty *Rongzhen Wang, Bing Zhang, Wen Shixi, Yuan Zhao*

Velocity-Free Distributed Robust Nash Equilibrium Seeking By An Uncertainty and Disturbance Estimator Based Algorithm *Zhen Xiang, Danhu Li, Guobiao Jia, Maojiao Ye*

Transmission Loss-Aware Peer-to-Peer Energy Trading in Networked Microgrids *Hailing Zhu, Khmaies Ouahada, Adnan Abu-Mahfouz*

Joint Design of Control and Transmission for Industrial CPS under Time Sensitive Networking *xuanzhao Lu, Qimin Xu, jinglong zhang, cailian chen*

Leader-Follower Multiagent Systems Containment with Prescribed Instant *Jiyuan Kuang, Bo Zhang, Yabin Gao, Shuxian Fang, Shichang Guo, Zhenhuan Wang, Xiaoning Shen, Jianxing Liu*

Simulation Environment for Modular Automation Systems *Björn Leander, Tijana Markovic, Aida Causevic, Tomas Lindström, Hans Hansson, Sasikumar Punnekkat*

Studio 311

SS35_1: DC-DC Conversion- Power Circuits and Applications (ORAL SESSION)

Frequency Characteristics of Buck Converter Control Systems with Second-order Sliding Mode *Wenyi Wu, Hanqing Zhang, Guangxin Duan, Yanmin Wang, Zhihua Dong*

Behavior Consideration of 1200 V SiC Half-Bridge Power Module under Various Dead-Time during Hard-Switching *Ahmad Ali Nazeri, Mahmoud Saeidi, Marwan Aldayea, Peter Zacharias*

A New Adaptive Damping Control for Load-side Converters to Mitigate Instability in DC Microgrids for Constant Power Loads *Rohit Kumar Rastogi, Manoj Tripathy*

Half-Bridge-Active-Clamp Converter with High Step-down Capabilities for More Electric Aircraft Applications *Yiren Zhu, Xingyu Yan, Zhenyu Wang, Tao Yang, Serhiy Bozhko, Patrick Wheeler*

Studio 202

MCRM1: Motion Control, Robotics and Mechatronics (ORAL SESSION)

A Pragmatic Framework for Mobile Redundant Manipulator Performing Sequential Tasks *Olivier RAYMOND, Adel OLABI, Richard BEAREE*

Experimental Analysis of Robot Hybrid Calibration Based on Geometrical Identification and Artificial Neural Network *Maxime Selingue, Adel Olabi, Stéphane Thiery, Richard Béarée*

High-Performance Admittance Control of An Industrial Robot Via Disturbance Observer *Kangwagye Samuel, Kevin Haninger, Sehoon Oh*

Linear Temporal Logic-based Mixed-Integer Linear Problem Planning with the Koopman Operator *Shumpei Tokuda, Masaki Yamakita, Hiroyuki*

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	Oyama, Rin Takano **Flatness-based control in successive loops for industrial and mobile robots** *Gerasimos Rigatos, Patrice Wira, Masoud Abbaszadeh, Jorge Pomares* **Challenges for Motion Systems in automated Production Systems – an Industrial Field Study** *Eva-Maria Neumann, Birgit Vogel-Heuser, Juliane Fischer* **Robust Decentralized Multi Robot Navigation using Tube based Model Predictive Control and Optimal Reciprocal Collision Avoidance** *Xiang Chen, Steven Liu* **Calibration methodology for multirobot assembly cell** *Floriane Mazzoni, Adel Olabi, Richard Bearee, Jean-Baptiste Ernst-Desmulier*
	Studio 206 **SS26_1: Advanced Control Techniques for Power Electronics Converters (ORAL SESSION)** **Stability Analysis of Sliding Mode Controlled Buck Converters with Hysteresis Modulation** *Zhihua Dong, Shibo Yuan, Guangxin Duan, Yanmin Wang, Wenyi Wu* **Analysis and Design of An Improved Model Predictive Control for Single-Phase LC-Coupling Hybrid Active Power Filter** *Pak-Ian Chan, Wai-Kit Sou, Chi-Seng Lam* **A T-Type converter-based Electric Vehicle Charger with Active Power Filter Functionality** *Sertac Bayhan, Hasan Komurcugil* **Optimized Minimum-Loss Hybrid Multiple Phase Shift Modulation Technique for Dual Active Bridge Converters for MEA Applications** *Jiaqi Yuan, Niloufar Keshmiri, Mohamed Ibrahim, Rachit Pradhan, Ali Emadi* **A New Control Strategy with Simplified Model and Kalman Filter Estimator for Grid-Tied Inverter with Asymmetric LCL Filter** *Weimin Wu, Chunxiao Gao, Eftichis Koutroulis Eftichis Koutroulis, jianming chen, gang lu, Frede Blaabjerg Frede Blaabjerg* **Online Self-Tuning Current-Controller for Three-Phase Three-Level T-type Rectifier** *Ali Sharida, Sertac Bayhan, Haitham Abu-Rub* **An Improved DBC-MPC Strategy for LCL-Filtered Grid-connected Inverters** *Bingtao Zhang, Weimin Wu, Ning Gao, Eftichios Koutroulis, Henry Shu-Hung Chung, Frede Blaabjerg* **An Optimized GaN-Based DAB Converter for More Electric Aircraft** *Niloufar Keshmiri, Rachit Pradhan, Mohamed Ibrahim, Ali Emadi* **Model Predictive Nearest Level Control (MP-NLC) Method for 9-Level Converter With LC Filter** *Armin Ebrahimian, Pouya Zolfi, Iman Hosseini, Waqar Khan, Nathan Weise, Ayman EL-Refaie*
	Studio 214 **INTEROP Presentations/WG Meetings**
10:00-18:00	*Studio 214&216* **NOT AVAILABLE**
	Studio 310 (Circle) **BRIEFING ROOM - ORGANIZERS & SECRETARIAT**
12:30-14:30	*GRAND HALL*

Tuesday, 18 October 2022

	Lunch
13:00-14:30	*Copper Hall* **Industry Forum**
14:30-16:00	*Studio 204* **EESS3: Electric Energy Storage Systems (ORAL SESSION)** **Degradation behavior analysis of High Energy Hybrid Lithium-ion capacitors in stand-alone PV applications** *Tarek Mahmoud Samy Mostafa Kamal Ibrahim, Tamas Kerekes, Dezso Sera, Daniel-Ioan Stroe* **Comparison of high-power energy storage devices for frequency regulation application (Performance, cost, size, and lifetime)** *Mahdi Soltani, Tarek Ibrahim, Ana-Irina Stroe, Daniel-Ioan Stroe* **Distributed Co-simulation for Smart Homes Energy Management in the Presence of Electrical Thermal Storage** *Juan Dominguez, Nilson Henao, Kodjo Agbossou, Luis Rueda, Javier Campillo* **Sizing and Management of Fuel Cell Based Powertrains for City Ferry Applications** *Qian Xun, Yujing Liu, Hengzhao Yang, Mario Celegin* **Performance Evaluation of Retired Lithium-ion Batteries for Echelon Utilization** *Seyedreza Azizighalehsari, Prasanth Venugopal, Deepak Pratap Singh, Gert Rietveld* **Development of a Characterization Tool for Innovative Batteries for Aerospace Applications** *Giuseppe Bossi, Mario Porru, Andrea Salimbeni, Alfonso Damiano*
	Studio 312 **ISAS_3:Instrumentation,Sensors,Actuators, Systems Integration and Nano Technologies (ORAL SESSION)** **Design and Implementation of Smart Flowmeter for Urban Water Metering** *Junaid Ahmed Memon, Abdul Rehman Soomro, Ahsan Ali, Sarwan Shah, Hassaan Furqan Khan* **A Simple Software-based Resolver To Digital Conversion System** *Claudio Nevoloso, Antonino Oscar Di Tommaso, Rosario Miceli, Gioacchino Scaglione, Giuseppe Schettino, Carlo Cecati, Concettina Buccella* **Micro Heater Design Procedure with Backside Etching for Medical Applications** *Muhammad Tolba, Mohamed Fanni, Gamal A. Nasser, Shinjiro Umezu, Ahmed M. R. Fath El-Bab* **Challenges in UAS Platform design for Transmission Line monitoring and Inspections** *Amr Mostafa, Yao Wang, Gennady Friedman, Hua Zhang, Fei Lu* **Wire fault classification based on multi-frequency time domain transmission** *Xuan Wang, Bin Zhang* **Development of anisotropic short-fiber oriented rubber and its application to elongation actuators** *Hiromasa Kunisada, Kiichi Fujitani, Fumio Ito, Manabu Okui, Taro Nakamura*
	Studio 313 **SS12_3-Emerging Technologies of Wireless Power Transfer for Vehicle Charging Applications (ORAL SESSION)** **Identification of Coupling Coefficient and Load Resistance for Control**

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of Wireless Power Transfer Systems *Ali Zakerian Rekabdarkolaee, Prasad Jayathurathnage, Tomi Roinila, Paavo Rasilo*

Development of Wireless Power Transfer Workbench for Undergraduate Education *Yao Wang, Amr Mostafa, Hua Zhang, Fei Lu*

Studio 213 & 215

PEEC_3b:Power Electronics & Energy Conversion (ORAL SESSION)

Series Buck-Boost Partial Power Converter based on the Push-Pull converter *Omar Abdel-Rahim, Dmitri Vinnikov, Andrii Chub, Andrei Blinov*

Investigation of Harmonic and Global Loss of Three-Phase Transformer based on a Permeance Capacitance Analogy Model *Zhaoqing Zhang, Gerd Griepentrog, Michael Owzareck, Malte Heuermann*

Model-Free Predictive Control of Multilevel DC–DC Converters for Energy Storage Applications *Fernando Bento, Antonio J. Marques Cardoso*

Real-Time Simulation of a Fast Charger Using a Low-Cost FPGA Platform *Karim Meddah, Hossein Chalangar, Tarek Ould-Bachir*

Using Dynamic Phasors to Model a Single-Phase Active Rectifier Based on Lyapunov Current Control *Udoka Nwaneto, Andrew Knight*

Studio 201

CSYS3: Control Systems (ORAL SESSION)

Ontology for Rating Dependability Attributes *Thomas Frühwirth, Thomas Preindl, Wolfgang Kastner*

Synthesis of Adaptive Gain Robust Controllers for Polytopic Uncertain Systems with Multiple Unknown Dead-Zone Inputs *Satoshi Hayakawa, Takuya Nakagawa, Hidetoshi Oya, Yoshikatsu Hoshi*

A Model Predictive Control based Power Sharing Control of Dual Active Bridge Converter with Parameters Estimation *Yuan Li, Subham Sahoo, Tomislav Dragi ÖPvičÂao Zhang, Frede Blaabjerg*

Model-Based Super-Twisting Controller for a Tensioned-Leg-Platform Floating Offshore Wind Turbine *Hedi BASBAS, Hussein OBEID, Salah LAGHROUCHE, Mickaël HILAIRET, Franck PLESTAN*

Model-Free Predictive Current Control based on ARX Representation of a Seven-Level Inverter *Catalina González Castaño, Margarita Norambuena, Freddy Flores, Hector Young, Rasool Heydari, José Rodriguez*

Attack Detection for LPV Model Formulated Cyber-Physical System with Limited Communication *Li Zhang, Zheng Du, Duanjin Zhang*

Studio 210

PSSG_3:Power Systems and Smart Grid ... (ORAL SESSION)

Polynomial Lyapunov control for DC MicroGrid robustness and stability *Imen IBEN AMMAR, Moustapha Doumiati, Sarah Kassir, Mohamed Machmoum, Mohamed CHAABANE*

Transient Stability Analysis and Enhancement for VSG with Virtual Impedance based Current Limitation *Cong Luo, Yandong Chen, Yuancan Xu, Zili Wang, Qianyuan Li*

A Novel Power-Hardware-in-the-Loop Interface Method for Grid-Forming Inverter Systems *Soham Chakraborty, Jaesang Park, Govind Saraswat, Jing Wang, Soumya Tiwari, Atif Maqsood, Apurva Somani, Murti*

Tuesday, 18 October 2022

V. Salapaka

Accuracy Assessment of Reduced- and Full-Order Virtual Synchronous Generator Models Under Different Grid Strength Cases *Yun Yu, Sanjay K Chaudhary, Jose Matas, Luona Xu, Gibran David Agundis Tinajero, Juan C. Vasquez, Josep M. Guerrero*

Fault-Tolerant Control of a Grid-connected Bipolar DC Microgrid with High Penetration of Intermittent Renewable Energy *Jagath Sri Lal Senanayaka, Khang Huynh, Anton Rassõlkin, Toomas Vaimann, J æ-Za2v—0, Raimondas Pomarnacki*

Environmental Dispatch Strategies for Onshore Power Systems *NUR NAJIHAH ABU BAKAR, Najmeh Bazmohammadi, Yun Yu, Juan C. Vasquez, Josep M. Guerrero*

Studio 316

SS14_3:Machine Vision, Control and Navigation (ORAL SESSION)

The Arc

ICELIE CONFERENCE - ONLINE LEARNING (ORAL SESSION)

Studio 211 & 212

PEEC_3a:Power Electronics & Energy Conversion (ORAL SESSION)

Characteristics Analysis of a Novel Air-Core High Frequency Transformer Based Dual Active Bridge Series Resonant Converter *Hang Zhang, Cong Zhao, Baiyan Sun, Zixin Li, Fanqiang Gao, Fei Xu, Yaohua Li*

Nonlinear PID DC-link Voltage Control for Hybrid Power Filter Based on Robust Exact Differentiator with Improved Transient Response *Cheng Gong, Wai-Kit Sou, Chi-Seng Lam, Hasan Komurcugil*

Passivity Based Control of Four-Switch Buck-Boost DC-DC Converter without Operation Mode Detection *Hasan Komurcugil, Sertac Bayhan, Naki Guler, Ramon Guzman*

A Hardware-Enabled Tool for Nonlinear Analysis of Digitally Controlled High-Freq. DC-DC Converters *Santanu Kapat, Amit Singha, Arnab Acharya*

Clock Shift and Sampling Delay Effects on Stability in Digitally Controlled Cascaded DC-DC Converters *Santanu Kapat, Anirban Nanda*

Studio 216

INTEROP Demos

Hall 300

EMD_3:Electrical Machines and Drives (ORAL SESSION)

Fast Computation of Self-Sensing Capability of Synchronous Machines *Alice Maimeri, Luigi Alberti*

An Optimization–based Torque Ripple Minimization Control Strategy for Switched Reluctance Machines *Andrés Carvajal, Alejandro Angulo, Jorge Juliet*

Standstill Identification of the Rotor Flux in Salient-Pole PMSMs *Mohamad Koteich, Pascal Combes, Rashad Ghassani*

Tuesday, 18 October 2022

Improved Minimal Harmonic Injection PWM Strategy for Dual-Three-Phase Permanent Magnet Synchronous Motors in the Overmodulation Region *Liu Zhibo, Wentao Zhang, Shaoshan Jin, Yongxiang Xu, JIbin Zou*

Real-Time Modelling of Segmented Multiphase Linear Motor Switched by Thyristor *Fei Xu, Yaohua Li, Liming Shi, Zixin Li*

An Experimental Assessment of Modulation Methods for Drive Trains Used In Electric Vehicles *Eleftherios Kontodinas, Andreas Kraemer, Hans-Dieter Endres, Sebastian Wendel, Petros Karamanakos, Joao Bonifacio*

Studio 314

SS3_2: Distributed Control and Optimization in Networked Systems and their Applications (ORAL SESSION)

Distributed Resilient Frequency Control Based on Estimation of Sensor and Actuator Attacks in AC Microgrids *Kai Ma, Yufei Dong, Peng Zhao, Jie Yang*

Studio 311

SS35_3: DC-DC Conversion- Power Circuits and Applications (ORAL SESSION)

A Fully Soft-Switched Resonant Based DC-DC Converter using Adder Architecture for Fast EV Battery Charging Applications *Shibaji Basu, Praveen Jain*

DC Bias Elimination and Soft Switching in Transient State of Dual-Active-Bridge DC-DC Converter *Zhe Wang, Chi Li, Jiye Liu, Zedong Zheng*

LQR and SMC control design of a DC-DC converter based on Kalman filter observer for a nanosatellite's EPS: A comparative study *Amina DAGHOURI, Ilyas EL WAFI, Soumia ELHANI, Mohamed HALOUA, Zouhair GUENNOUN*

Effective Controller Design of Non-Ideal Sheppard-Taylor DC-DC Converter *sally sajadian*

An Improved Bidirectional Hybrid Switched Capacitor Converter *Dan-Cornel Hulea, Mih 6 Constantin Giread 2A Octavian Cornea, Nicolae Muntean*

Studio 202

MCRM3:Motion Control, Robotics and Mechatronics (ORAL SESSION)

Adaptive Sliding Mode Control with RBF Neural Network-Based Tuning Method for Parallel Robot *Ningyu Zhu, Wenfang Xie, Henghua Shen*

Analysis and Testing of a Four Coil Magnetic Levitation Configuration *Peter Berkelman, Nagahiro Ohashi*

Ice-drilling and Gripping Experiments in Actual Conditions for Developing Earthworm-type Ice-drilling Robot for Extensive Under-sea-ice Surveys *Ryosuke Tokoi, Chikage Fujikawa, Wataru Toyama, Manabu Okui, Hiroshi Yoshida, Taro Nakamura*

Performance Comparison of Fixed-Speed and DFIM-based Speed-Elastic Shredder Drive Concepts *Florian Bendrat, Constantinos Sourkounis*

Time-Suboptimal Trajectories for Vibration-Free Positioning of Undamped Flexible Systems *Tasuku Hoshino, Daisuke Fujiwara*

Sliding Mode Event-Triggered Tracking Control for Robot Manipulators With State Constraints *Ankit SACHAN, Sandeep Soni, Siyaun Wang,*

