IEEE IES ICIT 2022 23rd IEEE International Conference on Industrial Technology

CONFERENCE PROGRAM

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22 - 25 August, 2022 Shanghai, China (Fully Online)

This Program Booklet may change slightly before the Conference to accommodate the conference program needs and logistics.

Welcome Message from IES President

Dear Authors, Invited Guests, and Delegates



As President of the Industrial Electronics Society (2022-2023), I welcome you to the 23rd IEEE International Conference on Industrial Technology (ICIT 2022), held virtually from Shanghai, China.

ICIT is one of our society's flagship annual conferences that travels in a rotation scheme around Asia/Australia, America, and Europe. Our conference devoted to the dissemination of new ideas, research and works in progress within the fields of intelligent and computer control systems, robotics, factory communications and automation, flexible manufacturing, data acquisition and signal processing, vision systems, and power electronics. I am sure that this virtual meeting is a good platform for excellent scientific discussions and collaboration among the many research centers and universities. I want to express my appreciation to the organizing committee, which made an effort to organize this important and inspiring conference, which received 176 submissions from 22 countries.

I want to say a few words about the Industrial Electronics Society. We have members from more than 100 countries worldwide associated with almost 100 chapters. In addition, the IES is responsible for six leading journals that provide a forum for exchanging scientific ideas for many researchers worldwide. We are also proud of our technical and conference activities, of which the ICIT conference is a remarkable example! Thank you for attending the conference and encouraging participation in the Industrial Electronics Society activity. In IES, everyone will find a place to build their competence in one of the 24 Technical Committees http://www.ieee-ies.org and use IE Technology News: https://iten.ieee-ies.org and use IE Technology News: https://iten.ieee-ies.org.

Once again, welcome to ICIT 2022.

Mariusz Malinowski IES President

Welcome Message from General Co-Chairs

Dear Authors, Invited Guests, and Delegates

As the General Chairs of the 2022 IEEE International Conference on Industrial Technology (ICIT 2022), it gives us immense pleasure to welcome all guests and delegates from Universities, Research Organizations and Industry from 20 countries around the world to the Conference.COVID-19 changed many of our current practices including face-to-face conferences but we are thankful to all conference authors and delegates who supported arranging this conference on-line.

The ICIT conference series, started 22 years ago, is now coming to Shanghai, China for the first time. This year, ICIT 2022 is hosted by Shanghai Jiao Tong University and IES Shanghai Chapter. The Shanghai Jiao Tong University is one of the top education and research institution positioned on the forefront of the industrial technologies in China.

ICIT 2022 received 176 submissions from 22 countries across six continents. Authors from China, Germany, Portugal, Canada, Austria, Sweden, India, Australia, Japan, Korea, Norway, Sri Lanka and Qatar had respectively submitted the highest number of papers to the Conference. Each submission was peer-reviewed by at least three experts in the respective fields and the acceptance decisions were based on at least two consistent recommendations, ensuring high quality and standard of the Conference and its Proceedings.

In total, 118 papers were finally accepted and are included in the Conference Proceedings and Program. The accepted and scheduled papers will be presented in 20 oral sessions over a 4-day period. 28 of the accepted papers were submitted to 8 special sessions of the Conference.

We are also privileged to have 3 distinguished keynote speakers, one industry forum, and Women in Engineering Forum, and 3 tutorial sessions. We also prepared a full day event of IEEE Standard Day and IES InterOP which provides a comprehensive view of the standards developing in the IEEE and IES.

We would like to take this opportunity and thank all distinguished keynote speakers, technical track chairs, Special session organizers, forum panelists, session chairs, numerous reviewers and authors, and all members of the technical and organization committees. We sincerely thank the Conference's financial sponsor and technical co-sponsors. Without their great support, this conference could not have been successful.









We wish all of you a very pleasant and fruitful online time at the Conference, and we hope that you could have an opportunity to travel to Shanghai in a future IES conference, hosted by us, when the COVID-19 pandemic is settled down.

Best regards,

Luis Gomes, Valeriy Vyatkin, Mo Yuen Chow, and Xinping Guan ICIT 2022 General Co-Chairs

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Technical Tracks and Special Sessions

TT 01 - Control Systems, Robotics and Mechatronics

Track Chairs: Marina Indri (Politecnico di Torino, Italy), Tomoyuki Shimono (Yokohama National University, Japan), Seiichiro Katsura (Keio University, Japan)

TT 02 - Electrical Machines, Drives, Sensors and Actuators

Track Chairs: Gabor Sziebig (UiT The Arctic university of Norway, Norway), Peter Xu (The University of Auckland, New Zealand), Hiroaki Nishi (Keio University, Japan)

TT 03 - Power Electronics and Renewable Energy

Track Chairs: Giampaolo Buticchi (University of Nottingham Ningbo China, China), Federico Baronti, Sertac Bayhan (Hamad Bin Khalifa University, Qatar)

TT 04 - Power Systems and Smart Grids

Track Chairs: Chen-Wei Yang (Luleå University of Technology, Sweden), Andrea Benigni (Forschungszentrum Jülich and RWTH Aachen University, Germany), Fei Gao (University of Technology of Belfort-Montbeliard, France)

TT 05 - ICT enabled Healthcare

Track Chairs: Hao Wang, Zhibo Pang, Geng Yang (Zhejiang University, China)

TT 06 - Cloud Computing, Big Data and Software Engineering

Track Chairs: Kang-Hyun Jo (University of Ulsan, South Korea), Marco Porta (University of Pavia, Italy), Yang Shi

TT 07 - Electronic Systems on Chip, Embedded Control and Nanotechnology

Track Chairs: Alin-Sasa Tisan (Royal Holloway University of London, UK), Yunjia Li, Kevin Wang (The University of Auckland, New Zealand)

TT 08 - Computational Intelligence and Signal and Image Processing

Track Chairs: Luis Ribeiro (Linköping University, Sweden), Andrei Lobov (Norwegian University of Science and Technology, Norway), Hao Luo (Harbin Institute of Technology, China), Xinyi Le (Shanghai Jiao Tong University, China)

TT 09 - Industrial Automation, Communication and Networking

Track Chairs: Jan Haase (Nordakademie, Germany), Stamatis Karnouskos (SAP, Germany), Bilal Ahmad, Chaojie Gu (Zhejiang University, China)

TT 10 - AI and Industrial Informatics

Track Chairs: Daswin De Silva, Alessia Saggese (University of Salerno, Italy), Lei Shu

TT 11 - Industrial Electronics and Education

Track Chairs: Larisa Dunai (Universitat Politecnica de Valencia, Spain), Kazuhiro Umetani (Okayama University, Japan)

SS 01 - Advanced Control of Grid-Connected Converters for Distributed Generation and Power Quality

Special Session Organizers: Hadi Y Kanaan (Saint-Joseph University of Beirut, Lebanon), Kamal Al-Haddad (Ecole de Technologie Supérieure, Canada), Hasan Komurcugil (Eastern Mediterranean University, Turkey), Mohammad Sharifzadeh (Ecole de Technologie Supérieure, Canada), Fadia Sebaaly (Ecole de Technologie Supérieure, Canada)

SS 02 - Modelling, Estimation and Control of Complex System

Special Session Organizers: Jun Huang (Soochow University, China), Yueyuan Zhang (Soochow University, China), Yan Song (University of Shanghai for Science and Technology, China)

SS 03 - Coordination control of complex network systems and its industrial applications