Tuesday, 18 October 2022

Driss Boutat, Sunil Kumar

Studio 206

SS26_3: Advanced Control Techniques for Power Electronics Converters (ORAL SESSION)

An Approach in Selective Harmonic Mitigation Technique for Reduction of Multiple Harmonics with Only Two Switchings Per Quarter *PRATIK KALKAL, A. V. Ravi Teja*

State and Disturbance Observer based Current Sensor-less Control of Mismatched Buck Converter *Sangmesh Malge, Sanjaykumar Patil, Amruta Deshpande, Rajaram Ugale*

IGBT and GaN Hybrid Half-Bridge Applications Based on Multi-Sampling Technology Considering Cost, Efficiency and Transient Performance *Guihua Mao, Guohua Zhou, Yuan Gao, Zhixing Yan, Faheem Ahmad, Stig Munk-Nielsen, Hongbo Zhao*

Circulating Current Control and Energy Balancing of a Modular Multilevel Converter using Model Predictive Control for HVDC Application *Julia Kowalewski, Andreas Lorenz, Alexander Lomakin, Rodrigo Alvarez Valenzuela, Knut Graichen*

Chipped PWM Strategy with SMPS for Noise Mitigation in PSDM-based Systems *Ruichi Wang, Zhengyu Lin, Yang Xiao, Jinghui Chen, Jiande Wu*

Advanced Power Synchronization Control of Modular Multilevel Converter in Stiff Grid *Wentao Liu, Remus Teodorescu, Tamas Kerekes, Tomislav Dragicevic*

Studio 214

INTEROP Presentations/WG Meetings

14:30-18:00

Studio 315

Conference Training Day

16:00-16:30

GRAND HALL

Coffee Break

16:30-18:00

Studio 204

EESS4: Electric Energy Storage Systems (ORAL SESSION)

State of Health Estimation of Lithium-Ion Batteries for Dynamic Driving Profiles Based on Feature Extraction from Battery Relaxation Time Using Machine Learning *Nitika Ghosh, Akhil Garg, Alexander Warnecke, Bijiaya Ketan Panigrahi*

Voltage and Resistance Estimation of Battery Integrated Cascaded Converter *Nima Tashakor, Farshid Naseri, Jingyang Fang, Stefan Goetz*

On-line Capacity Estimation of Li-ion battery Using Semi-parametric Transfer Learning *ARPITA MONDAL, Aurobinda Routray, Sreeraj Puravankara*

An Accurate Practical Technique for Real-Time State-of-Charge Estimation of Li-Ion Batteries Using Neural Networks *Nima Tashakor, Bita Arabsalmanabadi, Shahab Afrasiabi, Mohamed Mohamed, Stefan Goetz*

Navigation line extraction based on machine vision for weeding robot *HAO ZHENG, QIANG WANG, JINMING JI*

Studio 312

Tuesday, 18 October 2022

ISAS_4:Instrumentation,Sensors,Actuators, Systems Integration and Nano Technologies (ORAL SESSION)

Antislip Anchoring Mechanism for Peristaltic Pipe Inspection Robots Traveling in Low-Friction Environments *Kosuke Uchiyama, Hiroto Sato, Fumio Ito, Taro Nakamura*

Design and Implementation of a Laser Scanner Featuring Flexible Printed Circuit Boards *TSUNG-TUN LIN, Cheng-Lung Chen, Shao-Kang Hung*

Mr. *Quentin Quevy, Abdellah Touhafi, Esther Pérez, Gianluca Cornetta*

Studio 313

SS12_4-Emerging Technologies of Wireless Power Transfer for Vehicle Charging Applications (ORAL SESSION)

Studio 213 & 215

PEEC_4b:Power Electronics & Energy Conversion (ORAL SESSION)

Voltage Regulation Controller in DC Microgrid: Implementation Challenges and Solutions *A B Shyam, Soumya Ranjan Sahoo, Sandeep Anand*

A Hybrid Solid State Transformer (HSST) based on Two-Stage Medium Voltage SST *Sanjay Rajendran, Zhicheng Guo, Alex Huang*

Tunnel Magnetoresistance-Based Short-circuit Protection for SiC MOSFET in HybridPACKTM Drive Package *Jiakun Du, Yuxin Feng, Qian Chen, Shuai Shao*

A Current Sensorless Computationally Efficient Model Predictive Control for Matrix Converters *Ali Sarajian, Quanxue Guan, Patrick Wheeler, Davod Arab Khaburi, Ralph Kennel, Jose Rodriquez*

A Hybrid Si/GaN-Based Quasi-Single-Stage Converter for Microgrid Applications with Simplified Space-Vector Modulation *Mingxuan Li, Dehong Zhou, Jianxiao Zou, zewei shen, Lijie Liu, Xiaoming Fu*

Artificial Neural Networks Approach for Reduced RMS Currents in Triple Active Bridge Converters *Ahmed Ibrahim, Andrea Zilio, Tarek Younis, Davide Biadene, Tommaso Caldognetto, Paolo Mattavelli*

Studio 201

CSYS4: Control Systems (ORAL SESSION)

Normalised hybrid flux weakening strategy for automotive asymmetrical dual three-phase IPMSMs *Adriano Navarro, Edorta Ibarra, Iñigo Kortabarria, Andrés Sierra, Borja Prieto, Ibon Elosegui*

Synchronous reluctance motor flux linkage saturation modeling based on stationary identification and neural networks *Chong Bao, Haodong Chen, Chenyi Yang, Jixi Zhong, Haotian Gao, Shoujun Song*

A novel rotor position estimation method of permanent magnet synchronous motor based on DC compensation and cascade filter *Haodong Liu*

Direct-axis Dead-time Effect Compensation Strategy Based on Adaptive Linear Neuron Method for PMSM Drives *Shaoshan Jin, Wentao Zhang, Zhibo Liu, Fayuan Xie, Yongxiang Xu, Jibin Zou*

Interturn short circuit modelling in dual three-phase PMSM *Matus Kozovsky, Ludek Buchta, Petr Blaha*

Simultaneous Radial Force and Torque Control for Switched

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Reluctance Motors Based on Optimized Quadratic Sharing Function Method *Gaoliang Fang, Filipe P. Scalcon, Dianxun Xiao, Babak Nahid-Mobarakeh, Ali Emadi*

Studio 210

PSSG_4:Power Systems and Smart Grid ... (ORAL SESSION)

Smart charging analysis for a service provider in mini parking lots by considering the V2V protocol *Reza RAZI, Khaled HAJAR, Majid Mehrasa, Antoine Labonne, Ahmad Hably, Seddik Bacha*

Energy Management System for a Low Voltage Direct Current Microgrid: Modeling and experimental validation *Yanandlall Gopee*

Data-driven Based PEMFC EIS Modeling with Nyquist Plot *Haochuan Zhang, jianfeng lv, Jiyuan Kuang, Imad Matraji, Patrick Muhl, Jianxing Liu*

Synchronization Stability of 3-phase Grid Connected Inverters in Weak Grids *Sugoto Maulik, Vinod John*

Development of MEMS Flow Path for Miniature Waste Heat Utilization Generator *Minami Kaneko, Yuya Niki, Kenji Takeda, Megumi Aibara, Fumio Uchikoba*

Studio 316

SS37- Advances in Data Driven Process Monitoring and Control for Complex Industrial Systems (ORAL SESSION)

The explainable uncertainty in degradation process: a discovery from non-accelerated batteries degradation experiment *Dongzhen Lyu, Bin Zhang, Enrico Zio, Tao Yang*

Classification of Mechanical Faults in Rotating Machines Using SMOTE Method and Deep Neural Networks *Maher Sadok Messaoudi, Shady Khalil*

Voltage Sag Source Classification using Multivariate Time Series and Soft Dynamic Time Warping *Maria VEIZAGA, Claude DELPHA, Demba DIALLO, Sophie BERCU, Ludovic BERTIN*

An improved multi-objective optimization algorithm for flexible job shop dynamic scheduling problem *Hongcheng wang, Hao Wang, Hao Luo*

An Fault-tolerant Control approach for Event-triggered Consensus of Multiple Robotic Manipulators with Switching Topologies *Yunji Li, Hao Luo, Hao Wang*

The Arc

ICELIE CONFERENCE - SS1 NEW TOOLS AND METHODS FOR ELECTRIC MACHINES AND DRIVES AND POWER ELECTRONICS EDUCATION (ORAL PRESENTATIONS)

Studio 211 & 212

PEEC_4a:Power Electronics & Energy Conversion (ORAL SESSION)

Optimized real-time simulation setup for Interaction study between VSC-HVDC and SVC on the French Network *Boris Bruned, Sébastien Dennetière, Yannick Vernay, Hani Saad, Vinicius Oiring De Castro Cezar*

Accurate Analytical Calculation of the DC-link Capacitor Current for

Tuesday, 18 October 2022

Three-phase Motor Drive under the Full Working Range *Xiaoming Fu, zewei shen, dehong zhou, jianxiao zou*

State Feedback Design Approach for Fast Recovery Digitally Current Mode Controlled Boost Converters *Mrinmay Bhowmik, Dipayan Chatterjee, K Hariharan, Santanu Kapat, Anandaroop Bhattacharya*

Review of Different Current Control Strategies for LC-coupling Hybrid Active Power Filter *Qian-Rong Hong, Wai-Kit Sou, Pak-Ian Chan, Cheng Gong, Chi-Seng Lam*

A novel simple GMPPT method based on probability distribution of global maximum power point under partial shading conditions *Kha Bao Khanh CAO, Vincent BOITIER*

Enhanced Stability with Fast Transient Performance in Digitally Current Mode Controlled Multi-phase Buck Converters using Event-based Sampling *Teja Golla, Ritam Talukder, Santanu Kapat*

Studio 216

INTEROP Demos

Hall 300

EMD_4:Electrical Machines and Drives (ORAL SESSION)

Net-Zero Through Small Modular Reactors - Cybersecurity Considerations *Brian Aamoth, William E. Lee, Hafiz Ahmed*

A Digital Hybrid Fuzzy-PID Controller for Single Inductor Dual Output DC-DC Converters with Fast Transient Response *Zhengyu Zhang, Nan Chen, Tingcun Wei*

Investigation on Metal Oxide Varistors in DC Circuit Breakers *Reza Kheirollahi, Charlie Dang, Shuyan Zhao, Hua Zhang, Fei Lu*

AI for Energy: A Blockchain-based Trading Market *Ameni Boumaiza*

Diffusion of Innovation, Renewable Energy Technologies, Renewable Energy Adoption, Agent-Based Modeling, Social Network Analysis *Ameni Boumaiza*

Integration of Energy Storage Systems within Modular Multilevel Converters for Medium-Voltage Distribution Networks *Paolo Meloni, Alessandro Serpi*

Studio 311

SS35_1: DC-DC Conversion- Power Circuits and Applications (ORAL SESSION)

Studio 202

MCRM4:Motion Control, Robotics and Mechatronics (ORAL SESSION)

Parametric Identification using Kernel-based Frequency Response Model with Model Order Selection based on Robust Stability *Hanul Jung, Taejung Kong, JAEGU KANG, Sehoon Oh*

Development and Control of a Flexible Actuation-Based Delta Robot *Yasiru Fernando, Manukid Parnichkun*

ROS2 as an Interface for a Motorcycle Simulator *Luís Capa, Adriano Carvalho, Rui Gomes, Nelson Costa, Paulo Cardoso*

Energy Optimized Path Planning and Decision Making for Multiple Robots in Rescue Operations *Dileep Sivaraman, Branesh M Pillai, Jackrit Suthakorn, Songpol Ongwattanakul*

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Accurate Pose Tracking of Mobile Robot Using Entropy-based TrimICP in Dynamic Environment *Haodong Sun, Shuting Wang, Jie Meng, Yuanlong Xie, Yu Liu*

Improved Local Path Planning for Mobile Robot Using Modified Dynamic Window Approach *qingchen Fu, Shuting Wang, Liquan Jiang, Yiming Yan, Yuanlong Xie*

Studio 206

SS26_4: Advanced Control Techniques for Power Electronics Converters (ORAL SESSION)

Small-Signal Model and Controller Design of Interleaved Isolated Boost Converter for PV Application *Ubaid Ahmad, Roberto Giral, Carlos Olalla*

A Graphical Approach in Selective Harmonic Elimination for Simultaneous Reduction of Multiple Harmonics and Overall THD *Ayush kumar, PRATIK KALKAL, A. V. Ravi Teja*

Studio 214

INTEROP Presentations/WG Meetings

18:30-21:00

GRAND HALL

Welcome Reception

Wednesday, 19 October 2022

08:00-10:30

Studio 204

EESS5: Electric Energy Storage Systems (ORAL SESSION)

Spatial Transformer Network with Transfer Learning for Small-scale Fine-grained Skeleton-based Tai Chi Action Recognition *Lin Yuan, Zhen HE, Qiang Wang, Leiyang Xu, Xiang Ma*

Analysis of Bidirectional Wireless Power Transfer for EV applications *Marcelo Perez, Ivan Choque, Johan Guzman*

A Supercapacitor and Fuzzy-PID Controller-based Active Charge Balancing Scheme for Lithium-ion Batteries *Akash Samanta, Mohit Sharma, Sheldon Williamson*

Feasibility of efficiency improvement in a fuel cell system powered by a metal hydride tank *Santiago Hernán SUAREZ, Djafar Chabane, Abdoul N'Diaye, Youcef Ait-Amirat, Abdesslem DJERDIR*

Data-driven Adaptive Observer-based Predictive Control for an Inverter with Output LC Filter *Xiaoyi Xu, Sergio Vazquez, Hao Luo, Leopoldo Garcia Franquelo, Eduardo Zafra*

Edge of LSTM-TL over G-LSTM in the application of Battery Surface Temperature Prediction for EVs *Pradeep Kumar, Shanu Kumar, Luis Rueda*

Maximizing energy availability for a Dynamic Regulation Frequency Response Service for Battery Energy Storage Systems *Abdulkarim Ahmouda, Daniel Gladwin*

An Insight into the Dynamics of a Dual Active Bridge *Ezekiel Arogunjo, Joseph Ojo*

A multi-objective optimization-based EMS for residential microgrids considering battery SoH *Giuseppe La Tona, Masimiliano Luna, Maria Carmela Di Piazza*

Wednesday, 19 October 2022

Studio 312

INDI_1: Industrial Informatics-Cloudcomputing, Big Data, AI, Informatics and Software Engineering (ORAL SESSION)

An Online Segmental Ageing Detection Method for Underground Power Cables Based on Common-Mode Leakage Current Measurements *Yang Wu, Ziyu Wei, Yanyong Yang, Dayong Zheng, Pinjia Zhang*

Integrating Smart Contracts in Manufacturing for Automated Assessment of Production Quality *Sebastiano Gaiardelli, Stefano Spellini, Michele Pasqua, Mariano Ceccato, Franco Fummi*

Defects Location for DC Submarine Cables in Burn-in Period Using Admittance Spectrum Characteristics *Ziyu Wei, Yang Wu, Pinjia Zhang*

Experiences with on-premise open source cloud infrastructure with network performance validation *Steffen Thielemans, Ruben De Smet, Priscilla Benedetti, Gianluca Reali, An Braeken, Kris Steenhaut*

Open-source firewalls for industrial applications: a laboratory study of Linux IPFire behavior *Manuel Cheminod, Ivan Cibrario Bertolotti, Luca Durante, Lucia Seno, Adriano Valenzano*

An Online System of Detecting Anomalies and Estimating Cycle Times for Production Lines *Tsuyoshi Ishizone, Tomoyuki Higuchi, Kosuke Okusa, Kazuyuki Nakamura*

Stakeholders' Transparency Requirements in the software engineering process *PAULINUS OFEM, Bassey Isong, Francis Lugayizi*

Comparison between Docker and Kubernetes based Edge Architectures for Enabling Remote Model Predictive Control for Aerial Robots *Achilleas Santi Seisa, Sumeet Gajanan Satpute, George Nikolakopulos*

Implementation of IEEE P1451.0 and P1451.1.6 Standards-based Sensor Networks *Hiroaki Nishi, Kang Lee*

AI-Based Assistant for Determining the Required Performance Level for a Safety Function *Padma Iyenghar, Yuxia Hu, Michael Kieviet, Elke Pulvermueller, Juergen Wuebbelmann*

Studio 313

INFA_1: Intelligent Factory Automation (ORAL SESSION)

Mixing Offline and Online Electrical Decisions in Data Centers Powered by Renewable Sources *Igor Fontana de Nardin, Stephane Caux, Patricia Stolf*

Dynamic Setpoint Optimization Using Metaheuristic Algorithms for Wastewater Treatment Plants *Rodrigo Salles, Jérôme Mendes, Carlos Henggeler, Pedro Moura, Joana Dias*

A multi-cloud service mesh approach applied to Internet of Things *Luca Gattobigio, Steffen Thielemans, Priscilla Benedetti, Gianluca Reali, An Braeken, Kris Steenhaut*

Energy Efficient Protocols for LLNs – Metrics and Measurements *Philipp Raich, Wolfgang Kastner, Stefan Adelmann*

Controller-Aware Dynamic Network Management for Industry 4.0 *Efe Balta, Mohammad H. Mamduhi, John Lygeros, Alisa Rupenyan*

Exact schedulability analysis for single-rate periodic cyclic executives for a refined system model *Reinder J. Bril*

Security by Design Integration Mechanisms for Industrial Control Systems *Sarah Fluchs, Emre Ta ÷F âM Martin Mertens, Alexander Horch,*

Wednesday, 19 October 2022

Rainer Drath, Alexander Fay

A Flow Graph based Approach for controlled Generation of AAS Digital Twin Instances for the Verification of Compliance Check Tools *Björn Otto, Tobias Kleinert*

Self-configuration of a Robotic Platform to support a self-organized Manufacturing Process *Luis Alberto Jimenez, David Sanderson, Jack C. Chaplin, Jose Barata*