Special Session Organizers: Guanghui Wen (Southeast University, China), Junjie Fu (Southeast University, China), Yuezu Lv (Beijing Institute of Technology, China), Chen Liu (RMIT University, Australia)

SS 04 - Advanced Electric Machine and Drive System Technologies for Flying Electric Vehicles

Special Session Organizers: Chunhua Liu (City University of Hong Kong, Hong Kong), Zaixin Song (City University of Hong Kong, Hong Kong), Christopher H. T. Lee (Nanyang Technological University, Singapore), Wei Liu (The University of Hong Kong, Hong Kong)

SS 05 - Industrial Internet-of-things (IIoT) Technologies and Security Measures for Industrial Intelligence

Special Session Organizers: Chung Kit Wu (City University of Hong Kong, Hong Kong), Moe Alahmad (University of Nebraska-Lincoln, USA), Kim Fung Tsang (GBA 5G Industry Alliance, Hong Kong)

SS 06 - Power Electronics Applications in Renewable Energy

Special Session Organizers: Venkatesh Boddapati (B.M.S. College of Engineering, India), Rakesh Kumar (Nano and Microgrid Lab, India), Sanjeevikumar Padmanaban (Aarhus University, Denmark), Dwarkadas P. Kothari (S. B. Jain Institute of Technology, India)

SS 07 - Data-driven fault diagnosis and fault-tolerant control: Recent Advancement

Special Session Organizers: Yuchen Jiang (Harbin Institute of Technology, China), Yunsong Xu (National University of Defense Technology, China), Hao Luo (Harbin Institute of Technology, China), Shen Yin (Norwegian University of Science and Technology, Norway)

SS 08 - Emerging Technologies and Applications of Wireless Power Transfer

Special Session Organizers: Wei Han (Hong Kong University of Science and Technology, China), Chaoqiang Jiang (City University of Hong Kong, China), Hui Zhao (Fudan University, China), Zhichao Luo (University of Cambridge, UK), Dianxun Xiao (McMaster University, Canada)

Monday, Aug 22nd

	Plenary Room	Room 1	Room 2	Room 3
9:00 - 10:00		Tutorial 1: High Performance	Tutorial 2 : Advanced Modulation for Reliability-	
10:00 - 11:00		Machines and Drive Systems	optimized Power Electronics Control	
11:00 - 12:00		Chair : Wei Xu	Chair : Giampaolo Buticchi	Tutorial 3 : Hardware Design Considerations for
12:00 - 13:00				Integrated Power Boards for Driving
13:00 - 14:00				BLDC Motors Chair : Prabhat Ranjan Tripathi
14:00 - 15:00	Industry Forum Chair: Dr. Zhibo Pang			
15:00 - 16:00	Dr. Victor Huang			
16:00 - 17:00				
17:00 - 18:00 18:00 - 19:00				
19:00 - 20:00	Women In Engineering Chair:			
20:00 - 21:00	Prof. Tianzhen Wang			
21:00 - 22:00	Prof. Lucia Lo Bello			

Important Notes for Tutorial Sessions:

- All registered delegates of the conference can attend any tutorial sessions.
- The recorded video files of all Tutorials are available on the library section of Qiqochat.
- All interested in attending a tutorial session, first need to watch the recorded tutorial on the Qiqochat profile and then attend the session at the given time.
- The tutorial presenters will first conduct a short summary of the topics covered in the tutorial and will then run the sessions in an interactive Q&A format.

Tutorial - 1

Time: Monday, Aug 22nd, 9:00 – 12:00 CST **Room**: Room 1

High Performance Linear Induction Machines and Drive Systems

Presenter: Wei Xu (School of Electrical and Electronics Engineering, Huazhong University of Science and Technology (HUST), China)

Abstract: The main subject of the tutorial is linear induction motors (LIMs). Starting from a brief structural description of such motors, their main applications will be exposed in the tutorial with specific reference to MAGLEV (Magnetically Levitation) vehicles, urban people movers (such as linear metro, light railway, etc.), launchers, actuators for industry and automotive, etc. As a first step, the main differences between rotating and linear induction motors will be highlighted, focusing on the aspects of static and dynamic end effects as well as transversal edge effects. The typical structure of LIMs will be treated, with specific reference to secondary sheet and primary winding configurations.

Single-sided LIMs (S-LIMs) and Double-sided ones (D-LIMs) will be described in detail, focusing on normal force effects. Design criteria of LIMs will be specifically exposed, emphasizing the main differences with the classic rotating induction motor design, caused by the presence of large air-gaps, high leakage inductances as well as the end effects. Both static and dynamic models of LIMs will be introduced, including the so-called end-effects, magnetic saturation, non-linear traits influenced by PWM modulation, and so on. Suitable parameter estimation methods will be then described. Afterwards, control techniques specifically devised for LIMs, like field-oriented control, input-output feedback linearization control, active disturbance rejection control, model predictive control, efficiency optimization control, etc., will be introduced in detail. Finally, sensorless techniques with strong robustness capability specifically developed for LIMs will be shown.

Prof. Wei Xu received the double B.E. degree from Tianjin University (TJU), China, in July 2002, and M.E. degree from TJU in March 2005, and the Ph.D. degree from Institute of Electrical Engineering, Chinese Academy of Sciences (IEECAS), in July 2008, respectively, all in electrical engineering. His research interests His research topics mainly focus on electromagnetic design and control algorithm of linear machines and drive systems.

From 2008 to 2012, he made Postdoctoral Fellow with University of Technology Sydney, Vice Chancellor Research Fellow with Royal Melbourne Institute of Technology, Japan Science Promotion Society Invitation Fellow with Meiji University, respectively. Since 2013, he has been Full Professor with State Key Laboratory of Advanced Electromagnetic Engineering in Huazhong University of Science and Technology, China.

Prof. Xu has been one IEEE Senior Member since 2013, and one Fellow of the Institute of Engineering and Technology (IET) since 2018. Since 2014, Prof. Xu has been invited to make more than ten-time Keynote Speaking

in International Conferences. Meanwhile, as one Guest Editor, Prof. Xu has been invited to organize more than ten-time Special Issues in peer review high-quality Journals, such as IEEE Transactions on Industrial Electronics. As the principle speaker, he has been invited to given five-time Tutorial about Linear Machines and Drive Systems in IEEE leading conferences, including IEEE Industrial Electronics Conference (IECON, Oct. 2018), IEEE International Conference Electrical Machines and Systems (ICEMS, Aug. 2018), International Conference on Electrical Machines (ICEM, Aug. 2020), respectively.

Prof. Xu served the General Chair for 2021 International Symposium on Linear Drives for Industry Applications (LDIA 2021) in Wuhan, China, and will serve the General Chair for 2023 IEEE International Conference on Predictive Control of Electrical Drives and Power Electronics (PRECEDE 2023) in Wuhan, China. He has been the Founding Chair for IEEE IES Wuhan Chapter since 2018. He has also been the International Steering Committee (ISC) Member for linear machines and drives. Meanwhile, Prof. Xu has been Associate Editor for several leading IEEE Transactions Journals, such as IEEE Transactions on Industrial Electronics, IEEE Transactions on Vehicular Technology, IEEE Transactions on Energy Conversion, and so on.

Prof. Xu is now leading one research group, Center for Energy Conversion System (CECS,

http://machinececs.seee.hust.edu.cn/), including 6 staff and over 40 PhD/ME students, for the development on high performance of electrical machines (particularly linear machines) and drive systems based on transportation, wind generation, servo, etc. He has more than 110 papers accepted or published in IEEE Journals, two edited books published by Springer Press, one monograph published by China Machine Press, and more than 150 Invention Patents granted or in pending, all in the related fields of electrical machines and drives.

Tutorial - 2

Time: Monday, Aug 22nd, 9:00 – 12:00 CST **Room**: Room 2

Advanced Modulation for Reliability-optimized Power Electronics Control

Presenter: Giampaolo Buticchi (University of Nottingham, Ningbo, China)

Abstract: Power Electronics has rapidly become the enabler for the energy transition and for the technology advancement in industrial automation, transportation and appliances.

As reliability becomes an increasingly important target, especially for applications which require low maintenance to be profitable, the advancement of the control system has made advanced control for an increasing size of the power electronics system possible.

This tutorial outlines the possibilities offered by advanced control systems, in particular of the modulation techniques, in a reliability-oriented power electronics framework. The basic concepts of reliability in power electronics and on the control of the reliability will be discussed. Particular attention will be given to the adaptive carrier phase shift modulation techniques, since they constitute a general tool that can be used to perform different kinds of optimization. Some examples include the power quality improvement of cascaded H-bridge converters operating with unbalanced power among the cells, the reduction of the capacitor current stress in interleaved dc-dc converters and the reduction of common-mode current through the electric machine bearing in an electrical drive application.

Giampaolo Buticchi (S'10-M'13-SM'17) received the Master degree in Electronic Engineering in 2009 and the Ph.D degree in Information Technologies in 2013 from the University of Parma, Italy. In 2012 he was visiting researcher at The University of Nottingham, UK. Between 2014 and 2017, he was a post-doctoral researcher and Guest Professor at the University of Kiel, Germany. During his stay in Germany, he was awarded with the Von Humboldt Post-doctoral Fellowship to carry out research related to fault tolerant topologies of smart transformers.

He was appointed Associate Professor in 2017 at The University of Nottingham Ningbo China and the Head of Power Electronics of the Nottingham Electrification Center. He was promoted Professor in 2020. His research focuses on power electronics for renewable energy systems, smart transformer fed micro-grids and dc grids for the More Electric Aircraft.

He is author/co-author of more than 250 scientific papers and an Associate Editor of the IEEE Transactions on Industrial Electronics, the IEEE Transactions on Transportation Electrification and the IEEE Open Journal of the Industrial Electronics Society.

Dr. Buticchi is involved in the major international organizations (IEEE, IET, RAeS, HEA) and he has been organizing tutorials and special sessions in the relevant conferences and journals related to Power Electronics. He is currently the Chair of the IEEE Industrial Electronics Society Technical Committee on Renewable Energy Systems and Cluster Delegate

Tutorial - 3

Time: Monday, Aug 22nd, 11:00 – 14:00 CST **Room**: Room 3

Hardware Design Considerations for Integrated Power Boards for Driving BLDC Motors Presenter: Prabhat Ranjan Tripathi (FleetRF PVT. LTD., New Delhi, India)

Abstract: For power electronics engineers and researchers, hardware prototyping of the power converter topologies and ideas is required for their validation and acceptance in academia and industry. Printed circuit boards (PCBs) have been an integral part of this prototyping. With the increased availability of off-the-shelf microcontrollers, dedicated Power Management, and Control ICs, the PMBLDC drives have gained popularity in low to medium power applications ranging from UAVs to Water Pumps. However, several hardware design challenges include gate driver selection, switch selection, PCB layout, sensors, and control requirements. PCB design and hardware prototyping in this domain are non-trivial and have specific requirements. Tutorials and courses on PCB are limited to high-speed, low-power designs. Nevertheless, PMBLDC drives are designed in various application-specific segments like 12 to 16 Volts up to 50 Amps for UAVs and 48 V, 100 Amps for EVs and 320 Volts, 5 Amps for water pumping solutions.

The proposed tutorial deals with all the criteria to be considered while designing an integrated power board for PMBLDC Motor Drives.

Design considerations to be highlighted in the tutorial are: Design requirements, Component selection, PCB design constraints, Power circuit Layout.

*This webinar neither promotes particular PCB design software nor endorses any device manufacturer.

Prabhat Ranjan Tripathi is working as Lead Power Electronics & Systems Design Engineer at FleetRF PVT. LTD. India recently submitted his Ph. D. thesis as Institute Research Fellow at EEE Department, BIT Mesra Ranchi (www.bitmesra.ac.in). He has been a visiting student at the centre of research on microgrids (CROM), Aalborg University, Denmark [May-20 to Dec-20] and the Electrical Engineering Division at the University of Cambridge, UK [Sep,17-Mar,18]. He has hands-on experience in the hardware design of various DC-DC, DC-AC converters and motor drives. He has worked on various PCB designing tools like ALTIUM Designer, EAGLE, and Ki CAD.

Industry Forum

Time: Monday, Aug 22nd, 14:00 – 17:00 CST Room: Plenary Room

IEEE ICIT 2022 will host an Industry Forum during the conference, addressing the theme of "Industrial Digitalization". Industry Forum is an IES program for Industry to engage with research in a productive manner. Industry speakers are invited to discuss industry, technology directions, and, most importantly, challenges for the companies. These presentations inform the attendees on the vision and application of technologies in business and what challenges companies are encountering. The forum also offers the opportunity for researchers to study the particular challenge and know the contact in the companies should they have a solution that the company might utilize. We want all conference attendees to engage in the Industry Forum and listen to the presentations of our industry speakers so all communities can benefit.

Organizers



Zhibo Pang

ABB Corporate Research & KTH Sweden



Victor Huang

Sage Technology Resources



Michael Condry

Health AI

Industrial Digitalization

Chairs: Dr. Zhibo Pang, Dr. Victor Huang

The Industry Forum is an IEEE Industrial Electronics Society (IES) program where industry speakers address technology directions, products, and challenges to IES conference attendees and industry perspectives that needs to be faced every day. This Industry Forum session addresses the newest trends in Industrial Digitalization where industrial AI and industrial edge computing and wireless are being explored and introduced in manufacturing and industrial complexes.

Speakers



Dr. Huazhen Song

Technology Communications Manager

B&R Industrial Automation (China) Co. Ltd.



g Dr. Yi Huang

Co-Founder Robustel Technologies



Dr. Yi Shen

Product Director, Industrial Solutions Division

Intel



Chang Xia Huang



Yong Wang

ector,	Head of Research &	Chief Cybersecurity
olutions	Collaborative	Officer, Industrial
	Management	Automation
	Siemens Ltd, China	Schneider Electric
		China

Talks

Talk 1: "Industrial AI-Discrete Manufacturing Scenario Analysis and Applications" (14:00 – 14:30) Dr. Huazhen Song, Technology Communications Manager, B&R Industrial Automation (China) Co., Ltd.

Abstract: The rapid development of AI has made the automation industry seek to solve discrete manufacturing problems, such as quality improvement, defect detection, parameter optimization, and predictive maintenance. However, discrete manufacturing needs to be considered for real-time, interpretability, and robustness. Its software and hardware architecture design, data acquisition and processing, information modeling and transmission, integration of physics-based and data-driven modeling, Human-in-the Loop, test verification, etc. Combined with specific scenarios, the problems and solutions are analyzed, and ideas are given for the application of industrial AI in discrete machines.