Studio 213 & 215

PEEC_5b:Power Electronics & Energy Conversion (ORAL SESSION)

A Novel Flying Inductor based Grid-Connected Inverter with Buck-Boost Ability *Naser Vosoughi Kurdkandi, Oleksandr Husev, Saeed Rahimpour, Carlos Roncero-Clemente, Oleksandr Matiushkin, Dmitri Vinnikov*

Compensating measurement delays in decoupling blocks of dq control technique for multiple active bridge converter *Anna Shubnaya, Federico Ibanez, Pedro Rodriguez*

Integrated Magnetics-Based Flux-Rate Controlled Single-Phase Inverter Topology *Ruman Kalyan Mahapatra, L. Umanand, Gopakumar K*

An Active Clamping Current-Fed Three Port Converter for Fuel Cell/ Supercapacitor Hybrid Energy Storage Systems *Fanli Hu, Hengzhao Yang, Haoyu Wang, Minfan Fu*

Definition and Implementation of an EMI Figure of Merit for Switching Pattern in Power Converters *Daniel Sting Martinez Padron, Nicolas Patin, Eric Monmasson*

Closed-loop Control of High Frequency AC PWM Inverter for Space Application *Surjakanta Mazumder, Sayan Paul, Jagadeesh Egala, Utsab Kundu, Pradeep Peter, Kaushik Basu*

Effect of Material Resistivity and Temperature on Leakage Inductance of Medium Frequency Transformers Made of Al and Cu Foils *Priya Gajanand, Annoy Kumar Das, Sandeep Anand, Baylon G. Fernandes*

Current-Type Power Hardware-in-the-Loop Interface for Black-Start Testing of Grid-Forming Converter *Zhiwang Feng, Abdulrahman Alassi, Mazheruddin Syed, Rafael Pena-Alzola, Khaled Ahmed, Graeme Burt*

An Adaptable Feedback Clamped Optimal Battery Charger Using Fourth-Order Minimum-Phase Bidirectional DC-DC Converter *Soumya Ranjan Meher, Rajeev Kumar Singh, Vivek Nandan Lal*

Current Control for the Dual Boost Inverter with Bypass Switches for PV Microinverter Applications *Diana Lopez, Nicolas Muller, Hugues Renaudineau, Freddy Flores-Bahamonde, Samir Kouro*

Studio 201

CSYS5: Control Systems (ORAL SESSION)

Flexible Control and Dynamics Estimation of Grid-forming Converters Considering Grid Frequency Variation *weiyi zhang, zijian li, Hang Yin, youming wang*

Attitude Control of a 2-DOF Helicopter System with Input Quantization and Delay *Siri Marte Schlanbusch, Ole Morten Aamo, Jing Zhou*

State observer for water-based hybrid PV/T system with unknown input *Zain Ul Abdin, Ahmed Rachid*

Attacks Detection and Security Control Against False Data Injection Attacks Based on Interval Type-2 Fuzzy System *Yuhang Chen, Yue Long, Tieshan Li*

Wednesday, 19 October 2022

Model predictive control energy management strategy of fuel cell hybrid electric vehicle *Walid TOUIL, Zhongliang LI, Rachid OUTBIB, Daniel HISSEL, Samir JEMEI*

Decoupled Discontinuous Modulation for Cascaded H-Bridge StatCom with Star Configuration *Qingxiang Liu, Ezequiel Rodriguez, Glen Ghias Farivar, Josep Pou, Christopher Townsend, Ramon Leyva*

SVM2PC with Dead-Time compensation for Grid-tied Inverters *Dimas Schuetz, Humberto Pinheiro, Fernanda Carnielutti, Vinicius Montagner, Daniel Lima, Caio Osorio, Luiz Maccari*

Improved Aerodynamic Coefficient Identification Using Non-Conservative Robust Kalman Smoother *Jieun Han, Han-Sung Lee, Won-Sang Ra*

Compensator-based current sensorless control for PWM-based DC-DC buck converter systems with uncertain voltage measurement *Shiqi Nan, Chunjiang Qian, Shuaipeng He*

Data Integrity Analysis of Water Quality Sensors and Water Quality Assessment *Mimoun LAMRINI, Quentin Quevy, Mohamed Yassin Chkouri, Abdellah Touhafi*

Studio 315

SS1 - Advanced signal and image processing techniques for condition monitoring of Electric Machines and Drives (ORAL SESSION)

Topological Data Analysis for Electric Motor Eccentricity Fault Detection *Bingnan Wang, Chungwei Lin, Hiroshi Inoue, Makoto Kanemaru*

Real-Time Identification of Periodic Signals using the Recursive Variable Projection Algorithm *Johannes Handler, Dimitar Ninevski, Mathias Rollett, Paul O'Leary*

Detection of corrosion in ball bearings through the computation of statistical indicators of stray-flux signals *Israel Zamudio-Ramirez, Vicente Biot-Monterde, Angela Navarro-Navarro, Jose Antonino Daviu, Roque Osornio-Rios, Petri Mäki-Ontto, Lauri Salmia, Tomas Fajt*

CNC lathe tool wear analysis using image processing and stray flux *Geovanni Diaz-Saldaña, Roque Osornio-Rios, Irving A Cruz-Albarran, Miguel Trejo-Hernandez, Jose Antonino Daviu*

Infrared thermographic image processing for identification of gradual damage to the outer race of bearings in induction motors *Alvaro I Alvarado-Hernandez, Roque Osornio-Rios, Jose Antonino Daviu*

Fault Diagnosis of Inter-turn Short Circuit in Permanent Magnet Synchronous Motors with Current Signal Imaging and Semi-Supervised Learning *Wonho Jung, SungHyun Yun, Yoon-Seop Lim, Sungjin Cheong, Jaewoong Bae, Yong-Hwa Park*

Mutual Dimensionless Indices and ROC Analysis in Bearing Fault Occurrence Detection *Hongbin ZHU, Claude DELPHA, Weichao Xu, Yanguang Wang*

Fault Diagnosis of Ball Bearing Using Dynamic Convolutional Neural Networks Under Varying Speed Condition *Seong-Hu Kim, Wonho Jung, Daegeun Lim, Yong-Hwa Park*

Permanent Magnet Synchronous Motor Fault Detection System Based on Transfer Learning Method *Maciej Skowron, Czes & wKowalski*

Studio 210

PSSG_5:Power Systems and Smart Grid ... (ORAL SESSION)

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Impact Analysis of Electric Vehicle Charging Stations on the Medium Voltage Distribution Network *Harshavardhan Palahalli Mallikarjun, CESAR EDUARDO DIAZ LONDONO, Paolo Maffezzoni, Giambattista Gruosso*

Finite Control Set Model Predictive Control of a Photovoltaic Differential Power Processing System *Thibaut Harzig, Brandon Grainger*

Joint Optimization of Battery Swapping Station Revenue and Electric Vehicle Owners' Benefits by Introducing Tiered Pricing Incentives *Wei Wang, Hengzhao Yang*

Feasibility of adopting bilateral co-phase traction network in single phase 25 kV AC traction system *Nipun Pande, Takafumi Koseki, Wataru Ohnishi*

Digital Twin Approach for Remote Monitoring of Microgrids *Mohd Aquib, Suryanarayana Doolla, Mukul C. Chandorkar*

Fault Current Bypass and Transient Commutation Current Injection Based Soft Turn-Off DC SSCBs *Shuyan Zhao, Reza Kheirollahi, Yao Wang, Hua Zhang, Fei Lu*

A Distributed Stabilizing Economic Dispatch Control for Energy Storage Unit based Autonomous Microgrid *Sidlawendé OUOBA, Azeddine Houari, Mohamed Machmoum*

Studio 316

SS10:Advanced Propulsion and Charging Technologies for Electrified Transportation Tools (ORAL SESSION)

Connecting Second-order and Higher Order Compensated Capacitive Power Transfer Converters *Ying LIU, Xiaolu Li, Chi K. Tse, Chunbo Zhu*

Implementation of Various Neural-Network-Based Adaptive Speed PI Controllers for Dual-Three-Phase PMSM *Zhenxiao Yin, Hang ZHAO*

A Three-phase AC-AC Wireless Power Transfer System with Power Factor Correction and Soft Switching *Xiaosheng Wang, Chaoqiang Jiang, Tianlu Ma, jingchun Xiang*

A Comparison of Advanced IPT Systems with Nanocrystalline and Ferrite Cores for Wireless EV Charging *jingchun Xiang, Chaoqiang Jiang, Tianlu Ma, Xiaosheng Wang, Bo Luo, Li Fang*

Comparison of Modulation Strategies for a DAB Partial Power DC-DC Converter in EV Powertrains *Carolina Beckmann, Christian Rojas, Samir Kouro, Hector Young, Raul Opazo*

Copper Hall

Young Professionals

Studio 211 & 212

PEEC_5a:Power Electronics & Energy Conversion (ORAL SESSION)

Three-phase Voltage Source Converters Based on Series-Connected Power devices for Medium Voltage Variable Speed Drives *Jinshuai Wang, Shuai Shao, Yineng Shi, Qian Chen, Junming Zhang*

Characteristic Analysis and Comparison of the Modulation Schemes for Three-phase Open Winding Motor Drive *siyi lin, zewei shen, Dehong Zhou, Jianxiao Zou*

Estimation of Electrical Parameters of the Double-Cage Model of Induction Motors Using Manufacturer Data and Genetic Algorithm *Matheus Perin, Luís Pereira, Gabriel da Silveira, Sérgio Haffner*

Wednesday, 19 October 2022

Accuracy Analysis and Comparisons of Impedance Behavior of Transcranial Magnetic Stimulator Coils *Fabian Neukirchinger, Anton Kersten, Manuel Kuder, Benjamin Lohse, Florian Schwitzgebel, Thomas Weyh*

12-pulse Rectifier with DC-Side Buck Converter for Electric Vehicle Fast Charging *Dun Lan, Yang Wu, Thiago Soeiro, Pierpaolo Granello, Zian Qin, Pavol Bauer*

Impact of Loss Model Selection on Power Semiconductor Lifetime Prediction in Electric Vehicles *Hongjian Xia, Yi Zhang, Dao Zhou, Minyou Chen, Yunhai Wei, Huai Wang*

Modeling and Optimization of BOOST Inductor Used Multi-Material Powder Core *Yun Zhang, Zedong Zheng, Chi Li*

Modeling of the Isolated Modular Multilevel DC-DC Converter by Considering the Magnetizing Inductance of the High-frequency Transformer *Mahmoud Mehrabankhomartash, Shiyuan Yin, Hossein Saeedifard, Amirnaser Yazdani, Rajendra Prasad Kandula, Deepak Divan, Maryam Saeedifard*

MPC for Grid Forming Converters with Current Limiting *Jean-Michel De Paris, Humberto Pinheiro, Fernanda Carnielutti, Vinícius Foletto Montagner, Daniel Martins Lima*

Studio 216

INTEROP Demos

Hall 300

EMD_5:Electrical Machines and Drives (ORAL SESSION)

Modelling and Control of Three Phase Induction Machine Under Open Phase Fault *k gopikrishnan, Sumit Pramanick*

Expansion Technique of the Current Reconstruction Areas for Two-Phase Three-Leg Inverters *Hye-In Jeong, Sang-Hoon Kim*

Design and Realization of a Synchronous Reluctance Motor with Printed Rotor *Daniele Michieletto, Luigi Alberti*

Computationally Efficient Model Predictive Torque Control of Switched Reluctance Motor Drives *Kishan Jayasawal, Ashwani Kumar Rana, A. V. Ravi Teja*

Fault Detection in Variable Phase-Pole Machines based on Harmonic Plane Decomposition *Yixuan Wu, Gustaf Falk Olson, Luca Peretti*

Online Discrete Optimization of Weighting Factor in Model Predictive Torque and Flux Control of Induction Motor *Alireza Davari, Vahab Nekoukar, Shirin Azadi, Freddy Flores-Bahamonde, Cristian Garcia, Jose Rodriguez*

Analytic Guided Magnetic-Thermal Kriging Surrogate Model and Multi-Objective Optimization of Synchronous Generator *Ruiye Li, Peng Cheng, Hai Lan, Yingyi Hong, Yige Ren*

Analysis of a Vernier Machine with Spoke-V Array Permanent Magnets *Fawen Shen, Yuming Yan, Benjamin Cheong, Chandana Gajanayake, Shuai Wang, Christopher H. T. Lee*

Current Sharing Method for Dual-Redundancy PMSM with Fuzzy-based Sliding Mode Control *Jiacheng Yang, Hao Yan*

Impact Actuator for Increased Dynamics *Alexander Schulte, Armin Lechler, Alexander Verl*

Studio 314

Wednesday, 19 October 2022

SS25_1: Advanced Multilevel Converters with DC Capacitors: Topology, Modulation, Voltage Balancing, and Control Strategies (ORAL SESSION)

A Dense Multilevel 24-sided Polygonal Voltage Space Vector Structure for IM Drive with Open-end Winding Configuration *Prashant Surana, Mriganka ghosh Majumder, Gopakumar K, Umanand Loganathan, Leopoldo G. Franquelo*

DC-link Capacitors Voltage Control using a Multi-phase Induction Motor Load Driven by a Multilevel Inverter *Tutan Debnath, Gopakumar K, Loganathan Umanand*

Hardware Prototype for the Quasi-Two-Level Operation of a Three-Phase Flying Capacitor Converter for Medium Voltage Applications *Stefan Mersche, Calvin Laeske, Marc Hiller*

Simplified Cluster Balance Control of Cascaded H-Bridge STATCOM under Unbalanced Grid *Surendra Babu N N V*

The Manhattan Configuration: a Differential Power Converter with Linear Scaling to N-levels *Matthew Jahnes, Matthias Preindl*

Three-Phase ZPUC-MMC Grid Connected Converter *Sandy Atanalian, Fadia Sebaaly, SAEED ARAZM, Rawad Zgheib, Kamal Al-Haddad, Hadi Kanaan*

Auto-Tuned Two-Step Horizon FCS-MPC for a Grid-Connected CSC Inverter-based PV System *Alamera Nouran Alquennah, Mohamed Trabelsi, Hani Vahedi*

Design of Transformerless Microinverter using a High Gain DC-DC Converter and PUC Inverter *Ahmad Abu Humaid, Lazhar Ben-Brahim, Adel Gastli, Mohamed DJEMAI*

Level Enhancement in Switched Capacitors based Multilevel Inverter Using Level Doubling Network *Ritika Agarwal, Anekant Jain, Krishna Kumar Gupta, Shakti Singh*

Capacitor Sizing of High Resolution Converter for Induction Machine Driven Fan Load *Neha Tak, Sumit Chattopadhyay, Chandan Chakraborty*

Studio 311

NTET_1:New Technologies for Electric Transportation (ORAL SESSION)

Switching Current Impact Reduction Method for Segmented Power Supply Linear Motor *Chengtang Deng, Fei Xu, Cong Zhao, Zixin Li, Liming Shi, Yaohua Li*

A Strategy for Selection of Optimal Parameters and Configuration for Segmented Dynamic Wireless Charger System *Kukkala Satya Prakash, P.C. Sekhar*

Electric Vehicle Heating Management Techniques utilizing Drivetrain-Loss-Heating of Refrigerant *Anton Kersten, Andreas Andersson, Branko Ban, Marcus Roden, Alireza Norouzzadeh, Stefan Ryden*

Feedback Control Design for Drive Shaft Vibration Suppression Based on Frequency Domain Analysis of Two-Input-Two-Output Motor Drive System *Guangzhi Yu, Hiroyuki Fuse, Hiroshi Fujimoto, Kaoru Sawase, Naoki Takahashi, Ryota Takahashi, Yutaro Okamura, Ryosuke Koga*

HIL simulation of a self-stabilizing monorail vehicle *Martin Griese, Seyed Davood Mousavi, Thomas Schulte*

A Novel Approach of Electric Powertrain Co-Simulation with High Fidelity Vehicle Model *Bowen Jiang, Nimananda Sharma, Yujing Liu, Chuan Li, Xiaoliang Huang*

Multi-Objective Design Optimization of a Dual-Sided Permanent

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Magnet Linear Motor for High Speed Electric Trains *siavash sadeghi*
A Novel Single Stage Three Phase Isolated AC/DC EV Charger for 400V and 800V Operation *Sanjay Rajendran, Alex Huang*
Experimental Comparison of an Active Gate Driver and a dv/dt Filter to Reduce the Output dv/dt of a SiC EV Drive Inverter *Julius Wiesemann, Axel Mertens*
Analysis of GPS-based High Resolution Vehicle Mobility Data towards the Electrification of Transportation in Qatar *Usman Zafar, I Safak Bayram, Sertac Bayhan, Raka Jovanovic*

Studio 202

MCRM5:Motion Control, Robotics and Mechatronics (ORAL SESSION)

EFC/H'Based Dual-mode Switching Global Control of the First-order Parallel Rotating Double Inverted Pendulum System *yu zhenbao, Liu Lipeng, Yu Junhao, Zhang Xiaohua, Guo Yuanbo, Wang Shiyuan*
Waiting-Time-Optimized Path Planning of Multiple Automatic Guided Vehicles Using Augmented Topology Map *Yuanlong Xie, Tianhao Wu*
Motion-Prediction-Based Obstacle Avoidance Method for Mobile Robots via Deep Reinforcement Learning *Yuanlong Xie, Yiming Hu*
Collision Avoidance Pathfinding of Multiple AGVs Considering Motion Uncertainties *Yuanlong Xie, Mingxiao Chen*
Evolving Fuzzy and Tensor Product-based Models for Tower Crane Systems *Radu-Emil Precup, Elena-Lorena Hedrea, Raul-Cristian ROMAN, Emil M. Petriu, Claudia-Adina Bojan-Dragos, Alexandra-Iulia Szedlak-Stinean, Ciprian Hedrea*
Learning Cooperative Multi-Agent Policies with Multi-Channel Reward Curriculum Based Q-Learning *Jayant Singh, Jing Zhou, Baltasar Beferull-Lozano, Ilya Tyapin*
Design and Hybrid Impedance Control of a Compliant and Balanced Wrist Rehabilitation Device *Mwayi Yellewa, Abdelfatah Mohamed, Hiroyuki Ishii, Samy Assal*
How to improve human-robot collaborative applications through operation recognition based on human 2D motion *Fiorella Sibona, Pangcheng David Cen Cheng, Marina Indri*
Robust Sliding Mode Based Finite-time Bilateral Shared Teleoperation System with Unsymmetrical Time Varying Delay *Shafiqul Islam*
An Evaluation of Direct Image Based Visual Tracking System for Autonomous Manipulation *Shafiqul Islam*

Studio 206

SIPCI_1:Signal and Image Processing and Computational Intelligence

Urban road users detection and velocity estimation from top-view fish-eye imagery under low light conditions *masoomeh ansarnia, etienne tisserand, alain tremeau, patrick schweitzer*
Anomalous Sound Detection, Extraction, and Localization for Refrigerator Units Using a Microphone Array *Akihito Nishikawa, Kazuhiro Hattori, Motomasa Tanaka, Hiroaki Muranami, Hiroaki Nishi*
Development of A New Recognition System Based on Support Vector Machines for Shockable ECGs and Its Performance Analysis *Takayuki Okai, Hidetoshi Oya, Kazushi Nakano, Hiroshi Miyauchi*
SO3-CNN: Learning Rigid Displacement using Depth Images and

Wednesday, 19 October 2022

	Orthogonal Dual Tensors *Teodor Sauciuc, Adrian Burlacu, Lavinia Ferariu, Paul Botezatu* **Transfering Run-Time-Data Between Distinct FPGA Designs - Solutions in the Context of an ANC-Application** *Marcel Eckert, Alexander Klemd, Bernd Klauer, Johannes Timmermann, Delf Sachau* **Histogram-Based Corner Detection and Description for 2D Lidar Systems** *Lukas Pröhl, Harald Aschemann, Hans Henning Erle* **FPGA accelerators HLS-based design of hyper complex LMS filters** *Alin Tisan, Eric Monmasson, Clive Cheong Took* **View Selection for Industrial Object Recognition** *Kewei XU, Nicolas Ragot, Yohan DUPUIS* **Depth Estimation Using Deep Learning Guided By Ontology Reasoning-Based Monocular Cues** *Fatima Ezzahra Benkirane, Nathan Crombez, Vincent Hilaire, Yassine Ruichek*
	Studio 214 **INTEROP Presentations/WG Meetings**
08:00-12:30	*The Arc* **Associate Editor Training Day**
08:00-18:00	*Studio 214&216* **NOT AVIALABLE**
	Studio 310 (Circle) **BRIEFING ROOM - ORGANIZERS & SECRETARIAT**
10:30-11:00	*GRAND HALL* **Coffee Break**
11:00-12:30	*Studio 312* **INDI_2: Industrial Informatics-Cloudcomputing, Big Data, AI, Informatics and Software Engineering (ORAL SESSION)** **Implementation of an Advanced Operation Control for AI-based Wind Farm Power Maximization Using Wake Redirection and Artificial Neural Networks** *Philip Krajinski, Constantinos Sourkounis* **Actor-Oriented Scalable Domain-Specific Cluster Architecture for Cloud-Applications** *David Bauer, Juho Mäkiö* **Towards Interoperability Mismatch Identification. An Expert System Approach** *Cristina Paniagua, Fernando Labra-caso* **Design of a Validator for Module Type Packages** *Santonu Sarkar, Katharina Stark, Mario Hoernicke* **A dataflow execution engine for automatic visual inspection of production lines** *Daniel Silva, Ana Lopes, Daniel Costa, José Cabral, Carlos A. Silva, Sérgio Lopes* **A Machine Learning-Based Digital Twin Model for Pressure Prediction in the Fuel Injection System** *Edwin Duarte, Eduardo Viegas, Altair Santin*
	Studio 313 **INFA_2: Intelligent Factory Automation (ORAL SESSION)**

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Using simulation to evaluate a concept drift detector for condition based maintenance *Afonso Lourenço, Marta Fernandes, Goreti Marreiros, Juan Manuel Corchado*

Interoperability of OPC UA PubSub with Existing Message Broker Integration Architectures *David Hästbacka, Petri Kannisto, Antti Kätkytniemi*

Attack Tree Refinements Analysis and Verification by applying Coloured Petri Nets *Shabnam Pasandideh, Pedro Pereira, Luis Gomes*

Integration of PLC for synchronization of plant segments with Asset Administration Shell *Dirk Schöttke, Stephan Schäfer, Thomas Kämpfe, Oliver Lachmann, Aaron Zielstorff, Bernd Tauber*

Automated usage control for secure data sharing based on Ricardian contracts *Eric Naim Chiquito Garcia, Alex Chiquito, Ulf Bodin, Kåre Syness*

Creating Virtual Knowledge Graphs from Software-Internal Data *Maximilian Weigand, Alexander Fay*

Studio 213 & 215

PEEC_6b:Power Electronics & Energy Conversion (ORAL SESSION)

Design Optimization of Power Electronic Converters in More Electric Aircraft *Mohamed Ibrahim, Omar Zayed, Niloufar Keshmiri, Ali Emadi, Mehdi Narimani*

A new discretization method of model equations for predictive power converter control applications based on input-state linearization *Felipe Villarroel, Jose Espinoza, Marcelo Perez, Daniel Sbarbaro, Roberto Ramirez, Carlos Baier*

Reconfigurable Partial Power Converter for Power Optimizers in PV Systems *Nicolas Muller, Freddy Flores-Bahamonde, Daniel Pesantez, Hugues Renaudineau, Diana Lopez, Samir Kouro*

A dual multilevel adaptive converter for microgrid applications *KAMBIZ TEHRANI, Ignace Rasoanarivo, Babak Nahid-Mobarakeh*

Current Sensorless Model Predictive Control of Matrix Converter With Zero Common-Mode Voltage *Ali Sarajian, Quanxue Guan, Patrick Wheeler, Davod Arab Khaburi, Ralph Kennel, Jose Rodriquez*

Photogeneration losses from interface trap density in Passivated Ultrathin CIGS Solar Cell *Nour El I. Boukortt, Alamera Nouran Alquennah, Amal M. AlAmri, Salvatore Patanè, Trupti Ranjan Lenka, Rabin Paul*

Studio 201

CSYS6: Control Systems (ORAL SESSION)

Lyapunov Function Construction using Constrained Least Square Optimization *Muhammad wasim, DESINENI NAIDUU*

Cybersecurity in Industrial Control Systems: An integration of information technology and operational technology *Montri Wiboonrat*

H'Model Reduction for Takagi–Sugeno Fuzzy Systems via Space Projection *Hua Zheng, Yuanyuan Zou, Shaoyuan Li*

Priority Based Ethernet Handling in Real-Time End System with Ethernet Controller Filtering *Bjarne Johansson, Alessandro Papadopoulos, Thomas Nolte, Mats Rågberger*

On the Predefined, Prescribed and Arbitrary Time Convergence *Anil Pal, Shyam Kamal, Bijnan Bandopadhyay, Leonid Fridman*

Predefined Upper Bound of Settling Time based Convergent Gradient Flow Systems *PARIJAT PRASUN, Sunidhi Pandey, Shyam Kamal, Sandip Ghosh, Devender Singh, Debdas Ghosh*

Wednesday, 19 October 2022

Studio 210

PSSG_6:Power Systems and Smart Grid ... (ORAL SESSION)

A Dynamic Frequency-and-Voltage Power Flow Simulation Tool for Hybrid AC/DC Power Systems based on Simulink *Julen Paniagua, Haitz Gezala, Eneko Unamuno, Markel Zubiaga, Jon Andoni Barrena*

Fault Behavior of Inverter-based Resources: A Comparative Study for Grid-forming and Grid-following Control Paradigms *Nathan Baeckeland, D Venkatramanan, Michael Kleemann, Sairaj Dhople*

Transient mode of parallel inverters connected to a hybrid microgrid: evaluation of dynamic performance considering a virtual impedance droop controller *wajdi Bu dahab, Kamal Al-Haddad, Mahmoud Hamouda*

Statistical Analysis of Varistor Capacitance under Slow-Front Overvoltages *Lutendo Muremi, Pitshou Bokoro, Wesley Doorsamy*

An Assessment of Failure Rate of Pole-Mounted Transformers Using Probabilistic Risk Evaluation of Lightning Arresters *Ntaoleng Koalane, Pitshou Bokoro, Lutendo Muremi*

Studio 316

SS10:Advanced Propulsion and Charging Technologies for Electrified Transportation Tools (ORAL SESSION)

Robustness Improvement for Deadbeat-Direct Torque and Flux Control of PMSM Using Active Disturbance Rejection Control *Chenhao Zhao, Huanzhi Wang, Yuefei Zuo, Christopher H. T. Lee*

Investigation of the Influence of Full-Pitch and Short-Pitch Windings on Torque and Power Factor of Permanent-Magnet Vernier Machines *Libing Cao, Yuefei Zuo, Shuangchun XIE, Chi Cuong Hoang, Boon Siew Han, Christopher H. T. Lee*

High-order NESO Based Enhanced ADRC for PMSM Drives Considering Uncertainty and Measurement Noise Suppression *Qiankang Hou, Yuefei Zuo, Huanzhi Wang, Youyi Wang, Christopher H. T. Lee, Shihong Ding*

Power Dense High-Speed Motor-Generator System for Powering Futuristic Unmanned Aircraft System (UAS) *Rahman Syed, Shima Hasanpour, Irfan Khan, Hamid Toliyat*

On the Feasibility of SiC-based Multiphase Traction Inverters for EV Applications: A Case Study *Wesam Taha, Anandajith Jinesh, Ali Emadi*

Copper Hall

Young Professionals

Studio 211 & 212

PEEC_6a:Power Electronics & Energy Conversion (ORAL SESSION)

Two Variations of Five-Level Hybrid-Clamped Converters and Their Voltage Balancing Control Using Three Degrees of Freedom *Wei Xu, Jun Wang, Xibo Yuan, Wenzhi Zhou*

Switching Permutations and State-Space Modeling of the Dual Active Half Bridge Converter *Youssef Fahmy, Matthias Preindl*

Hardware-In-the-Loop Simulation of a High Frequency Interleaved Converter based on a Low-Cost FPGA Platform *Téo Robert, Romain Monthéard, Valentin Combet, Mathieu Gavelle*

Wednesday, 19 October 2022

Control of Cascaded H-bridge Converters for Power Line Communication *Ioannis Mandourarakis, Eftichios Koutroulis, George Karystinos*

An Integrated Testbed with Single DC Source for Delivering Symmetrical Square-Wave Excitation Voltage in the Triple Pulse Test *William Black, Jun Wang, Xibo Yuan*

Electromagnetic Compatibility Study of a GaN-based converter for fuel cell electric vehicle *Elissa Cresenta ANAK JUSTIN, Béatrice BOURIOT, Frédéric GUSTIN, Arnaud Gaillard, Daniel HISSEL*

Studio 216

INTEROP Demos

Hall 300

EMD_6:Electrical Machines and Drives (ORAL SESSION)

Hysteresis Synchronous Optimal PWM with Continuous Switching Angles for PMSMs *Battur Batkhishig, Dianxun Xiao, Aathira Karuvaril Vijayan, Alan Dorneles Callegaro, Rohit Baranwal, Ali Emadi*

Drive Cycle Modeling of a Hybrid Bus with Fuel Cell *Martin Novak, Jan Gruber*

A New ;ä Dis Based High-Frequency Signal Injection Model for Low-Speed Sensorless IPMSM Drives *Cesar José Volpato Filho, Rodrigo Padilha Vieira, Filipe Pinarello Scalcon, Babak Nahid*

Dividing Repulsion Permanent Magnets for Enhancing Suspension Force Characteristics in a 1-axis Active Control Type Magnetic Levitation Pump *KOKI TERADA, Masatsugu Takemoto, Ren Tsunata, Jun Imai*

A PWM Fixed-Gain Super-Twisting Sliding Mode Current Controller for Switched Reluctance Motors *Filipe Pinarello Scalcon, Gaoliang Fang, Cesar José Volpato Filho, Hilton Abílio Gründling, Rodrigo Padilha Vieira, Babak Nahid-Mobarakeh*

One Active State Excitation for Saliency-based Encoderless Control of Dual Motors Supplied by a Single Inverter *Eduardo Rodriguez Montero, Markus Vogelsberger, Thomas Wolbank*

Studio 314

SS25_2: Advanced Multilevel Converters with DC Capacitors: Topology, Modulation, Voltage Balancing, and Control Strategies (ORAL SESSION)

A New Five-Level Grid-Connected PV Inverter Topology Controlled by Model Predictive *Mohammad Ali Hosseinzadeh, Maryam Sarebanzadeh, Cristian Garcia, Ebrahim Babaei, Alireza Jolfaei, Jose Rodriguez, Ralph Kennel*

A New Multisource Inverter Topology for Electrical Vehicle Applications Controlled by Model Predictive *Mohammad Ali Hosseinzadeh, Maryam Sarebanzade, Cristian Garcia, Ebrahim Babaei, Alireza Jolfaei, Jose Rodriguez, Ralph Kennel*

Modular Multilevel Converters—Part II: Control Based on Decoupled Equivalent Circuit Model *Yi-Hsun Hsieh, Fred C. Lee*

Modular Multilevel Converters—Part I: Modeling Based on State-Plane Analysis *Yi-Hsun Hsieh, Fred C. Lee*

Hybrid Energy Storage System based on Modular Multilevel Series Parallel Converter *Ricardo Lizana, Sebastian Rivera, Matias Correa*

Wednesday, 19 October 2022

Low-Capacitance Modular Multilevel Converters Under Average Capacitor Voltage Reduction Control *Qiang Yu, Fujin Deng, Yi Tang*

Studio 206

SIPCI_2:Signal and Image Processing and Computational Intelligence (ORAL SESSION)

A non-invasive learning-based method for pipeline overhaul on fertilizer production plants *Jovania Menezes Dias, Paulo Jefferson Dias de Oliveira Evald, Rafael Tavares Guthes, Paulo Lilles Jorge Drews Junior, Silvia Silva da Costa Botelho*

A neural network for segmentation of fertilizer grain with multiple sizes and without background *Nelson de de Traversi, Silvia Silva da Costa Botelho, Paulo Jefferson Dias de Oliveira Evald, Douglas Alves Goulart, Paulo Lilles Jorge Drews Junior*

Fast and Parallel Semblance Algorithm for Detecting Faults in Large Seismic Volumes *Ratul Kishore Saha, Tiash Ghosh, Sanjai Kumar Singh, Mamata Jenamani, Aurobinda Routray*

Enhancing Object Localization Accuracy by using Multiple Camera Viewpoints for Disassembly Systems *Muhammad Talha Bilal, Ilya Tyapin, Martin Marie Hubert Choux*

Identification of Thin Layer via Source Wave-field Dictionary Learning *Supriyo Chakraborty, Aurobinda Routray*

Real-time pothole detection system on vehicle using improved YOLOv5 in Malaysia *Yang Her Au, Weng Kean Yew, Jia yew Pang, Melissa Chong Jia Ying*

Studio 214

INTEROP Presentations/WG Meeting

11:00-12:45

Studio 202

MCRM6: Motion Control, Robotics and Mechatronics (ORAL SESSION)

Control of single-stroke movement of a drum-playing robot by reinforcement learning using a realistic artificial muscle-driven robot *Manabu Okui, Shiori Nakamura, Seigo Kimura, Ryuji Suzuki, Rie Nishihama, Taro Nakamura*

Motor-Side Angle Estimation based on Extended Kalman Filter for Two-Mass System with Lode-Side Encoder *Yoshiyuki Hatta, Kazuaki Ito*

Iterative Learning-based Trajectory Generation of Robot Manipulator to Reproduce Force Response of Teaching Device *Asato Washizu, Yoshiyuki Hatta, Kazuaki Ito, Junya Sato, Takayoshi Yamada*

Extended-State-Observer-Based Sliding Mode Control for a Compliant Grinding Device With Unknown Backlash-Like Hysteresis *Haoqi Tang, Zhuoqing Liu, Qingxiang Wu, Lei Sun, Ning Sun*

HIGHER ORDER INTEGRAL SLIDING MODE CONTROLLER FOR A ROBOTIC MANIPULATOR *ASWATHI RAJEEVAN, Lal Priya P S*

Energy Based Modeling and Power Consumption of Unconventional Quadrotor *Amina Belmouhoub, Yasser Bouzid, Slimane Medjmadj, Saddam Hocine Derrouaoui*

RFID reader multidirecional system *Sérgio Pereira, Tiago Barros, Demétrio Matos, Miguel Terroso, João Machado, João Martins, Pedro Morais, João Vilaça*

11:00-13:00

Studio 204

Wednesday, 19 October 2022

SS13_1:Advanced Design and Control of Modular Active Front-End Converters ... (ORAL SESSION)

An Interoperable EMS for the Provision of Grid Services with Hybrid Energy Storage Systems *Eneko Unamuno, Hakan Polat, David Cabezuelo, Josu Galarza, Adolfo Anta, Etienne Toutain, Thomas Geury, Omar Hegazy*

Effects of modularity on the performance and reliability of SiC MOSFET-based active front-end rectifiers in EV charging application *Assel Zhaksylyk, Mohammed Mahedi Hasan, Sajib Chakraborty, Thomas Geury, Omar Hegazy*