Bio: Graduated from Wuhan Engineering University in 1999, majored in Measuring technology and instrumentation. worked as an INESA assistant engineer in Angel Yeast, ACE engineer and safety supervisor in Xizi OTIS Elevator, and Mirle Automation as the business manager of machine and factory automation. Joined B&R Automation since 2004, business development manager of the printing and packaging industry, and the marketing manager ,POWERLINK technical promotion manager, technical communication manager. Master of Business Administration (MBA), Tongji University, 2015. Member of SAC/TC124 & SAC/TC159,SAC/TC/ TC159/WG18, Technical advisor of OPC Foundation China .participated book includes Interpretation of Smart Manufacturing Terms ,Interpretation of USA Manufacturing Innovation Institutes, Intelligence Transformation of Made in China 2025 .

Talk 2: "The Challenges and Solutions for the Digitalization of Elevator Maintenance Services" (14:30 – 15:00) Dr. Vi Huang, Co Founder, Pobustal Technologies

Dr. Yi Huang, Co-Founder, Robustel Technologies

Abstract: Elevators are widely used by the general public, including industry, commerce and residents. Continued maintenance after installation is critical to high operational reliability, which includes ensuring the safety and reliability, prolonging the useful life of the equipment, eliminating or reducing major repairs by identifying the possible issues in advance, which is usually very complicated and costly.

The recent information technologies including internet of things, artificial intelligence, and cloud computing enables the digitalization of elevator services, including elevator condition monitoring, elevator emergency service, elevator maintenance service supervision, etc. The presentation will discuss the challenges and solutions for the digitalization of elevator maintenance services.

Bio: Yi Huang is a cofounder of Robustel, which is a leading industrial IoT product and solutions provider. Before joining Robustel, Mr. Huang has worked in the Telecommunications industry for more than 10 years with various management roles. Yi is a doctoral candidate at the Zhejiang University from China and holds a Master's Degree in Technology.

Talk 3: "Edge Intelligence for smart manufacturing----Outlook of future industrial electronics and solutions" (15:00 – 15:30) Dr. Yi Shen, Product Director, Industrial Solutions Div., Intel Corp.

Abstract: Many IT giants have spent tens of years solving the complexities of IT and OT divides, fine-tuning and validating edge software and silicon, and working with partners to bring hundreds of market-ready packages to customers and tens of thousands of end user deployments. In this session, the speaker will briefly share his view of the industrial market trends, existing technical challenges, and future outlook of industrial electronics and solutions.

Bio: Dr Yi Shen, product director of Edge Controls for Industrial, currently is working in Industrial Solutions Division China of Intel Corp in Shanghai. Before joining Intel in 2018, Yi served various product marketing and

management roles, with increasing responsibility and scope, in Honeywell International and Robert Bosch GmbH. Before entering industrial world, Yi focused on the academic research of semiconductor and superconductor materials, which are widely used for micro-electronics and quantum computing devices. Yi holds Ph.D. of Materials Science and Engineering from Arizona State University, USA, and International MBA from University of British Columbia, Canada.

Talk 4: "Discover Future Digitalization (Siemens Digitalization Strategy, Core Concept, Experience and Practice Sharing) (15:30 – 16:00) Mr. Chang Xia Huang, Head of Research & Collaboration Management, Siemens Ltd, China L Lead Consultant of Intelligent Manufacturing

Abstract: Based on 175 years working experience in industry, Siemens kept transformation and maintain leading position always. In Digital Era, Siemens continuously sharpen its competence to realize both self-digitalization and enable industrial customers with digital offerings and core knowhow.

Bio: Chang Xia Huang is Head of Research and Collaboration Management and Lead Consultant of Intelligent Manufacturing of Siemens Technology China. He has 14 Years working experience in different functions covering Digital Business Development and Pre-Consulting with diverse knowledge in Automation, Ind. Software, Ind. IoT, etc. His skill sets include Digital Enterprise Maturity Checking, Digitalization Top-Level Design Consulting; Digitalization Pre-Consulting for customers; Digital Enterprise Ecosystem Architecture and Resource Coordination; Cross-domain DE Project Designing, Operation Management; Market Insight, Emerging Industry, Technical Strategy and Management Process Optimization. Highlights of his work include providing Digital services to CASIC, China Coal Tech Group, Sany, Huawei, Yuchai Group, China Tobacoo Group, etc., and he is the author/co-author of China's Automotive Industry Digitalization Blue Book, Intelligent Manufacturing Key Concept Interpretation, etc.

Talk 5: Universal Automation (16:00 – 16:30) Mr. Yong Wang, Chief Cybersecurity Officer, Industrial Automation, Schneider Electric China

Abstract: Industry is on the verge of a Digital Transformation. End users, companies are struggling with a lot of difficulties and challenges, such as costs increasing, demand fluctuating, workforce shortage. They are also looking for solutions to support their evolution with new technologies like data analytics, digital twins, edge computing.

The conventional way with proprietary solutions from automation vendors is no longer sustainable. low efficient and not cost effective. A standardized and open automation solution is the only way for future industrial automation. UniversalAutomation.org promotes open automation solution through IEC 61499 based industrial grade reference run time to benefits automation vendors and customers with high quality and flexibility, less cost and shorter time to market. *Bio*: Yong has over 35 years automation control experiences in area of industrial control, communication, and security. Yong ever took roles of R&D, sales support, marketing strategy and vertical solution development. Yong is expert of several IEC TC65 working groups for control, networking, and security etc. He is the Asia Pacific Representative, UniversalAutomation.org.

Panel Discussion (16:30 – 17:00)

Women In Engineering

Time: Monday, Aug 22nd, 19:00 – 22:00 CST Room: Plenary Room

Invited Speech 1: "AI based industrial inspection" Dr. Xinyi Le, Shanghai Jiao Tong University

Invited Speech 2: "Link between data and knowledge: zero-shot learning for fault diagnosis in industrial field"

Professor Chunhui Zhao, Zhejiang University

Invited Speech 3: "Collaborative Multi-agent Systems" Professor Wangli He, East China University of Science and Technology

Invited Speech 4: "Offshore Wind Power and Comprehensive development of Marine energy in China"

Juan Jiang, New Energy Institute of Shanghai Investigation, Design & Research Institute Co., LTD

Invited Speech 5: "Shared experience on my professional life as a woman doing research in the field of Electrical Engineering and teaching Science and Technology" Professor Anne Migan Dubois, Paris-Saclay University

Invited Speech 6: "Cooperative Control of Multi-Robot Systems" Professor Ya-Jun Pan, Dalhousie University



Xinyi Le, SJTU, China

Xinyi Le is currently an associate professor with the School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University, Shanghai, China. Before joining Shanghai Jiao Tong University, she received the Bachelor degree from Tsinghua University, and the Ph.D. degree from the Chinese University of Hong Kong. Now she has published more than 60 research papers. She was a recipient of the Shanghai Rising-Star Talent Plan and Forbes 30 under 30.



Chunhui Zhao, ZJU, China

Chunhui Zhao received Ph.D. degree from Northeastern University, China, in 2009. From 2009 to 2012, she was a Postdoctoral Fellow with the Hong Kong University of Science and Technology and the University of California, Santa Barbara, Los Angeles, CA, USA. From 2012 to 2014, she was a distinguished researcher with Zhejiang University and since Dec. 2014, she has been a Professor with the College of Control Science and Engineering, Zhejiang University, Hangzhou, China.

Her research interests include statistical machine learning and data mining for industrial application. She has authored or coauthored more than 170 papers in peer-reviewed international journals. She has published 3 monographs and authorized more than 50 invention patents. She is Principal Investigator of a Distinguished Young Scholar Program supported by the Natural Science Foundation of China. She has hosted more than 20 scientific research projects, including the NSFC funds, National key R&D project, provincial projects and corporate cooperation projects. She has received the Ministry of Education Natural Science Award and other provincial and ministerial awards. She also received more than ten academic awards, including the First Prize of Natural Science of Chinese Association of Automation, the First Young Women Scientists Award of Chinese Association of Automation, etc. She has served senior editor of Journal of Process Control, and AE of some International Journals, including, Control Engineering Practice and Neurocomputing.