Active Thermal Control of a SiC-based AC-DC Converter Using Dynamic Gate-drive for Lifetime Improvement *Farzad Hosseinabadi, Hakan Polat, Gamze Egin Martin, Sachin Kumar Bhoi, Sajib Chakraborty, Thomas Geury, Mohamed El Baghdadi, Omar Hegazy*

Mutilevel Bipolar Back-to-Back HVDC Transmission System Based on the Dual Inverter Converter Structure with Model Predictive Control *Joaquim Monteiro, Vitor Pires, J. Fernando Silva, Sonia Pinto*

Non-linear Controllers for Power Quality Improvement using Solid State Transformers in smart grids *Guilherme Paraiso, Sonia Pinto, Shahram Javadi, Fernardo Silva*

Multi-Objective Optimization of Bi-directional On-Board Chargers Based on 650V GaN Power Transistors *olcay bay, Farzad Hosseinabadi, sajib chakraborty, mohamed el baghdadi, Omar Hegazy*

Comparative Performance Assessment of Predictive Torque Control Strategy for Motor Drive Applications *Shahid Jaman, Assel Zhaksylyk, Sajib Chakraborty, Dai-Duong Tran, Mohamed-El Baghdadi, Thomas Geury, Omar Hegazy*

Studio 311

NTET_2:New Technologies for Electric Transportation (ORAL SESSION)

A Quadrant Approach of Camera Calibration Method for Depth Estimation Using a Stereo Vision System *Oscar Real-Moreno, Julio Rodriguez, Oleg Sergiyenko, Wendy Flores-Fuentes, Moises J. Castro-Toscano, Jesus Miranda-Vega, Paolo Mercorelli, Jorge Alejandro Valdez-Rodríguez, Gabriel Trujillo-Hernández, Jonathan J. Sanchez-Castro*

Guided Visual Attention Model Based on Interactions Between Top-down and Bottom-up Prediction for Robot Pose Prediction *Hyogo Hiruma, Hiroki Mori, Hiroshi Ito, Tetsuya Ogata*

A Hardware Architecture of Feature Extraction for Real-Time Visual SLAM *Jialin Li, Liangji Zhang, Xuewei Shen, Yifan Gong, Ying Lei, Yang Chen, Li Geng*

Analysis of the construction of an autonomous robot to improve its energy efficiency when traveling through irregular terrain *Mauricio A. Rojas-Casas, Jesus O. Santos-Sanchez, Oleg Sergiyenko, Julio C. Rodriguez-Quiñonez, Wendy Flores-Fuentes, Cesar Sepulveda-Valdez, Ruben Alaniz-Plata, Vera Tyrsa, Paolo Mercorelli*

An Image-Based Path Planning Algorithm Using a UAV Equipped with Stereo Vision *Selim Iz, Mustafa Unel*

Distortion Correction using Virtual PCG Pattern for Precise Stereo-based Large-scale 3D Measurement *Jeongmin Kim, Jaeduck Lee, Zoohwan Hah, Yong-Hwa Park*

12:30-14:30

GRAND HALL

Lunch

Wednesday, 19 October 2022

13:00-14:30	*The Arc* **(FNAC) Fellow Nomination Advisory Committee**
	Copper Hall **Industry Forum**
14:30-16:00	*Studio 204* **SS28_1: Hybrid Strategies for Smart Energy Management and Storage (ORAL SESSION)** **DC Link Voltage Regulation of an Electric Vehicle Charger with Pulse Current Charging** *Ritesh Keshri, Anadi Deshkar, Hiralal Murlidhar Suryawanshi, Padmanabham Jayan, Giuseppe Buja* **Exploring various Topology using DC-DC Converter in Hybrid Energy Storage System for Electric Vehicles** *Vima Mali, Brijesh Tripathi, Kundan Kumar, Sanjeet Dwivedi, Ranjan Behera* **Design of a Single Current Sensor based BLDC Motor Controller for Solar-Mounted E-Rickshaw** *Olive Ray, Raushan Kumar* **A Full Range Soft-Switching Operated Modified DC-DC Converter for EV Applications with Low Voltage Spikes** *Manaswi Srivastava, Tanu Wadhera, Arun Kumar Verma, G K NAVEEN KUMAR* **A Novel Buck-Boost Derived PFC Converter for EV Charging** *G K NAVEEN KUMAR, Kirti Mathuria, Arun Kumar Verma* **Modified Single Phase Shift Control of DAB Converter for Fast Dynamic Response Under Various Disturbances** *Piyali Pal, Ranjan Kumar Behera*
	Studio 312 **INDI_3: Industrial Informatics-Cloudcomputing, Big Data, AI, Informatics and Software Engineering (ORAL SESSION)** **Low Computational Vehicle Re-Identification for Unlabeled Drone Flight Images** *Youlkyeong Lee, Qing Tang, Choi Jehwan, Kanghyun Jo* **An automated demand-supply matching (DSM) ranking model for the circular economy** *Edgar Fernandez, Kåre Synnes, Ulf Bodin* **Learning-on-learning approach for modeling** *Maide Bucolo, Arturo Buscarino, Luigi Fortuna, Gabriele Puglisi* **CLARA: Transpiler for Cloud built Machine Learning Models into Resource-Scarce Embedded Systems** *Sérgio Branco, Jorge Cabral, Carlos Ferreira, João Carvalho, Bruno Gaspar* **A transformation framework for semantic interoperability in Industry 4.0** *Erdem Tepe, Axel Busboom, Michael Müller*
	Studio 213 & 215 **PEEC_7b:Power Electronics & Energy Conversion (ORAL SESSION)** **Comprehensive Design and Experimental Verification of Shunt Active Power Filter** *Hikmat Basnet, Mohammad Pichan, Hossien Hafezi, Tomi Roinila* **Impacts of Grid Impedance on Power Quality of Converters in Distribution Networks** *Amir Taghvaie Gelehkolaee, Firuz Zare, Rahul Sharma, Dinesh Kumar* **A Comparative Study of Loss Measurement Techniques for SiC**

Wednesday, 19 October 2022

MOSFET Based PE Converters *Debi Prasad Nayak, Ravi Kumar Yakala, Sumit Pramanick*

New approach for comparing Modular Multilevel Converter submodule losses considering IGBT and SiC MOSFET devices *Pablo Guicharrousse, Md. Rishad Ahmed, Pat Wheeler, Pericle Zanchetta*

Comparison of Si SJMOS and SiC MOSFET for Single Phase PFC Application *Manish Mandal, Shamibrota Kishore Roy, Kaushik Basu*

Studio 201

CSYS7: Control Systems (ORAL SESSION)

Affine Formation Control of Multiple Quadcopters *Zipeng Huang, Robert Bauer, Yajun Pan*

A Passivity based Approach to Synchronize Multi-agent Systems in Predefined Time *Eram Taslima, Bhawana Singh, Shyam Kamal, Thach Ngoc Dinh, R.K. Saket, Vinay Pandey*

Non-Singular and Continuous Back-Stepping Predefined-Time Attitude Tracking Control for Rigid Spacecraft with Predefined Bound *Xiaolun Yang, Yvlong Yang, Dong Ye, Zhaowei Sun, Yan Xiao*

Model Predictive Control with Model Error Compensation by Koopman Approach *Masaki Kanai, Masaki Yamakita*

Fractional Order Control of a Two Tank System with Iso-damping Robustness to Large Flow Regime Changes *Saddam GHARAB, Vicente Feliu Batlle, Robin De Keyser, Clara Mihaela Ionescu*

Neural Network Based Adaptive Robust Control of a Single-Axis Hydraulic Shaking Table *Jiabao Wen, Chengcheng Zhao, Zhiguo Shi*

Studio 210

PSSG_7:Power Systems and Smart Grid ... (ORAL SESSION)

Studio 316

SS39: Industrial 5G/WiFi Technology and Standards for the Harmonization of 5G/WiFi and IIoT (ORAL SESSION)

MLR: An Efficient Denoising Model for Highly Corrupted Images *Zhigao Zheng, Shihong Yao, Tao Wang, Yi Liu, Kim Fung Tsang*

Towards Building a Secure NB-IoT Environment on 5G Networks: A User and Device Access Control System Review *Motsamai Mlongeni, Adnan Abu-Mahfouz, Gerhard Hancke*

Broadband Over-the-Air Computation for Federated Learning in Industrial IoT *Deyou Zhang, Ming Xiao, Zhibo Pang, Lihui Wang*

Enhanced Resource Allocation Scheme for the LoRaWAN Harmonization *Zhifu ZHANG, Yang Wei, Hao Wang, Kim Fung Tsang*

Hardware-in-the-Loop Simulation for Evaluating Communication Impacts on the Wireless-Network-Controlled Robots *Honghao Lv, Zhibo Pang, Geng Yang*

AI for Energy: A Blockchain-based Trading Market *Ameni Boumaiza*

Studio 211 & 212

PEEC_7a:Power Electronics & Energy Conversion (ORAL SESSION)

A non-invasive Fault Location Method for Modular Multilevel Converters under Light Load Conditions *Yaqian Zhang, Yi Zhang, Frede*

Wednesday, 19 October 2022

Blaabjerg

Inspection of the Loss Reduction Effect of Three-Phase Inverter by Using a New Single-Phase PWM Control Method *Utena Yasuda, Masakazu Michihira*

Performance Evaluation of an Si+SiC based Hybrid VSI using a Modified Space Vector Switching Pattern in a Grid Connected Inverter Application *Raghava Ram Bharadwaj Vemparala, Jose Titus*

A New Topology of Symmetric and Asymmetric Fault Tolerant Multilevel Converter With Model Predictive Nearest Level Control Method *Pouya Zolfi, Armin Ebrahimian, Seyed Iman Hosseini Sabzevari, Nathan Weise, Ayman EL-Refaie*

Performance Analysis of Three-Phase Synchronization Algorithms Under Voltage Sags *David Rincon, Zhixue ZHENG, Juan M. Rey, Maria Alejandra Mantilla, Wilmar Sotelo*

A Method Monitoring Healthy State of Bond Wires in IGBT Based on dVCE/diC *Shuaihu Liu, Chunming Tu, Liu Long, Haoling Xu, Biao Xiao, Zixian Zhu*

Studio 216

INTEROP Demos

Hall 300

EMD_7:Electrical Machines and Drives (ORAL SESSION)

Examination of the Characteristics of a Hybrid Excitation Motor with Field Winding on a Rotor for Electric Vehicle and Hybrid Vehicle Traction *Ryusyo Nakazawa, Masatsugu Takemoto, Satoshi Ogasawara, Ren Tsunata, Koji Orikawa*

A Carrier-comparison-based Implementation Strategy of A 24-sector-based SVPWM Technique in Overmodulation Region *Sayan Paul, Kaushik Basu*

Output Voltage Overshoot Suppression Control for Multilevel Inverter Architectures *Fabio Bernardi, Filippo Savi, Emilio Lorenzani, Stefano Nuzzo, DAVIDE BARATER*

Modelling and Fault-Tolerant Control of Triple Three-Phase PMSM under Open-Phase Fault with Minimum Stator Power Losses *Simone Tedeschini, Carlo Cecati, Sobhan Mohamadian*

dv/dt filter design incorporating machine impedance and voltage slew rate for WBG-based electric drives *Karthik Debbadi, Yoann Pascal, Marco Liserre*

Experimental Assesment of Weighting-Factorless Predictive Current Control for Asymmetrical Six-Phase Induction Motor *Mohamed Mamdouh, Ayman Abdel-Khalik, Mohamed Abido*

Studio 314

SS2: Artificial Intelligence Techniques for Cyber-Physical Microgrids: Applications, Challenges and Trends (ORAL SESSION)

Operation Optimization of Integrated Energy System Based on Carbon Trading - Green Certificate Trading Mechanism *Lidong Qin, Hengrui Ma, Gangfei Wang, Bowen Ren, Shidong Wu, Cunqiang Huang, Jinliang Mi, Xue Zhao*

Consensus-based distributed control for harmonic power sharing considering nonlinear loads in islanded microgrids *Tao Yang, Yigang*

Wednesday, 19 October 2022

He, Shikuan Sun

Design and optimization of low frequency high power transducer *zhen Zeng, Ming Zhang*

Consensus on Directed Networks: Optimization for the Convergence Rate *Jing-Wen Yi, Wen-Kang Ji*

Distributed Finite-time Economical Dispatch under an AC Microgrid-Like EV Parking Architectures *Yu Chang*

Data-driven cyber-attack detection in community microgrid using ML techniques *Rohit Trivedi, Sandipan Patra, Shafi Khadem*

Studio 311

NTET_3:New Technologies for Electric Transportation (ORAL SESSION)

A Real-Time Simulation Framework to Evaluate the Scheduling of V2G in Distribution Networks *Chuan Li, Daniele Carta, Andrea Benigni*

Adaptive Power Allocation with Real-Time Monitoring and Optimization for Fuel Cell/Supercapacitor Hybrid Energy Storage Systems *Qiuyu Li, Hengzhao Yang, Qian Xun*

Regenerative Braking Efficiency Enhancement using Pole-Changing Induction Motor *Shubham Dabral, Saptarshi Basak, Chandan Chakraborty*

The Effect of Coil Geometry and Winding Method on the Electromagnetic Launcher Performance *Mohamed Abdo*

7.2 kW Multifunctional and Integrated On-board Electric Vehicle Charger *Nagamalleswararao Kamarajugadda, Baylon G Fernandes, Kishore Chatterjee*

Analysis of PM Vernier machine prototypes aimed at a direct drive operating of EV *Walid guendouz, Abdelmounaim Tounzi, TOUFIK REKIOUA*

Studio 202

MCRM7: Motion Control, Robotics and Mechatronics (ORAL SESSION)

Machine Learning-Based Agoraphilic Navigation Algorithm *Hasitha Hewawasam, Yousef Ibrahim, Gayan Kahandawa*

Design of a Torsion Torque Estimator that Includes a Backlash Model for a Load-Side Angle Control System that Consists of a Motor, a Reduction Gear, a Spring, and Motor/Load-Side Encoders *Yuto Ikeda, Daisuke Yashiro, Kazuhiro Yubai, Satoshi Komada*

A Fast Online Estimator of the Main Vibration Mode of Mechanisms from a Biased Slightly Damped Signal *Selma Ben Ftima*

Position Control of a Two-Degree-of-Freedom Parallel Robot Including Torsion Springs and Motor/Load-Side Encoders *Tsubasa Takahashi, Daisuke Yashiro, Kazuhiro Yubai, Satoshi Komada*

Human-Robot Interaction Force based Power Assistive Algorithm of Upper Limb Exoskeleton Robots Driven by a Series Elastic Actuator *Deokjin Lee, Choi KiYoung, wonbum yun, Sehoon Oh*

Obstacle Based Fast Marching Tree for Global Motion Planning *Jiale Hou, Zhitao Liu, Hongye Su*

Studio 206

SIPCI_3:Signal and Image Processing and Computational Intelligence (ORAL SESSION)

Real-time road accident reporting system with location detection

Wednesday, 19 October 2022

	using cloud-based data analytics *Melissa Jia Ying Chong, Weng Kean Yew, Jia yew Pang, Yang Her Au* **Fake News Detection using a Decentralized Deep Learning Model and Federated Learning** *Nirosh Chathuranga, Malka Halgamuge, Azeem Mohammad* **Robust Real-time Junction Detection Under Various Conditions Using Dark Channel Maps** *Hyung-Joon Jeon, Jae Jeon* **Camera-wise Training for Enhanced Omni-directional 2D Object Detection** *Hyung-Joon Jeon, Duong Nguyen-Ngoc Tran, Long Hoang Pham, Huy-Hung Nguyen, Tai Huu-Phuong Tran, Jae Jeon* **Design and Evaluation of Guided Wave Signal Generation for System-On-Chip Platform on FPGA** *Veit Wiese*
	Studio 214 **INTEROP Presentations/WG Meetings**
14:30-16:30	*Studio 313* **INFA_3: Intelligent Factory Automation (ORAL SESSION)** **A Hybrid Communication Framework Based Remote Management Architecture with OPC UA Information Model Construction** *Yuchao Chen, Jinglong Zhang, Qimin Xu, Cailian Chen* **TSN-compatible Industrial Wired/Wireless Multi-protocol Conversion Mechanism and Module** *Yingxiu Chen, Qimin Xu, Jinglong Zhang, Lei Xu, Lingzhi Li, Cailian Chen* **Operational Impacts of IEEE 802.1Qbv Scheduling on a Collaborative Robotic Scenario** *Richard Candell, Karl Montgomery, Mohamed Kashef, Susruth Sudhakaran, Justin Albrecht, Dave Cavalcanti* **Smart Adapter System Architecture for Seamless and Scalable Integration of Industry and Smart Home IoT** *Salman Javed, Cristina Paniagua, Sandeep Patil, Jan van Deventer, Jerker Delsing* **Integration of openSAFETY in OMNeT++** *Armin Hadžiaganovi rRaheeb Muzaffar, Hans-Peter Bernhard, Andreas Springer* **Optimized Implementation of Segmentation CNNs in GPU SoC Devices** *Elena Rodriguez Lois, Roberto Fernandez Molanes, Carlos Gonzalez-Val, Juan J. Rodriguez-Andina, Jose Farina* **Towards Standardized Manufacturing as a Service through Asset Administration Shell and International Data Spaces Connectors** *Felix Larrinaga, Michel A. Iñigo, Jon Legaristi, Alain Perez, Javier Cuenca, Blanca Kremer, Elena Montejo, Alain Porto* **An OSGi-based production process monitoring system for SMEs** *Andrea Bonci, Alessandro Di Biase, Maria Cristina Giannini, Marina Indri, Andrea Monteriù, Mariorosario Prist*
14:30-18:00	*The Arc* **Women in Engineering (INVITED SPEAKERS+ DEMO SESSION)** **Active lower limb exoskeleton for walking and stand up** *Dunai Larisa* **Optimum On-Line DC-Link Voltage Regulation for Efficiency Impromovement of Motor Drives** *wang Kai Wei, Yen-Shin Lai* **Wireless networked control system: A practical application** *Mercedes Chacón Vásquez* **Advances in Inkjet-Printed Antenna and Textile Antenna Design at the Antennas and Propagation Lab** *Eva Antonino-Daviu, Marta Cabedo-*