Anne Migan Dubois, Paris-Saclay University, France

Anne Migan Dubois received the M.Sc. and Ph.D. degrees in High frequency and optical telecommunications from Limoges University, France, in 1998 and 2001, respectively. She is currently a Full Professor at Paris-Saclay University. She also develops her research activities within the Group of Electrical Engineering Paris (GeePs). She is at the head of the activities "Advanced photovoltaics characterizations in real outdoor conditions". Her field of interest includes soft integration of photovoltaics in smart-grid and smart-buildings and PV fault detection and diagnosis. She has supervised 15 Ph.D. thesis and several Master's thesis. She is an author/co-author of more than 120 papers and international communications, co-owner of 3 patents in PV and one book chapter. She is an expert for the French ANR evaluations and ERC, regular reviewer for EPJ-PV journal, Energies, (occasional for some other journals in the field of PV), Editorial Board Member of the MDPI journal "Sustainability" and guest editor of the special issue "Modeling and Forecasting for Energy Production of Photovoltaic (PV) Systems" in the "International Journal of Photoenergy".



Juan Jiang, TGRI, China

Juan Jiang, Master of Engineering, senior engineer, Chief engineer of New Energy Institute of Shanghai Investigation, Design & Research Institute Co., LTD, and She is also the general manager of Sino-Portuguese Center for New Energy Technologies (Shanghai) Co., LTD, she has been engaged in new energy engineering design and research for years, and has presided over the design of several offshore wind power projects as project manager, and has participated in more than ten national, provincial and Enterprise-level scientific research projects, She has written many books, national and industrial technical standards and specifications as the main author, all this bring her rich engineering and technical experience in new energy design.



Ya-Jun Pan, DAL, Canada

Ya-Jun Pan is a Professor in the Department of Mechanical Engineering at Dalhousie University, Canada. Her main research interests are robust nonlinear control, cyber physical systems, intelligent robotics, haptics and collaborative multiple robotic systems. She has served as Associate Editors for IEEE Transactions on Industrial Electronics, IEEE/ASME Transactions on Mechatronics, and IEEE Transactions on Cybernetics. She has served as Vice President-Atlantic Region of CSME, Canada, IEEE IES AdCom, and Program Co-Chairs for international conferences. She has been awarded the Alexander von Humboldt Fellowship in Germany and Research Excellence Award at Dalhousie University. She is a Fellow of Engineering Institute of Canada (EIC), a Fellow of ASME, a Senior Member of IEEE, a Member of CSME and a registered Professional Engineer in Nova Scotia, Canada.



Wangli He, ECUST, China

Wangli He received the B.Sc. degree in information and computing science and the Ph.D. degree in applied mathematics from Southeast University, Nanjing, China, in 2005 and 2010, respectively. From 2010 to 2017, she held several visiting positions with Central Queensland University, The University of Hong Kong, City University of Hong Kong, Potsdam Institute for Climate Research Institute, and Tokyo Metropolitan University. She is currently a Professor with the School of Information Science and Engineering, East China University of Science and Technology. Her current research interests include distributed coordination control and optimization, networked multi-agent systems, autonomous intelligent unmanned systems and industrial cyber-physical systems.

Dr. He was a recipient of the National Outstanding Youth Science Foundation in 2019 and The Sixth Young Scientist Award of Chinese Association of Automation in 2020. She was also a recipient of the first prize of Shanghai Natural Science Award in 2019. She was the Chair of the Technical Committee on Networked-based Control Systems and Applications of IES from 2018 to 2019. She is an Associate Editor of several international journals including the IEEE Transactions on Neural Networks and Learning Systems and the IEEE Journal of Emerging and Selected Topics in Industrial Electronics.

Tuesday, Aug 23rd

	Plenary Room	Room 1	Room 2	Room 3
9:00 - 10:00				
10:00 - 11:00				
11:00 - 12:00	IEEE Standard Day & IES InterOP Chair: Dr. Sha Wei Dr. Victor Huang			
12:00 - 13:00				
13:00 - 14:00				
14:00 - 15:00				
15:00 - 16:00				
16:00 - 17:00				

IEEE Standard Day & IES InterOP

Time: Tuesday, Aug 23rd, 9:00 – 17:30 CST Room: Plenary Room

Sponsors

IES ICIT 2022 Conference Committee IES Standards Technical Committee

Objectives

- Introduce IEEE Standards to conference participants, in particular, programs and activities of the IEEE Standards China office.
- Showcase to the IEEE China community with visible and active standards development in China.
- Invite and encourage conference and industry attendees interested in standards to participate in IEEE standards development.
- Provide the IES standards community with verification and validation platforms for applications testing to standards benchmarks, ensuring compliance and interoperability of their systems.
- Provide demonstrations and prototypes for interoperability and standards by IES standards development.

Program Organizers

Wenbin Dai, ICIT Program Chair & IES Standards Member Victoria Wang, IEEE-SA Allen Chen, Chair IEEE IES Standards Victor Huang, Vice Chair IEEE IES Standards

Program – Aug 23rd, Morning

IEEE Standards Day

- 9:00 9:05 *Welcome Remarks* General Chair, ICIT 2022
- 9:05 9:10 *Opening Remarks* Dr. Sha Wei, IEEE-SA
- 9:10 9:40 *IEEE Industrial Electronics Society Standards Overview* Dr. Allen Chen, IEEE IES Standards Chair
- 9:40 10:10 *IEEE Computer Society Smart Manufacturing Standards Overview* Dr. Sha Wei, China Academy of Information & Communications Technology; IEEE-SA; Chair, Smart Manufacturing Standards Committee, IEEE Computer Society

Smart Manufacturing Standards

- 10:10 10:40 *IEEE P1451.5.5, IEEE P1451.5.6, IEEE P1451.5.10 Overview* Prof. Kim Fung Tsang, City University of Hong Kong
- 10:40 11:10 Trusted Data Matrix: Challenges, System Architecture and Standardization Requirements
 Dr. Sha Wei, China Academy of Information & Communications Technology; IEEE-SA; Chair,
 Smart Manufacturing Standards Committee, IEEE Computer Society
- 11:10 11:40 Industrial IoT gateways supporting Time Sensitive Networking: testing requirements and standardization

Prof. Cailian Chen, Shanghai Jiao Tong University

11:40 – 12:10Time Sensitive Networking IEEE 802 Series Standard: Overview and ProgressTongtong Wang, Huawei Digital Communications, IEEE 802.1 DF Editor, Huawei Technologies

12:10 – 13:00 Lunch

Program – Aug 23rd, Afternoon

IES Standards / InterOP Plugfest

- 13:00 13:05 Introductory Remarks IES Standards & Plugfest Dr. Victor Huang, IEEE IES Standards
- 13:05 13:35 *IEEE P2805.1, IEEE P2805.2, IEEE P2805.3 Standards Overview* Prof. Wenbin Dai, Shanghai Jiao Tong University
- 13:35 14:05 *IEEE P3137 Standards Overview* Prof. Huijun Gao, Harbin Institute of Technology
- 14:05 14:35 *IEEE P3138 Standards Overview* Prof. Xianqiang Yang, Harbin Institute of Technology
- 14:35 15:05 *IEEE P1451.1.5 Standards Overview* Prof. Jun Wu, Shanghai Jiao Tong University
- 15:05 15:15 Break
- 15:15 15:45 *IEEE P2668 Standards Overview* Prof. Kim Fung Tsang, City University of Hong Kong
- 15:45 16:15 *IEEE P1451.1.6: Standards Review* Prof. Hiroaki Nishi, Keio University
- 16:15 16:45 *Logistics Standards for Smart Factories: System Design and Formulation Practice* Prof. Weihua Liu, Tianjin University