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Fabres, Miguel Ferrando-Bataller

CDA: IoT Digital and Intelligent Management Buildings for the Smart Campus project *Mª Cristina Rodríguez-Sánchez, Pablo Villoria, Javier Orellana, Julio Ramiro, Gabriel Morales, Juan A. Melero*

Electrical Machines NVH Improvements Using Harmonic Shaping Functions. A Multiphysical Approach *Maria Raluca Raia, Claudia Martis*

Application of the Double Smoothing and ARIMAX Methods for the Prediction of Polycristalline Photovoltaic Generation *Imene YAHYAOUI, Irene Mariñas-Collado, Ana Elizabeth Simón de Blas, Clara Simón de Blas, Mª Cristina Rodríguez-Sánchez*

EFFECTIVE POWER REDUCTION TECHNIQUES FOR THE FULL ADDER CIRCUIT BY USING ADIABATIC LOGIC *S Shyam Sundar, Yeshwanth Reddy Jakka, Nikitha Tandur, Sarapu Nithish Chary, Rohith Kumar Reddy*

16:00-16:30

GRAND HALL

Coffee Break

16:30-18:00

Studio 204

SS28_2: Hybrid Strategies for Smart Energy Management and Storage (ORAL SESSION)

A Non-Invasive Current Estimator for Integrated Dual-DC Boost Converter Topology *Kausik Biswas, Ritam Chakraborty, Olive Ray*

Fuzzy Rule Value Reinforcement Learning based Energy Management Strategy for Fuel Cell Hybrid Electric Vehicles *Liang GUO, Zhongliang LI, Rachid OUTBIB*

Rapid Thermal Modeling and Discharge Characterization for Accurate Lithium-ion Battery Core Temperature Estimation *Akash Samanta, Alvin Huynh, Emmanuel Rutovic, Sheldon S. Williamson*

Studio 312

INDI_4: Industrial Informatics-Cloudcomputing, Big Data, AI, Informatics and Software Engineering (ORAL SESSION)

In-Circuit Debugger for Wireless Real-Time Monitoring and Diagnosis of FPGA Applications *Veit Wiese*

Performance Analysis of KVM Hypervisor Using a Self-Driving Developer Kit *Thilo Mueller, Hadi Askaripoor, Alois Knoll*

Studio4Education: Model Driven Graphical Programming of IoT applications for Education *Sébastien Canet, Fadwa REKIK, saadia dhouib, marcello coppola*

NaviSaf: A safe navigation system for road anomalies detection *Oussama MAZARI ABDESSAMEUD, Walid CHERIFI, Mouhssin Abd El Illah KRIBI, Ahmed DAHMANI*

Studio 213 & 215

PEEC_8b:Power Electronics & Energy Conversion (ORAL SESSION)

Transmitter-Side Controlled Series-Series Compensated Wireless Charging System without Wireless Communication for Electric Vehicles *VASANTTHI MADRAS PONNUSWAMY, Sreenivasappa B Veeranna*

Modeling and Control of Bridgeless Single-Switch Non-Inverting AC-

Wednesday, 19 October 2022

DC Cuk Converter in DCM *Alberto Reatti, Humam Al-Baidhani, Marian Kazimierczuk*

Asymmetrical Modular Multilevel Converter with Sensorless Voltage Control for High-Quality Output *Stefan Goetz*

Generalized Approach for Small Signal Modelling & Loss Analysis in 3-Phase PFC Vienna Rectifiers *Lotfi Beghou*

Forecast of photovoltaic generation in isolated rural areas of Ecuador using Holt-Winters and seasonal variation methods *Mauricio Rodriguez, Hugo Cisneros, Diego Arcos-Aviles, Wilmar Martinez*

Autonomous Optimal Voltage Support Scheme of Two-Stage PV System for Grid Fault Ride Through *Juncheng Wang*

Studio 201

CSYS8: Control Systems (ORAL SESSION)

Robust Uncooperative Ground Target Surveillance using Vision-Based Sliding Mode Control of Quadrotor UAV *HAMZA BOUZERZOUR, Mohamed Guiatni*

A Comprehensive Framework to Determine Lyapunov Functions for a Set of Continuous Time Stability Problems *Benjamin Bocquillon, Philippe Feyel, Guillaume Sandou, Pedro Rodriguez-Ayerbe*

Fault Classification in Transmission Lines with Generalization Competence *Leandro Ensina, Luiz Eduardo Soares de Oliveira, Eduardo Cunha de Almeida, Signie Laureano França Santos, Leandro Silva Bernardino*

Studio 210

PSSG_8:Power Systems and Smart Grid ... (ORAL SESSION)

Studio 316

SS41: Smart Cities Interoperability and Connectivity (ORAL SESSION)

Personal Data Access and Distribution Management Extension to FIWARE *Yohei Namba, Hiroaki Nishi*

A Simple Model for Sharing Knowledge Among Heterogeneous Sensor Data *Gustavo Monte, Damian Marasco, Ruben Bufanio, Norberto Scarone, Ariel Agnello, Pablo Liscovsky*

Traffic Enforcement at Intersections Monitored by A Single Fisheye Camera Containing Noisy Detection and Tracking Data *Morteza Adl, Maryam Alizadeh, Saeid Habibi, Carlos Vidal, Ali Emadi*

An Online Unsupervised Machine Learning Approach to Detect Driving Related Events *Marianne Silva, Thommas Flores, Pedro Andrade, Jordão Silva, Ivanovitch Silva, Daniel G. Costa*

Studio 211 & 212

PEEC_8a:Power Electronics & Energy Conversion (ORAL SESSION)

Transformerless Partial Power AC-Link Converter for PV Integration to DC Microgrid *Eduardo Richard, Hugues Renaudineau, Ana M. Llor, Rodrigo A. Bugueño, Christian A. Rojas*

Transformerless HERIC Inverter with Modified Unipolar PWM to Decrease Grid-Injected Current's THD *Sobhan Mohamadian, Concettina Buccella, Carlo Cecati*

Wednesday, 19 October 2022

Comprehensive Study on Dynamic on-resistance Evaluation Circuit for Power GaN HEMTs Devices *Rustam Kumar, Suvendu Samanta, Tian-Li Wu*

Design of Digital-controlled Two-stage AC/DC Converter Based on GaN HEMT *hou yinling, Xu Junqing, Wang Shiyuan, Li Diang, Guo Yuanbo, Zhang Xiaohua*

Investigation of Thermal Deformation Characteristics in IGBT Modules Under Bonding Wire Cracking Condition *Cong Chen, Libing Bai, Jun Luo, Jiahao Wang, Quan Zhou, Jie Zhang, Lulu Tian, Wei Huang, Yuhua Cheng*

Modeling and Stability Analysis of Grid Inverters Using Double Synchronous Reference Frame Current Control *Yi Zhang, Zhixiang Zou, Jian Tang, Xingqi Liu, Ruokai Xu*

Studio 216

INTEROP Demos

Hall 300

EMD_8:Electrical Machines and Drives (ORAL SESSION)

An Experimental Investigation of Hybrid Cooling Solution for High Performance Traction Motor *Viktor Josefsson, Andreas Carlsson, Shafigh Nategh, David Ekholm*

A Novel Stator Faults Indicator in Three-Phase Induction Motors, Based on Voltage and Impedance Symmetrical Components *Khaled Laadjal, SAHRAOUI MOHAMED, Abdeldjalil Alloui, Antonio J. Marques Cardoso*

Adaptive Operating Strategy for Induction Motors Under Changing Electrical-Thermal Conditions *Marius Stender, Marius Becker, Oliver Wallscheid, Joachim Böcker*

WBG-based Drive Control Implementation and Experimental Validation *Maitane Carrasco, Amaia Lopez-de-Heredia, Irma Villar*

Unsymmetrical Pole Design vs Skewing for improving NVH Characteristics and Performance of High Speed PMSM Electric Machines *Tommaso Bertoncello, Giovanni Franceschini, Bharadwaj Raghuraman, Anton Lidbeck, Michela Diana*

An MRAS-based Sensorless Control Algorithm for Permanent Magnet Brushless AC Machines *Gabriele Pitzalis, Andrea Floris, Alessandro Serpi*

Studio 314

SS19: Edge Based Network Automation for Industrial IoT (ORAL SESSION)

logiccloud: Programmable Logic Controller (PLC) as a Smart Service from the Cloud *Reinhard Langmann, Bernhard Boehrer, Michael Boehrer, Sebastian Negomireanu*

Multi-Objective Distributed On-Demand Small Cell Resource Allocation for eHealth *Hao Ran Chi, Kim Fung Tsang, Ayman Radwan*

Experimental Evaluation of High-Precision System Clock Synchronization with BeiDou for Wide-Area Industrial Internet-of-Things *Fan Yang, Jinsong Wang, Yuemin Ding, Lantao Xing*

Blood glucose data analysis based LTSM *Junjian Liang, Bingo Ling, Yiting Wei, Weiren Zhao, Qing Liu*

Optimum Configuration of Edge Computing Protocols for Industrial Internet-of-Thing Applications *Mohammad Bakhtiari, Yang Wei, Hiroaki*

Wednesday, 19 October 2022

Nishi, Kim Fung Tsang, Nasser Aljuhaishi, Mahmoud Alahmad

Enhancement of spinal health by developing a low cost IoT-based Smart Chair System *Chi Chung Lee, Ming Long Michael Tse, Ka Fun Chan, Hiu Ting Lee, Junru Mai, Siu Man Yiu, Wai Fun Tang, Chi Ho Li, Chi Keung Yeung*

Studio 311

NTET_4:New Technologies for Electric Transportation (ORAL SESSION)

Endurance Driven Energy Management System for All-Electric Marine Autonomous Surface Vehicle *Taimur Zaman, Graeme Burt, Ali Wahoud, Gianfranco Gobbo, Garrt Millard, Stefano Malagodi, Mazheruddin Syed*

Charging Scheduling Algorithm for Wireless-Powered Communication Networks *Nga Dinh, Øystein Haugen*

Validation of Fault-Tolerant Control of Converters under Open-Switch Faults on Connected Test Benches *Urs Pecha, Kai Wolter, Moritz Wäschle, Nejila Parspour, Katharina Bause*

Modeling a Digital Twin to Predict Battery Deterioration with Lower Prediction Error in Smart Devices: From the Internet of Things Sensor Devices to Self-Driving Cars *Thushara Bandara, Malka Halgamuge*

Energy Management Systems for Electric Vehicle Charging Stations: A Review *Anindita Golder, Sheldon Williamson*

Studio 202

MCRM8: Motion Control, Robotics and Mechatronics (ORAL SESSION)

Studio 206

SIPCI_4:Signal and Image Processing and Computational Intelligence (ORAL SESSION)

Voltage Sag Classification Based on Multi-task Parallel Convolutional Neural Network *youli dong, Xiaojun Ding, Hao He, Weizhe Zhao, Jia Li*

GA-based Parameter Optimization of Image Processing for Contamination Inspection of Nonwoven Fabrics *Nobuhiko Kumazawa, Sota Miyazaki, Yoshiyuki Hatta, Junya Sato, Kazuaki Ito, Yukio Otsuka, Ryota Kitagawa, Kenji Iwata, Hidekazu Hirayu*

Temporal-spatial Feature Fusion for Few-shot Skeleton-based Action Recognition *Leiyang Xu, Qiang Wang, Xiaotian Lin, Lin Yuan, Xiang Ma*

ATGP based Change Detection in Hyperspectral Images *Parasuram Yadav Palla, Nikhil Bobate, Amba Shetty, Raghavendra B. S., Narasimhadhan A. V.*

Studio 214

INTEROP Presentations/WG Meetings

18:30-21:00

GRAND HALL

Gala Dinner + IES Award Ceremony

Thursday, 20 October 2022

08:00-09:15

Studio 204

SS15_1:New Emerging Technologies in Disturbance Estimation and Rejection (ORAL SESSION)

Thursday, 20 October 2022

The state feedback control for a class of singular Markovian jump systems subject to input saturation and time delay *Junjie Zhao, Bo Li*
Finite-Time Robust Guaranteed Cost Control for Continuous-Time Singular Systems with Nonlinear Perturbation *Xuejing Ren, Bo Li, Junjie Zhao, Songlin Wo*
Stability analysis of systems with two additive time-varying delay components via the zero-valued equations *Meng Liu, Yong HE, Lin Jiang*
Data-driven-based Control Performance Degradation Online Recovery for Voltage Source Inverter A PnP strategy *shufeng zhang, Changan Liu, Yuntao Shi, Xiang Yin*
Improving Disturbance-Rejection Performance Using Combination of Sliding-Mode Control and Equivalent-Input-Disturbance Approach *Zewen Wang, Jinhua She, Daiki Sato*

Studio 312

SS36: Power Electronics and Energy Storage Strategies for DC Microgrid

Optimal Energy Management Scheme for Wave-HESS DC Microgrid *Peiwen Tan, Lei Huang, Minshuo Chen, Yang Li, Ruiyang Ma, Jianlong Yang*
Analysis of the Bipolar Voltage Bus Balancing of a DC Microgrid with Bidirectional Converters *Mateus Pinheiro Dias, Debora Damasceno, João Inácio Yutaka Ota, Jose Antenor Pomilio*
Nonlinear model predictive control of a microgrid with a variable efficiency battery storage system *Mateja Car, Mario Vašak, Mojtaba Hajihosseini, Vinko Leši p*
A Comparative Study Based on MPPTs for Nano-Satellite Microgrid Applications under Spinning Flight Scenarios *Mohammad Yaqoob, Hussein Abubakr, Jose Matas Alcala, Abderezak Lashab, Josep M. Guerrero, Juan C. Vasquez*
Model Predictive Control of Two-Tier Converter for Maximum Power Extraction from Photovoltaic System *Mahmoud F. Elmorshedy, Badr S. Algadair, Dhafer Almakhles*

Studio 313

SS17_1: Optical Wireless Communication for Industrial Applications

Real-time hardware G.hn LiFi infrastructure with D-MIMO and WDM over POF Fronthaul *Thiago Elias Bitencourt Cunha, Carina Ribeiro Barbio Corrêa, Jean-Paul Linnartz, Eduward Tangdiongga, Frans Huijskens*
LiFi Positioning and Optimization in an Indoor Factory Environment *Ziyan Ma, Sepideh Mohammadi Kouhini, Christoph Kottke, Ronald Freund, Volker Jungnickel, Marcel Müller, Daniel Behnke*
LED Modelling for Efficient LiFi Modulator Design to Accelerate OOK *Jean-Paul Linnartz, Kumar Arulandu, Diego Vargas*
Low Power Control Access System based on VLC for Industrial Applications *Julio Rufo, Victor Guerra, Martin Luna, James Farmer, Dominic O'Brien*
Reducing Overhead for Low-Power Optical Wireless Communications *Malte Hinrichs, Benjamin Poddig, Peter Hellwig, Volker Jungnickel*

Studio 201

CSYS9-Control Systems (ORAL)

Thursday, 20 October 2022

Environmental Modeling for Motion-Copying System Using Element Description Method *Ryotaro Kobayashi, Seiichiro Katsura*

A Direct Synthesis based Sliding Mode Control of a Nonlinear Continuous Stirred Tank Reactor *Mohammad Atif Siddiqui, Mohammad Nishat Anwar, Ahmad Faiz Minai, Akhlaque Ahmad Khan, Mohammad Naseem, Abdul Jabbar*

Multi-layer Observers Design for Force Control with Robot Finger Pad by Using Element Description Method *Kosuke Egawa, Seiichiro Katsura*

Reflected Wave Control for Generating Impact Motion Using a Flexible Manipulator *Kosuke Shikata, Seiichiro Katsura*

Studio 315

SS6_1: Intelligent Sensing Applications for Human Assistive Systems (ORAL SESSION)

Load-Side Acceleration Control for Geared Motors with Unknown Backlash and Nonlinear Friction *Juan Padron, Yuki Yokokura, Kiyoshi Ohishi, Toshimasa Miyazaki, Yusuke Kawai*

Local Path Planning Based on Velocity Obstacle Considering Collision Probability and Kinematic Constraint for Mobile Robot *Yosuke Ueda, Naoki Motoi*

The Influence of Avatar Representation on Haptic Interaction in Virtual Environment *Genki Sasaki, Hiroshi Igarashi*

Validation of a Property Estimation Method Based on Sequential and Posteriori Estimation *Tomoya Kitamura, Atsumi Saito, Keisuke Yamazaki, Yuki Saito, Hiroshi Asai, Kouhei Ohnishi*

2-DOF Haptic Feedback Control Stick for Remote Rover Navigation *Tomonori Yamazaki, Sota Shimizu, Rikuta Mazaki, Hokuto Kurihara, Naoki Motoi, Roberto Oboe, Nobuyuki Hasebe, Tomoyuki Miyashita*

Studio 316

SS31_1: Future-Proof Power Electronic Systems and Control for Residential Microgrids

3L-T-type qZSI as Grid-Forming Unit in ac Microgrid *Javier Gutiérrez-Escalona, Carlos Roncero-Clemente, Oleksandr Husev, Vitor Pires, María Isabel Milanés-Montero, Eva González-Romera*

Interlink Converter for Hybrid AC to Bipolar DC Microgrid or to Two DC Microgrids *Vitor Pires, Daniel Foito, Armando Cordeiro, Carlos Roncero, Joao Martins, Armando Pires*

Use of Resonant Terms in a 2DOF Control Scheme for the Current Control of an Active Power Filter *Francisco Javier López-Alcolea, Emilio J. Molina-Martínez, Javier Vázquez, Pedro Roncero-Sánchez, Alfonso Parreño Torres, Ismael Payo*