IEEE Standards

- 16:45 17:25 Introduction to IEEE Standards Dr. Victoria Wang, IEEE-SA, Strategy Lead & CXO
- 17:25 17:30 Closing Remarks Dr. Victoria Wang, IEEE-SA Prof. Wenbin Dai, General Chair, ICIT 2022

Registration

1. IEEE-SA Standards Day / INTEROP Plugfest Only:Complimentary Registration2. Full ICIT Conference (incl. Standards Day / INTEROP Plugfest):Full regular ICIT feeRegister using the ICIT registration section.Full regular ICIT fee

Wednesday, Aug 24th

	Plenary Room	Room 1	Room 2	Room 3
9:00 - 10:00		T1-01 Control Systems,	T4 Power Systems	T6 Cloud Computing, Big
10:00 - 11:00		Robotics and Mechatronics	and Smart Grids	Data and Software Engineering
11:00 - 12:00				
12:00 - 13:00				
13:00 - 14:00				
14:00 - 15:00	Opening Ceremony			
15:00 - 16:00	Keynote 1			
16:00 – 17:00		T1-02 Control Systems, Robotics and Mechatronics	T3-01 Power Electronics and Renewable Energy	T7 Electronic Systems on Chip, Embedded Control and Nanotechnology
17:00 - 18:00				T5 ICT enabled Healthcare
18:00 - 19:00				
19:00 - 20:00		T2 Electrical Machines,	T3-02 Power Electronics	T8-01 Computational
20:00 - 21:00		Drives, Sensors and Actuators	and Renewable Energy	Intelligence and Signal and Image Processing

Keynote 1

Time: Wednesday, Aug 24th, 14:20 - 15:30 CST Room: Plenary Room Chair: Prof. Yousef Ibrahim

Digital Transformation and AloT Enhance Robotics Integrated Resilient Manufacturing Ecosystem Speaker: Prof. Ren Luo

Abstract: For recent technological development, in which Digital Transformation, Artificial Intelligence, Internet of Things and Robotics Integrated Resilient Manufacturing Ecosystem are included. Digital transformation is on the basis of digital technology through innovative products, services with competitive business model for resilient and sustainable industrial growth development. As the industry encountered lack of skilled labors and increased wages, the need of AI and IoT (AIoT) enhanced autonomous mobile industrial robot (AMIR) and resilient manufacturing automation is obvious. Amazon, Google and Microsoft are investing in AIoT and intelligent robotics technology. Others are likely to follow, further to stimulate investment and innovation.

Artificial Intelligent becomes important core technology of soft power which has a wide spectrum of applications including warehousing and logistic systems, robot integrated manufacturing automation, industrial cyber-physical systems (iCPS). etc. The aforementioned issues, challenges and opportunities will be the focus of this presentation including some exemplary best practices and research results with video demo at our NTU Intelligent Robotics and Automation Research Lab.

Prof. Ren C. Luo, IEEE and IET Fellow, received Dipl-Ing. and Dr.-Ing in EE from the Technische Universitaet Berlin, Germany. He is an Irving T. Ho Chair Professor at National Taiwan University. He served two-terms as President and Dean of Engineering of National Chung Cheng University, one of the major universities in Taiwan, and Founding President of Robotics Society of Taiwan. He was President of IEEE Industrial Electronics Society. Prof. Luo was Toshiba Chair Professor in the University of Tokyo, Japan. He has served as an Assistant Prof., tenured Associate Prof. and Full Prof. at Department of ECE in the North Carolina State University, USA. He served as CTO of FFG Inc. the world 3rd largest



machine tool manufacturer and was CTO of ASUS Inc. the world 2nd largest PC manufacturer and Chief Technology Officer of FFG Inc. the world 3rd largest machine tool manufacturer.

Prof. Luo's professional expertise includes AI enhanced robotic control systems, multi-sensor fusion, computer vision, intelligent manufacturing automation technologies. He has authored over 530 papers, which have been published in refereed international Transactions/ Journals and refereed conference proceedings. He also holds over 25 international patents. He is current Editor- in- Chief of IEEE Transactions on Industrial Informatics (IF 11.648), also served 5 years Editor-in-Chief of IEEE/ASME Transactions on Mechatronics.

Prof. Luo received IEEE Eugene Mittelmann Outstanding Research Achievement Award, IEEE IROS Harashima Innovative Technologies Award; ALCOA Company Outstanding Engineering Research Award, USA; He also served as referee and final review panel member for the evaluation and assessment of national competitive major research grants program for numerous international organizations and countries, such as USA, Japan, Canada, Australia, European Union, Austria, Swiss, Singapore etc.

T1-01: Control Systems, Robotics and Mechatronics

Time: Wednesday, Aug 24th, 09:00 - 11:20 CST Room: Room 1 Chairs: Dr. Meibao Yao

- 09:00 09:18 ICIT22-000089 Particle Swarm Optimization applied on Fuzzy Control: Comparative analysis for an Quarter-car Active Suspension Model Jorge Hurel Ezeta, Jorge Amaya Rivas, Juan Peralta Jaramillo, Darwin Alvarado Bravo, Francisca Flores Nicolalde
- 09:18 09:36 *ICIT22-000019 Modelling and controller design for a five-link inverted pendulum* Yarong Zhou, Parijat Bhowmick, Ying Fu, Ye Li, Alexander Lanzon
- 09:36 09:54 ICIT22-000029 Linear-nonlinear Learning Feedforward Control for PMSM Based on Deterministic Learning Yiming Fei, ZHAO Zixian, Weijian Li, Jiangang Li
- 09:54 10:12 ICIT22-000030 Deterministic Learning-based Generalizable Trajectory Tracking Control for Permanent-Magnet Synchronous Motors Driven Two-Axis X-Y Table Zixian Zhao, Yiming Fei, Chengyu Han, Jiangang Li
- 10:12 10:30 ICIT22-000076 Instantaneous force generation mechanism based on the striking motion of the mantis shrimp The effect of the diameter of the artificial muscle on the motion of the mechanism
 Fumio Ito, Riki Ono, Yusuke Ishii, Shunichi Kurumaya, Katsushi Kagaya, Taro Nakamura
- 10:30 10:48 ICIT22-000101 Mapless Navigation of Modular Mobile Robots using Deep Reinforcement Learning Zhibing Xie, Hua Shang, Xueming Xiao, Meibao Yao
- 10:48 11:06 ICIT22-000078 Proposal of a Square-Duct Cleaning Mechanism Using a Noncircular Brush with a Planetary Gear Mechanism: Brush-Trajectory Design and Simulation Yuta Yamanaka, Takehiro Hitomi, Fumio Ito, Taro Nakamura
- 11:06 11:24 ICIT22-000013 Robotic Manipulator with Active Sensing Gripper for Grabbing Shredded Food Shota Higuchi, Kenji Suzuki

T1-02: Control Systems, Robotics and Mechatronics

Time: Wednesday, Aug 24th, 16:00 - 18:00 CST Room: Room 1 Chairs: Dr. Yuanlong Xie