Multi-port Smart Transformer Integration in Residential Buildings *Enrique Romero-cadaval, Fermin Mendoza-Azores, Joaquin Carbonell-Cuellar, Javier Rodriguez-Barrero*

Black Start and Fault Tolerant Operation of Isolated Matrix Converter for dc Microgrids *Pietro Emiliani, Andrii Chub, Giovanni De Carne, Dmitri Vinnikov, Andrei Blinov*

The Arc

SS20_1: Predictive Analytics Architectures and Applications for Industrial Systems

Condition Monitoring on Renewable Energy Production with

Thursday, 20 October 2022

Application to Wind Generation *Betül Sena Ça öÆBurak Ketmen, Bar _ Bulut*

IoT Architecture and Solutions for Predictive Maintenance of Mobile Machinery *Jani Hietala, Kalle Raunio, Tero Jokinen, Petri Kaarmila*

On Suitability of the Customized Measuring Device for Electric Motor *Rok Hribar, Gašper Petelin, Margarita Antoniou, Anton Biasizzo, Stanko Ciglari ÒÂegor Papa*

An AI-based Architecture Framework for Improving End-of-line Reliability Tests of Electric Motors *Mujdat Soyturk, Kutalm Co ö·VâÂnur Izmitlioglu, Borahan Tümer, Deniz Güne òÂnan Saraço öÇBaÂ Bulut, Hasan Burak Ketmen, 6ÖWF† laanedar, Ta öFVÖA–õ âÊray Ayd à*

Improved Domain Adaptation Approach for Bearing Fault Diagnosis *Sertac Kilickaya, Turker Ince, Levent Eren, Serkan Kiranyaz, Moncef Gabbouj, Ozer Can Devecioglu*

Studio 211 & 212

PEEC_9a:Power Electronics & Energy Conversion (ORAL SESSION)

Adaptive Variable Switching Frequency Control for SiC-based PMSM Drive Systems *Suleman Yunus, Wenlong Ming, Carlos E. Ugalde-Loo*

Droop Control Strategy For Input-Parallel Output-Series LCL Grid-Connected Inverter System *Peng Wang, Tianzhi Fang, Husheng Qian*

Research on Linear Active Disturbance Rejection and Super-twisting Algorithm in Vienna Rectifier *Jiawei Chen, Hongpeng Liu, Zhenlan Dou, Wei Zhang, Xianliang Tong*

Development of numerical analysis techniques for supercapacitor assisted surge absorber (SCASA) technique to validate experimental and simulated results *Savin Thusara Kokuhennadige, Nihal Kularatna, Ye Chow Kuang, Alistair steyn-ross*

High Performance Simulation Framework of Three-Phase Battery Modular Multilevel Management Converter System *Dominic Karnehm, Nina Sorokina, Sebastian Pohlmann, Martin Ackermann, Manuel Kuder, Antje Gieraths*

Studio 216

INTEROP DEMO

Hall 300

EMD_9:Electrical Machines and Drives (ORAL SESSION)

A Study on Insulation Components of High Voltage Electrical Machines Used in Electric Vehicles *Martino Bailoni, Shafigh Nategh, Benjamin Gaussens, Olga Shtyka*

A Simplified Space Vector Overmodulation Strategy for PMSM Drive System *Zisui Zhang, Babak Nahid-Mobarakeh, Ali Emadi*

Enhanced Adaptive Higher Order Sliding Mode Observer based Sensorless Control *Ying Zuo, Chunyan Lai, K. Lakshmi Varaha Iyer*

Online Interturn Short Circuits Fault Monitoring for Permanent Magnet Synchronous Machines *Ying Zuo, Ahmad Darabi, Chunyan Lai, K. Lakshmi Varaha Iyer*

Concept and Control of a 48V Integrated Multi-Three-Phase PMSM Drive using Separate H-Bridge Inverters on Concentrated Tooth-Windings *Felix Gliese, Christoph Cheshire, Tobias Röser, Ulrich Ammann*

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Studio 314

SS22_1: Recent Advances in Sliding Mode Control for AC Motor Systems

High Order Terminal Sliding-mode Control of Permanent Magnet Synchronous Motor *Cai William, Wang Jinguo, Zhou Minghao, Wu Xingguo*

A Hybrid Three-Coil IPT Topology with High Tolerance to Pad Misalignment for Battery Charging Applications *Youzheng Wang, Hongchen Liu, Qikun Zhou, Chunyang Jiang, Xinsheng Zhang, Chaochao Li*

A Novel SVPWM Control Strategy for High- Frequency Link Dual Matrix-Type Inverter *Pan Jiang, Zhe Cai, Hongchen Liu, Chaochao Li*

An Improved Model Predictive Current Control for Permanent Magnet Linear Generator of Direct-Drive Wave Energy Converters *Lai Wei, Lei Huang, Jianlong Yang, Xiaoyu Zhang, Ruiyang Ma, Yang Li*

Studio 202

SS30_1:Advances in Human-Mechatronic Systems (ORAL SESSION)

Proposal of posture guidance method using air jetting with table tennis racket type device *Rin Suzuki, Manabu Okui, Ryunosuke Sawahashi, Rie Nishihama, Taro Nakamura*

Autonomous Mobile Robot Navigation for Complicated Environments by Switching Multiple Control Policies *Kanako Amano, Yuka Kato*

Development of Semi-active Force Feedback Shoes with MR Brake Rendering a Falling Sensation and Descent Acceleration Measurement *Ryunosuke Sawahashi, Toshinari Tanaka, Taiki Masuda, Manabu Okui, Rie Nishihama, Taro Nakamura*

Prototype of an exoskeletal lower limb force-feedback device for moving extensively in VR space *Taiki Masuda, Ryunosuke Sawahashi, Jonah Komatsu, Manabu Okui, Rie Nishihama, Taro Nakamura*

Development of cart with constant steerability regardless of loading weight or position *Shunya Aoki, Sho Yokota, Akihiro Matsumoto, Daisuke Chugo, Satoshi Muramatsu, Hiroshi Hashimoto*

Studio 206

HCICT_1: Human Centric ICT (ORAL SESSION)

Detection of Respiratory Emergency Situation of Rescue Patients with Machine Learning Algorithms *Abu Shad Ahammed, Sampada Reddy Donthireddy, Roman Obermaisser*

Quasi-Resonant DC-DC Converter Single-Switch for Single-Input Bipolar-Output Applications *Cristian Díaz Martín, Eladio Durán Aranda, Salvador Pérez Litrán, Jorge Semião*

Effect of the Transimpedance Amplifier Topology on the Photoplethysmography Signal *Angel Solé Morillo, Joan Lambert Cause, Bruno Da Silva Gomes, Juan Carlos Garcia Naranjo, Johan Stiens*

Studio 214

ONLINE1: Online-Video Paper Presentations

An improved normalized PLL-based high-order SMO for Sensorless Control of PMSM *Bowen Zheng, Jiaxin Qian, Mingyu Gao, Zhiwei He, Huipin Lin*

Study of Inverter Control Strategies on the Stability of Low-Inertia

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	Microgrid Systems *Jing Wang, Govind Saraswat* **A Novel Switching Table Direct Power Control for PWM Rectifier Based on Virtual Flux** *Xuliang Yao, He Ma, Jingfang Wang* **Study of Inverter Control Strategies on the Stability of Microgrids Toward 100% Renewable Penetration** *Jing Wang* **Two Rank Sorting for Successive Cancellation List Decoding of Polar Codes** *Dafa Wen, Zhan Ming, Chenchang Gao, Zhong Tang, Lan Xiao, Jian Li*
08:00-09:30	*Studio 311* **ICTAI_3:ICT and AI enabling smart cities, buildings, agriculture, energy efficiency and sustainability** **Building Occupancy Detection using Machine Learning-based Approaches: Evaluation and Comparison** *Chinmayi Kanthila, Abhinandana Boodi, Karim Beddiar, Yassine Amirat, Mohamed Benbouzid* **Feasibility of Conversion from Diesel Engine to Natural Gas Power Plants** *Moses Kabeyi* **Explainable Artificial Intelligence for Evaluation of Liquor** *[illegible]* **Greenhouse Heat Map Generation with Deep Neural Network Using Limited Number of Temperature Sensors** *Ayu Sonoda, Yuki Takayama, Ayaki Sugawara, Hiroaki Nishi* **Anomaly Detection in Critical-Infrastructures using Autoencoders: A Survey** *Harindra Sandun Mavikumbure, Chathurika S. Wickramasinghe, Daniel L. Marino, Milos Manic* **Hybrid Indoor Localization System Combining Multilateration and Fingerprinting** *Leonardo Sestrem de Oliveira, Ohara Kerusauskas Rayel, Paulo Leitao*
08:00-18:00	*Studio 210* **NOT AVAILABLE**
	Studio 214&216 **NOT AVAILABLE**
	Studio 310 (Circle) **BRIEFING ROOM - ORGANIZERS & SECRETARIAT**
09:30-10:30	*Copper Hall* **Keynote**
10:30-11:00	*GRAND HALL* **Coffee Break**
11:00-12:30	*Studio 204* **SS15_2:New Emerging Technologies in Disturbance Estimation and Rejection (ORAL SESSION)** **an Interval Multiple Models Approach for Uncertain Nonlinear Systems Estimation** *Souad BEZZAOUCHA REBAI* **Position Tracking and Disturbance Rejection for Motion Control System Using Equivalent Input Disturbance Approach and Feedforward Control** *Youwu Du, Xiaoxin Han, Erlin Zhu, Naibao He, Mingxing Fang, Jinhua She*

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Improving habitability for wind-induced structural vibration by equivalent-input-disturbance approach *Kou Miyamoto, Naoto Yoshida, Yuta Tomiyoshi, Jinhua She, Satoshi Nakano*

Stable Control and Disturbance Rejection Strategy for Planar 2R Underactuated Robot via Intelligent Algorithm *Zixin Huang, Xiao Wan, Yaosheng Zhou, Lejun Wang*

Adaptive Update Tracking Algorithm for Fast Motion Object *Haozheng Qian, Mingxing Fang, Jinhua She, Lijun Zhao, Youwu Du, Xiao Liang*

Optimal Controllers Design for Microgrid Inverter Based on Disturbance Rejection Approach *Jiajun Fu, Caixue Chen, Yonghong Lan*

Studio 312

SS36: Power Electronics and Energy Storage Strategies for DC Microgrid

AC Grid-interface Bidirectional Buck-Type Converters for DC microgrids: Comparative Study *Ahmed Yahia Farag Abdelfattah, Paolo Mattavelli, Davide Biadene, Tarek Younis*

Dual-active-bridge converter modeling for real-time signal processor implementation *Jiaqin SUN, Giampaolo Buticchi, Jing Li, He Zhang, Sandro Guenter, Jiajun Yang*

Cases of Soft Switching in a Series Resonant Balancing Converter for Bipolar DC Grids *Sachin Yadav, Zian Qin, Pavol Bauer*

Studio 313

SS17_2: Optical Wireless Communication for Industrial Applications

The IEEE 802.15.13 Standard for Optical Wireless Communications in Industry 4.0 *Kai Lennert Bober, Eric Ackermann, Sang-Kyu Lim, Tuncer Baykas, Ronald Freund, Volker Jungnickel*

Software-defined LiFi - RF network for Industry 4.0 applications *Anagnostis Paraskevopoulos, michael schlosser, warunee pluemakarapunya, dominic schulz, peter hellwig, julian hohmann, mathias bohge, thomas menzel, hagen woesner, Volker Jungnickel*

Techno-Economics of LiFi compared to Wi-Fi in Industrial IoT applications *Carmen Mas Machuca, Madeleine Kaufmann, Maximilian Riegel, Dominic Schulz, Pieter Stobbelaar, Marcel Müller, Daniel Bahnke*

Orthogonal Time Frequency Space Modulation in Wideband Doppler Channel *Gao ziqiang, Xiong Deng, xihua zou, Hongyu Meng, peixuan li, chen chen, Thiago Elias Bitencourt Cunha, lianshan yan*

Studio 316

SS31_2: Future-Proof Power Electronic Systems and Control for Residential Microgrids

Analysis of Holdup Time for DC Grid-Forming Isolated Active Front-End Converters *Edivan Carvalho, Andrei Blinov, Andrii Chub, Dmitri Vinnikov*

Digital Control of PFC Rectifier with Combined Feedforward and PI Regulator *Ievgen Verbytskyi, Pietro Emiliani, Andrei Blinov*

A Three-Phase On-Board Integrated Battery Charger for EVs using a Driver Based on Triple Inverters *Armando Cordeiro, Vitor Pires, Daniel Foito, José Fernando Silva*

Bidirectional DC-DC Converter for Battery Storage Systems with Support for Mitigation of Voltage Imbalance in Bipolar DC Microgrids *Vitor Pires, Daniel Foito, Armando Cordeiro, Carlos*

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Roncero_Clemente, José Silva

The Arc

SS20_2: Predictive Analytics Architectures and Applications for Industrial Systems

Improved Detection of Broken Rotor Bars by 1-D Self-ONNs *Levent Eren, Turker Ince, Murat Askar, Ozer Devecioglu*

Investigation of Potting Compounds on Thermal-Fatigue properties of Solder Interconnects *Leiming Du, Xiujuan Zhao, Piet Watte, Rene Poelma, Guoqi Zhang, Willem Driel*

An IoT Cloud and Big Data Architecture for the Maintenance of Home Appliances *Luis Ferreira, Tiago Fonseca, Orlando Sousa*

Data-Centric Model Development to Improve the CNN Classification of Defect Density SEM Images *Corinna Kofler, Claudia Anna Dohr, Judith Dohr, Anja Zernig*

Fault Detection on Sensors of the Quadrotor System Using Bayesian Network and Two Stage Kalman Filter *Tolga Bodrumlu, Fikret Çal _kan*

Studio 211 & 212

PEEC_10a:Power Electronics & Energy Conversion (ORAL SESSION)

Single-Current Feedback Control Strategy for Input-Parallel Output-Series LCL Grid-Connected Inverter System *Peng Wang, Tianzhi Fang, Husheng Qian*

Single Core and Modular Transformer Solutions: a Trade-Off Analysis of Volume, Losses and Temperature Rise *Asier Arruti, Jon Anzola, Iosu Aizpuru, Mikel Mazuela*

Power Inter Cell Transformer Modelling for ASV Application *Guillaume Pellecuer, Thierry MARTIRÉ, Loïc DARIDON*

Resonant current estimation and phase-locked loop control system for inductorless step-up single piezo element-based (SUPRC) DC-DC converter *Jack Forrester, Martin Foster, Jonathan Davidson*

Novel Carrier-reassignment PWM Techniques for Sub-Module Power Balancing in CHB Converters *Abhijit Kshirsagar, Little Pradhan, Renuka Varma, D Venkatramanan, Prince Kumar, Ned Mohan*

Application of DC/DC partial power conversion to concentrator photovoltaics *Philippe Camail, Christian Martin, Bruno ALLARD, Maxime Darnon, Charles Joubert, João Trovão*

Studio 216

INTEROP DEMO

Hall 300

EMD_10:Electrical Machines and Drives (ORAL SESSION)

Design and Fault Analysis of Discrete Halbach Magnetic Screws *Doha Mustafa, Hussain Hussain, Hamid Toliyat*

Design of Electromagnet Rotor based Switched Reluctance Machine (ESRM) for Electric Vehicle Applications *Syam Sundar Satheesan Nair, Prathap Reddy B, Subhabrata Basak, Umanand L, Gopakumar K*

Thermal Models of Various PMSM Rotor Topologies *Martin Skalicky, Roman Pechanek, Lukas Sobotka, Lukas Veg*

Trajectory Linearisation-based Offset-free MPC for Synchronous

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Electric Motor Drives with Nonlinear Magnetic Characteristic *Ismaele Diego De Martin, Fabio Tinazzi, Mauro Zigliotto*

System Parameter-free Continuous Control-set Predictive Current Control of Synchronous Motors *Ismaele Diego De Martin, Fabio Tinazzi, Mauro Zigliotto, Christoph Hackl*

Studio 314

SS22_2: Recent Advances in Sliding Mode Control for AC Motor Systems

Virtual synchronous control based on DC-link dynamics for PV inverter in weak gird *xuemei zheng*

Three-level microgrid inverter optimization algorithm based on model prediction control *xuemei zheng*

State of Charge Estimation for Electric Vehicle Battery Using Fuzzy Sliding Mode Observer *Yong Feng, Yingjie Shi, Chen Xue, Fengling Han*

Short-term probability forecasting of wind power based on D-Vine quantile regression *Wei Zhang, Jiayu Wang, Senwen Li, Tengzhou Wang, Sipeng Hao*

Studio 202

SS30_2:Advances in Human-Mechatronic Systems (ORAL SESSION)

Analysis of Crowd Simulation for Autonomous Mobile Robot Navigation *Midori Tanaka, Yuka Kato*

Mobile robot's navigation based on road segmentation and route evaluation *Shinji Tanimoto, Satoshi Muramatsu, Katsuhiko Inagaki, Daisuke Chugo, Sho Yokota, Hiroshi Hashimoto*

Studio 206

HCICT_2: Human Centric ICT (ORAL SESSION)

The human role in Human-centric Industry *Sepideh Kalateh, Luis A. Estrada-Jimenez, Terrin Pulikottil, Sanaz Nikghadam Hojjati, Jose Barata*

Power Saving Techniques for Wearable Devices in Medical Applications *Workineh Gudisa, Bruno da Silva, Worku Jimma, Johan Stiens*

Optimum Design of a Wire-Driven Redundant Spherical Parallel Manipulator for Foot Drop Rehabilitation System *Ahmed Gamal, Abdelfatah Mohamed, Hiroyasu Iwata, Samy Assal*

Modeling of control delay in human-robot collaboration *Adriano Scibilia, Nicola Pedrocchi, Luigi Fortuna*