Papers

- 16:00 16:18 ICIT22-000022 Iterative Feedforward Tuning for A PMLSM with Unknown Time Delay and Current-Dependent Force Ripple Weike Liu, Feng Shu
- 16:18 16:36 ICIT22-000196 Event-Triggered Control for DC-DC Boost Converters Sandeep Soni, Kumar Abhishek Singh, Saumya Singh, Ankit SACHAN, Xiaogang Xiong
- 16:36 16:54 ICIT22-000055 Weighted Multi-tree RRT Algorithm for Efficient Path-planning of Mobile Robots Yiming Yan, Shuting Wang, Hao Wu, Liquan Jiang, Yuanlong Xie

16:54 - 17:12 ICIT22-000071 Homogeneous Transformation Matrix Based Neural Network for Model Based Reinforcement Learning on Robot Manipulator Mochammad Rizky Diprasetya, Andreas Schwung

- 17:12 17:30 ICIT22-000109 A Framework for Human Motion Estimation using IMUs in Human-Robot Interaction Gizem Ateş, Martin Stølen, Erik Kyrkjebø
- 17:30 17:48 ICIT22-000044 Consolidated Software Architecture for Safety-Critical AUTOSAR Applications Junghwan Lee
- 17:48 18:06 ICIT22-000145 Autonomous following method of intelligent assistance walking robot based on large-scale piezoresistive films Feng Wei, Zhaohui Luo, Bo Wang, Dongnan Su, Jipeng Wu, Peng Shang

T2: Electrical Machines, Drives, Sensors and Actuators

Time: Wednesday, Aug 24th, 19:00 - 21:00 CST Room: Room 1 Chairs: Prof. Gabor Sziebig, Prof. Mihoko Niitsuma

- 19:00 19:18 ICIT22-000031 Multi-Objective Optimization of the Iron Bridge between Segmeted PMs for an Outer-Rotor Brushless DC Motor
 Han Zhao, Xiaochen Zhang, Jing Li, He Zhang, David Gerada, Jing Zhang
- 19:18 19:36 ICIT22-000056 Variable Slope Trapezoidal Circulating Current Injection to Attenuate Capacitor Voltage Ripple in Modular Multilevel Converter Based Variable Speed Motor Drives Application Kranthi Panuganti , Sheron Figarado, Rohan Burye
- 19:36 19:54 ICIT22-000060 Investigation of Torque Ripple in Voltage Source Inverter driven Induction Motor Drive operated with Space Vector based Harmonic Elimination Pulse Width Modulation Scheme Rohan Burye, Ravi Arumalla, Sheron Figarado
- 19:54 20:12 ICIT22-000080 Detection and Discrimination of Multiple Faults in Switched Reluctance Motor Drives for Safety-Critical Applications Nasir Ali, Qiang Gao, Ke Ma
- 20:12 20:30 ICIT22-000041 Topology Optimization of a PM Synchronous Machine Based on Novel Metaheuristic Algorithm for Lower Cogging Torque and Magnet Volume Shabnam Ruzbehi
- 20:30 20:48 ICIT22-000140 Speed Tracking Control for Multi-PMSM Based on Leader-follower Consensus Exon Villalobos, Jesús Linares, Oscar Ramírez

T4: Power Systems and Smart Grids

Time: Wednesday, Aug 24th, 9:00 - 11:00 CST Room: Room 2 Chairs: Prof. Chengbin Ma

- 09:00 09:18 ICIT22-000011 Flywheel Energy Storage System to fast-frequency response provision on insular power systems from a microgrid perspective Allison Morales, Danny Jara, Johnny Rengifo, Danny Ochoa
- 09:18 09:36 ICIT22-000002 Low-Carbon Dispatch Optimization of Multi-energy complementary Integrated Energy System Combining Wind power/ Photovoltaic/Carbon capture Xiaofeng Zhang
- 09:36 09:54 ICIT22-000038 Parameter Estimation for a Two-Diode PV Model Using a Gray Wolf Optimizer Chao-Ming Huang
- 09:54 10:12 ICIT22-000157 Compatibility Simulation Research of Variable Frequency AC Power System for More Electric Aircraft Linke He, Zixiao Xu, Xiaojia Yang, Xinyuan Wang, Shuang Li, Weilin Li
- 10:12 10:30
 ICIT22-000027
 Vulnerability Assessment for Power Grids Based on Inverse-Community Structure

 Xiaoliang Wang, Fei Xue, Qigang Wu, Shaofeng Lu, Bing Han
- 10:30 10:48 ICIT22-000020 A Dependency Links Removal Strategy to Improve Robustness of Cyber-Physical Power Systems Xiao Liu

T3-01: Power Electronics and Renewable Energy

Time: Wednesday, Aug 24th, 16:00 - 17:40 CST Room: Room 2 Chairs: Prof. Pradyumn Chaturvedi

Papers

- 16:00 16:18 ICIT22-000105 Half-bridge integrated ZVS three-level DC-DC converter with Wide ZVS range and Reduced Circulting current Yongle Chen, Lei Zhao, Jianhua Zhang
- 16:18 16:36 ICIT22-000106 An Asymmetrical PWM Full-bridge converter with Current-doubler Rectifier for Medium voltage applications Jianhua Zhang, Lei Zhao, Yongle Chen
- 16:36 16:54 ICIT22-000194 Design Oriented Steady State Analysis of Series and Parallel Resonant Converters Soumitro Vyapari, Viju Nair
- 16:54 17:12 ICIT22-000083 A Comprehensive Analysis on the Effect of Right Half Plane Zero in the Control of Power Converters Soumitro Vyapari, Viju Nair
- 17:12 17:30 ICIT22-000187 Model Predictive Control of Modular Multilevel Converter with Enhanced Harmonic Performance

Jiapeng Yin, NingYi Dai, Jose I. Leon, Leopoldo G. Franquelo

T3-02: Power Electronics and Renewable Energy

Time: Wednesday, Aug 24th, 19:00 - 20:40 CST Room: Room 2 Chairs: Prof. Chi-Seng Lam

- 19:00 19:18 ICIT22-000164 Research on Coupling Characteristics of Fuel Cell Air Supply System with Centrifugal Air Compressor Chunwei Zhang, Bingjie Zhou, Xingyi Ge, Zhenjie Liao, Renkang Wang, Kai Li
- 19:18 19:36 ICIT22-000208 A Hybrid Bidirectional DC-DC Converter for Electric Vehicles Applications Reza Rezaii, Reza Khalili, Md Safayatullah, Mohammad Nilian, Issa Batarseh
- 19:36 19:54ICIT22-000209Control of Electric Vehicle Fast Charger based on Vienna Rectifier and Dual
Active Bridge DC-DC Converter
Md Safayatullah, Reza Rezaii, Sumana Ghosh, Issa Batarseh
- 19:54 20:12 ICIT22-000005 Analysis of leakage current paths in the power cable and reduction of shield common-mode current through common-mode choke Andrea Zingariello
- 20:12 20:30 ICIT22-000148 Mitigation of DC Bias in Dual Active Bridge DC-DC Converter using Current Averaged Moving Discretized Control Set Model Predictive Control Sheetal Cyriac, Rijil Ramchand

T6: Cloud Computing, Big Data and Software Engineering

Time: Wednesday, Aug 24th, 9:00 - 10:20 CST Room: Room 3 Chairs: Prof. Kanghyun Jo, Dr. Jicheng Chen