Comparison of Filtering Methods in Measuring Human ZMP Using Kinect Sensor *Toshiyuki Nagasawa, Yuta Tawaki, Toshiyuki Murakami*

An Integrated Force Feedback System for a Prosthetic Hand *Christian von Brockdorff, Yesenia Aquilina, Rachel Cauchi, Michael Saliba, Kenneth Camilleri, Jesmond Attard*

Studio 214

ONLINE2: Online-Video Paper Presentations

Are Realistic Training Data Necessary for Depth-from-Defocus Networks? *ZHUOFENG WU, Yusuke Monno, Masatoshi Okutomi*

Optimal Configuration of Wind/Solar/Diesel /Storage Microgrid Capacity Based on PSO-GWO Algorithm *Qiang Zhang, Xiuxian Xu, Tianzheng Wang, Haotian Sun, Chen Yang, Hailang Pan*

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A Hybrid Control Strategy for Sensorless PMSM with a Super-Twisting Sliding Mode Observer and a Two-stage Filter Based on Fuzzy Rules *kaiqi zhao, Yang Liu*

Integration of a Next Generation SiC Switch-based Voltage Multiplier in Multi-stage Converters for Increased Voltage Step-up Capability *Nino Ramos*

Accurate Power Loop Design of a Single-Phase Grid-Forming Power Converter Via Linearization of SOGI-Based Power Calculation *Jinyi Su, Jia Liu, Jinjun Liu*

Vision-based Inspection of Flare Stacks Operation Using a Visual Servoing Controlled Autonomous Unmanned Aerial Vehicle (UAV) *Muaz Al Radi, Hamad Karki, Naoufel Werghi, Sajid Javed, Jorge Dias*

11:00-13:00

Studio 315

SS6_2: Intelligent Sensing Applications for Human Assistive Systems (ORAL SESSION)

Gaze Preference Decision Making Predictor Using RNN Classifier *Shumpei Sato, Sota Shimizu, Koh Hamada*

Sidewinder: Snake Robot's Stereo Vision System for Rescue in Collapsed Debris at Disaster Sites *Rikuto Nakamoto, Sota Shimizu, Tomoki Takamura, Alessandro Calfi, Fulvio Mastrogiovanni*

Tornado: 2-DOF Power Assist Suit to Assist Twisting Motion of Lower Back *Motoki Hirose, Sota Shimizu, Rikuta Mazaki*

Effects of Leader–Follower Information Asymmetry on Brain Activity During Human–Human Cooperative Transport Work *shunsuke satake, Toru Tsumugiwa, Ryuichi Yokogawa*

GAN-based Radar Micro-Doppler Augmentation for High Accuracy Fall Detection System *RITESH CHANDRA TEWARI, Patitapaban Palo, Jhareswar Maiti, Aurobinda Routray*

Amyloid-;Clearance and its Evaluation by Auditory Stimulation in a Mouse Model of Alzheimer's Disease *Maika Ogawa, Yasue Mitsukura, Yoichiro Abe, Masato Yasui*

Evaluation of Mathematical Models for Postural Sway Based on Reproducibility of SDA Parameters *Katsuto Sakae, Yuta Tawaki, Toshiyuki Murakami*

Home hospitalization system for the remotly and continuous monitoring of chronic patients *Javier Aguilar Torán, Jaime Punter-Villagrasa, Xavier Muñoz, Pere Miribel-Catala*

Studio 311

ICTAI_1:ICT and AI enabling smart cities, buildings, agriculture, energy efficiency and sustainability

Effective Information Selection Method on Spatiotemporal Information Infrastructure with Photogrammetry *Ayaki Sugawara, Ayu Sonoda, Hiroaki Nishi*

Emergency situations in public buildings: How to know where persons are to be rescued *Jan Haase*

Spatio-temporal Tensor Multi-Task Learning for Precision Fertilisation with Real-world Agricultural Data *Yu Zhang, Tong Liu, Yang Li, Ruijing Wang, He Huang, Po Yang*

Occupancy Detection for General Households by Bidirectional LSTM with Attention *Hisashi Oshima, Tsuyoshi Ishizone, Kazuyuki Nakamura, Tomoyuki Higuchi*

Wildfire Spread Prediction Model Calibration Using Metaheuristic

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	Algorithms *Jorge Pereira, Jérôme Mendes, Jorge S. S. Júnior, Carlos Viegas, João Ruivo Paulo* **Frequency Evaluation of the Xilinx DPU Towards Energy Efficiency** *Jurgen Vandendriessche, Bruno da Silva, Abdellah Touhafi* **A Building Block for Internet of Things Prototyping** *Roald Van Glabbeek, Eden Hunde Teshome, Diana Deac, Towfik Jemal Ali, Jacques Thiberghien, Kris Steenhaut* **An MQTT Gateway for HIL Testing of Energy Systems** *Diran Liu, Daniele Carta, Andre Xhonneux, Dirk Müller, Andrea Benigni*
12:30-14:30	*GRAND HALL* **Lunch**
13:00-14:30	*The Arc* **Industry Forum**
14:30-15:30	*The Arc* **keynote**
15:30-16:00	*GRAND HALL* **Coffee Break**
16:00-17:30	*Studio 311* **ICTAI_4:ICT and AI enabling smart cities, buildings, agriculture, energy efficiency and sustainability (ORAL SESSION)**
16:00-17:45	*Hall 300* **EMD_11:Electrical Machines and Drives (ORAL SESSION)** **Surrogate Modelling of Dynamic Phasor Simulations of Electrical Drives** *Nasrulloh Loka, Sriram Gurumurthy, Bernard Amevor, Antonello Monti, Tom Dhaene, Ivo Couckuyt* **Neural Network-Based Classification of Current Sensor Failures in Fault-Tolerant Control Induction Motor Drive** *Maciej Skowron* **A New Neural Network based Method for Online Parameters Identification of the Interior Permanent Magnet Synchronous Machines** *Minh Bui*
16:00-18:00	*Studio 204* **SS15_3:New Emerging Technologies in Disturbance Estimation and Rejection (ORAL SESSION)** **Novel Explicit Model Predictive Control Strategy For Boost Converters Based on State-space Averaging Method** *zhaohong wang, ke xu, yonghong lan, xiaofan yang*
	Studio 313 **SS4: Advances in Multi-port Power Converters: Applications in Energy Systems (ORAL SESSION)** **Topology and Operation Analysis of Isolated DC/DC Converters with Bidirectional Asymmetric Power Flow** *Siyu Wu, Kangan Wang, Yixian Qu, Rongwu Zhu, Wei Tan, Weimin Wu, Marco Liserre*

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Decentralized Power Management for Multi-active Bridge Converter *Hongwei Zhao, Yang Qi, Weilin Li*

Novel High Gain Multiport Isolated DC-DC Converter with Bipolar Symmetric Outputs *Immanuel Ninma Jiya, Khang Huynh, Rade Ciric, Nand Kishor*

Multi-port Energy Router-based Battery Pack Active Balance Control System *Xueqing Qi, Zhikang Li, haojun qin, Ming Liu, Chengbin Ma*

Integrated Multiport Back-to-Back Power Converter for Type-4 Wind Turbine Generator with Hybrid Energy Storage System *Bang Nguyen, Thai-Thanh Nguyen, Van-Long Pham, Tuyen Vu, Mayank Panwar, Rob Hovsapian*

On Cognate Multiport Converters through Graph-based Generalized Duality *Pasan Gunawardena, Yuzhuo Li, Yunwei (Ryan) Li*

Studio 213 & 215

PEEC_11b:Power Electronics & Energy Conversion (ORAL SESSION)

analysis of the influence of train operation diagram adjustment on the working state and life of IGBT module of traction converter *LIU BAOCHENG, Liu Yixin, Sun Hu, Yang Zhongping, Huang Xianjin*

Performance of Active Power Synchronization Control under Unbalanced Condition *Ao Liu, Chuanchuan Hou, Miao ZHU, Xu Cai*

Model of a 9-level transformerless RV Topology Grid-Tied-Inverter for PV applications *Muhammad Salman, Chiara Boccaletti, Najeeb Ullah, Najeeb Ullah*

Design and Optimization of Three-Phase LLC Charger with 9[illegible]nding Configuration *Abdulsamed Lordoglu, Mehmet Onur Gulbahce, Derya Ahmet Kocabas, Serkan Dusmez*

Studio 201

SS11-Artificial Intelligence Methods for the Control of Power Electronics Converters (ORAL SESSION)

An ANN-Assisted Control for the Power Decoupling of a Multiple Active Bridge DC-DC Converter *Giampaolo Buticchi, Amin Farjudian, Juyoung Oh, Luca Tarisciotti*

Droop Coefficient Design and Optimization Using Genetic Algorithm-A Case Study of the More Electric Aircraft DC Microgrid *Habibu Hussaini, Tao Yang, Yuan Gao, Cheng Wang, Ge Bai, Serhiy Bozhko*

Flexibility Prediction in Wastewater-Energy Nexus using Machine Learning *Wybren Oppedijk, Niels Tiben, Daniel Gebbran Cons Bacilla Ferreira, Tomislav Dragi,v6P0i 0*

Comparative Assessment of Supervised Learning ANN Controllers for Grid-Connected VSC System *Prabhat Ranjan Bana, Mohammad Amin*

Design of Neural Network for Adaptive Current Control with Different Short-Circuit Ratios *Li Cheng, Xiongfei Wang, Huoming Yang, Lars Nordström*

Robust Artificial NN-based Tracking Control Implementation of Grid-Connected AC-DC Rectifier for DC Microgrids Performance Enhancement *Ahmed Soliman, Mahmoud Amin, Fayez El-Sousy, Osama Mohammed*

Intelligent Primary Control of Voltage Source Converters in AC Microgrids *Abd Alelah Derbas, Arman Oshnoei, Morteza Kheradmandi, Frede Blaabjerg*

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Studio 315

SS27: Distributed Control, Optimization and Networked Game and Their Industrial Applications

Distributed Online Algorithm with Inertia for Seeking Generalized Nash Equilibria *Haomin Bai, Hongmiao Zhang, Wenying Xu, Wangli He*

Resilient refinery planning based on two-stage adaptive robust optimization under uncertainty *Meicheng Zuo, Liang Zhao, Wangli He, Feng Qian*

Tracking control of nonholonomic mobile robots with dynamic event-triggered strategy *Wangli He, Peilin Liu, Feng Qian*

Distributed Event-Triggered Impulsive Consensus Control of Nonlinear Multi-Agent Systems Under Malicious Attacks *Jiaying Zhu, Wangli He, Xiaohua Ge*

Optimal Bipartite Consensus Control for Unknown Coopetition Multi-agent Systems with Time-delay via Reinforcement Learning Method *Jing Zhang, Yang Chen, Jiangjun Hu, Xiudong Gao, Lina Ou, Huan Xiao*

Distributed Adaptive Control for Second-order Leader-following Multi-agent Systems *Xuegang Tan*

Multi-Agent Reinforcement Learning Based Electric Vehicle Charging Control for Grid-Level Services *Md Golam Dastgir, Xiang Huo, Mingxi Liu*

Studio 316

SS40:Sliding Mode-Based Fixed-Time Intelligent Control and its applications in aerospace unmanned Systems (ORAL SESSION)

A New Input-Parallel-Output-Series Three-Phase Hybrid Rectifier for Heavy-Duty Electric Vehicle Chargers *Rui Qiang, Yang Wu, Thiago Soeiro, Pierpaolo Granello, Zian Qin, Pavol Bauer*

Cooperative orbital control for satellite swarms with nonsingular terminal sliding mode and finite-time extended state observer *lixiang wang, Ming Liu*

Deep Learning with Fractional Order Operaters Lagrangian Method for Space Robot based on Sliding Mode-based Fixed-time Control *Tongyu Zhao, Guanghui Sun, Xiangyu Shao, Biqing Qi, Dong Zhou*

Fractional-order Non-singular Terminal Sliding Mode Control for Bilateral Teleoperation System *Xiaolong Duan, Zhiqiang Ma, Zhengxiong Liu, Yu Liu*

Fixed-time nonsingular terminal sliding mode control for the post-capture tethered space robot system *Ganghui Shen, Xu Jia, Xiaolei Li*

Distributed impedance control for cellular space robot in spacecraft takeover control *Haitao Chang, Xiyao Liu, Tong Wang, Zhenyu Lu*

Studio 211 & 212

PEEC_11a:Power Electronics & Energy Conversion (ORAL SESSION)

Optimized Power Conversion System for Mobile Air Radiation Monitoring System *Sung-Ho LEE, Min-Jae Kim*

A New Voltage Clamp Method for PV Maximum Power Tracking Under Shading Conditions *Ahmed Cheriti*

Critical design criterion for inductorless H-bridge driven piezoelectric-transformer-based power supplies *Zijiang Yang, Jack Forrester, Jonathan*

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N Davidson, Martin P Foster, David A Stone

Multi-objective optimization of high order input filters for grid connected converters using Genetic Algorithms *Pedro Costa, Sonia Pinto, J. Fernando Silva*

Three-Phase Voltage Boosting Inverter using Single Switched Capacitor *SAJNEEK SINGH, Manik Abrol, Krishna Kumar Gupta, Sanjay K. Jain*

Studio 216

INTEROP DEMO

Studio 314

SS9:Conductive and Wireless Powering and Charging Technologies for Electric Mobility (ORAL SESSION)

Design and Validation of an Inductive Power Transfer System with Zero Phase Angle Detection Algorithm *Vincenzo Castiglia, Nicola Campagna, Rosario Miceli, Stanimir Valtchev*

Printed Circuit Board Coil Design with Reduced Series Resistance for High Power Inductive Wireless Power Transmission Systems *Alexis Adrian Narvaez Acaro, Claudio Carretero, Jesus Acero, Jose M. Burdio*

Harmonic Emission Modelling of Electric Vehicle Chargers *Yawen Liang, Lu Wang, Zian Qin, Pavol Bauer*

Converter Topology Comparison for a Two-Stage Level-2 Onboard Charger in 800-V EV Powertrains *Rachit Pradhan, Mehdi Narimani, Ali Emadi*

Design method of Coreless Coil Considering Power, Efficiency and Magnetic Field Leakage in Wireless Power Transfer *Yuto Yamada, Takehiro Imura, Yoichi Hori, Soma Hasegawa*

Comparison of Circular Coil, Double-D Coil, and 85 kHz Self-Resonant Coil in Road Embedment for Dynamic Wireless Power Transfer *Koki Hanawa, Takehiro Imura, Yoichi Hori, Nagato Abe*

Power Relay Module Based Multiple-load Charging Capability Extension *Kaitian Chao, Peng Zhao, Xinxin Yu, Xiaoxuan Ji, Minfan Fu*

Studio 202

ICTAST: ICT Enablers of Autonomy and Smart Transport (ORAL SESSION)

A Deep Learning Model with the Residual Network for Deployment of Shared Bikes *Haotian Zhang, Long Teng, Yung Po Tsang, Chi Pong Tsui, Chao Liu, Chak-yin Tang*

Towards a context identification method for autonomous robots *Marvin Zager, Christoph Sieber, Alexander Fay*

SmartData Safety: Online Safety Models for Data-Driven Cyber-Physical Systems *Jose Luis Conradi Hoffmann, Antônio Augusto Fröhlich*

Electric Vehicle Physical Parameters Identification *Ricardo Maia, Jérôme Mendes, Rui Araújo*

Semantic-driven Computation Offloading and Resource Allocation for UAV-assisted Monitoring System in Vehicular Networks *Xin Sun*

Performance Evaluation of V2X Communication for Connected Autonomous Vehicles in Platooning *Burak Senkus, Mujdat Soyturk*

Studio 206

SS21: Reinforcement Learning and Hybrid AI for

Thursday, 20 October 2022

	control applications (ORAL SESSION) **Signal identification of low signal-to-noise ratio time series data with deep neural network** *Zhixiang Ren, Yiming Ren, Tianyu Zhao, Yue Zhou* **Safety Aware Autonomous Path Planning Using Model Predictive Reinforcement Learning for Inland Waterways** *Astrid Vanneste, Simon Vanneste, Olivier Vasseur, Robin Janssens, Mattias Billast, Ali Anwar, Kevin Mets, Tom De Schepper, Siegfried Mercelis, Peter Hellinkcx* **Object Detection To Enable Autonomous Vessels On European Inland Waterways** *Mattias Billast, Robin Janssens, Astrid Vanneste, Simon Vanneste, Olivier Vasseur, Ali Anwar, Kevin Mets, Tom De Schepper, José Oramas, Steven Latré, Peter Hellinckx* **Chip-SAGAN: A Self-Attention Generative Adversarial Network for Chinese Ink Wash Painting Style Transfer** *Jiaoju Zhou, Feng Gao, Xuebo Yang, Weiyang Lin* **Reinforcement learning based mass flow and supply temperature control for combined heat distribution** *Stef Jacobs, Sara Ghane, Ali Anwar, Siegfried Mercelis, Peter Hellinckx, Ivan Verhaert* **Transfer Learning-based Hybrid Modeling Approach for Indoor Temperature Modeling** *Furkan Elmaz, Sara Ghane, Thomas Huybrechts, Ali Anwar, Siegfried Mercelis, Peter Hellinckx* **Robust Parameter Estimation and Tracking through Lyapunov-based Actor-Critic Reinforcement Learning** *Thomas Rudolf, Joshua Ransiek, Stefan Schwab, Sören Hohmann*
	Studio 214 **ONLINE3: Online-Video Paper Presentations** **Analytical Model of Class D Inverter for High Frequency Operation** *Yi Xiong* **A Fair Comparison between Three Different Mainstream IoT Applications for Managing Dynamic Traffic-Lights of Future Smart City** *Ambreen Joyo, Nicholas Madamopoulos, Raziq Yaqub, Mohamed Ali*
18:30-22:00	*GRAND HALL* **Conference Party - Sponsors: IECON and SYP (Location TBD)**