- 09:00 09:18 ICIT22-000039 A New Approach to Waiting Time and Dispatch Frequency Guided Bus Timetable Optimization Hai Wang, Feng Li, Wenming Yang, Qingmin Liao
- 09:18 09:36 ICIT22-000057 Multi-tier Edge Computing for Partitioned Neural Network Tianfeng Ren, Ming-Tuo Zhou
- 09:36 09:54 ICIT22-000063 Evaluation of Platform Oriented Battery Fault Diagnosis Algorithms LI GAOJU, Shuo Wang
- 09:54 10:12 *ICIT22-000069 A microservice based generic consensus engine for BaaS* Huiyang Li, Xu Zhang, Jing Li, Dongbin Wang

T7: Electronic Systems on Chip, Embedded Control and Nanotechnology

& T5: ICT enabled Healthcare

Time: Wednesday, Aug 24th, 16:00 - 17:40 CST Room: Room 3 Chairs: Prof. Alin Tisan, Prof. Yunjia Li

- 16:00 16:18 ICIT22-000014 Study on the Thermo-oxidative aging Properties of Nano-SiO2 Composites Based on Cross-linked Polyethylene Chen Shaoping
- 16:18 16:36 ICIT22-000066 Onset Voltage for Electrospray from Nanopores Wang Chen
- 16:36 16:54 ICIT22-000077 The piezoelectric effect on the carbon and boron nitride coaxial heteronanotubes resonatorr Kangren You
- 16:54 17:12 ICIT22-000043 Connection, Communication and Value Co-creation: Construction of ICT Enabled Health Management Platform Xinyi Ding, Cong Cao
- 17:12 17:30 *ICIT22-000161 Quantification of Diabetic Foot Ulcer Based on Ulcer Segmentation* HongYu Jin, Lifang Liu

T8-01: Computational Intelligence and Signal and Image Processing

Time: Wednesday, Aug 24th, 19:00 - 21:20 CST Room: Room 3 Chairs: Prof. Hao Luo

- 19:00 19:18ICIT22-000205Unauthorized Drone Detection: Experiments and PrototypesMuhammad Asif Khan, Hamid Menouar, Osama Muhammad Khalid, Adnan Abu-Dayya
- 19:18 19:36 ICIT22-000003 A novel feature enhancement module for small object detection Ruogu Wang, Ning Li
- 19:36 19:54ICIT22-000075A Square-Root Free Implementation of the Square-Root V-BLAST Algorithm by
a Wide-sense Complex Givens Rotation
Hufei Zhu, Yonghui Huang, Fuqin Deng, Yanyang Liang
- 19:54 20:12 ICIT22-000155 Comparison between the Optimal-Ordered SIC Detector in "Low-Complexity SIC Detection Algorithms for Multiple-Input Multiple-Output Systems" and a Previous SIC detector Genquan Chen, Hufei Zhu, Fuqin Deng, Yanyang Liang
- 20:12 20:30 ICIT22-000082 A Flexible and Hybrid Feature Mapping Technique Based on multivariate Beta Distribution Kernel Applied to Medical Applications Narges Manouchehri, Nizar Bouguila
- 20:30 20:48 ICIT22-000086 Multivariate Beta Dirichlet Process-based Hidden Markov Models Applied to Medical Applications Narges Manouchehri, Nizar Bouguila
- 20:48 21:06 ICIT22-000012 A CPU-based Pedestrian Detector using Deep Learning for Intelligent Surveillance Systems Muhamad Dwisnanto Putro

Thursday, Aug 25th

	Plenary Room	Room 1	Room 2	Room 3	Room 4
9:00 - 10:00		T8-02 Computational Intelligence and	SS03 Coordination control of	SS05 Industrial Internet- of-things (IIoT)	T10-01 Al and Industrial
10:00 - 11:00		Processing	systems and its industrial applications	Security Measures for Industrial Intelligence	
11:00 - 12:00					
12:00 - 13:00					
13:00 - 14:00					
14:00 - 15:00	Keynote 2				
15:00 - 16:00	Keynote 3				
16:00 - 17:00		T8-03 Computational	T9-01 Industrial	SS02 Modelling,	T10-02 Al and
17:00 - 18:00		Signal and Image Processing	Automation, Communication and Networking	Control of Complex System	Industrial
18:00 - 19:00					
19:00 – 20:00		SS07 Data-driven fault diagnosis and fault-tolerant control: Recent Advancement	T9-02 Industrial Automation, Communication and Networking	SS06 Power Electronics Applications Renewable Energy	
20:00 - 20:45	Closing	SS08 Emerging Technologies and Applications of Wireless Power Transfer			
20:45 – 21:15	Ceremony				

Keynote 2

Time: Thursday, Aug 25th, 14:00 - 15:00 CST Room: Plenary Room Chair: Prof. Wenbin Dai

Energy Communities - empowering decentralized prosumers of renewable energy Speaker: Prof. Thilo Sauter

Abstract: It is not a new insight, but climate crisis and the apparent unreliability of oil and natural gas supplies have made it more pressing than ever: We must reduce the reliance on fossile energy and increase the use of renewables. Renewable energy has the obvious benefit of decentralized production possibilities, but the structural change from traditional hierarchical energy supply grids with centrally controlled generation to an interaction of steadily growing, decentralized, volatile producers requires novel control concepts. This becomes even more obvious when considering the contributions of individual, private prosumers on the one hand and the limitations of the distribution grid on the other hand. Energy communities are an important step towards overcoming these limitations. In contrast to simple aggregation, load management or self-consumption optimization of individual customers, cooperative bundling of different prosumers in grid segments may help to optimize the overall state of the grid. This also makes energy communities important new partners for distribution system operators. The keynote will review the background of this relatively novel concept, as well as technical and organizational issues and challenges around its implementation.

Thilo Sauter (M'93–SM'09–F'14) received the Dipl.-Ing. and Ph.D. degrees in electrical engineering from TU Wien, Vienna, Austria, in 1992 and 1999, respectively. Until 2003, he led the Factory Communication Group at the Institute of Computer Technology. From 2004 to 2013, he was the Founding Director of the Institute for Integrated Sensor Systems at the Austrian Academy of Sciences. Since 2013, he has been with the Department of Integrated Sensor Systems at the Danube University Krems, Austria, and a tenured Associate Professor for automation technology at TU Wien since 2014. His expertise and research interests include embedded systems and



integrated circuit design, smart sensors, and automation and sensor networks with a focus on real-time, security, interconnection, and integration issues relevant to cyberphysical systems and the Internet of Things in various application domains such as industrial and building automation, smart manufacturing, or smart grids.

Dr. Sauter is the Vice President of the Austrian Association for Instrumentation, Automation, and Robotics, member of the Board of the Austrian Electrotechnical Association, Senior AdCom Member of the IES, and Treasurer of the IEEE Austria Section. He was chair of the IEEE IES Technical Committee on Factory Automation from 2010-2011. He is author or co-author of more than 350 scientific publications and has held leading positions in renowned IEEE conferences, such as Program Co-Chair of WFCS 2004, ETFA 2005 and 2014, ISIE 2010, INDIN 2019, and General Co-Chair of ISPCS 2007, WFCS 2008, 2010, 2012, 2015, 2016, ETFA 2020, and INDIN 2021. He is currently Vice-President for Publications of the IES, past Editor-in-Chief of IEM, and AE for TII and IEEE Sensors Journal, and has been Guest Editor for a number of Special Sections in various IEEE journals. Moreover, he has been involved in the standardization of industrial communication systems for more than 20 years.

Keynote 3

Time: Thursday, Aug 25th, 15:00 - 16:00 CST Room: Plenary Room Chair: Prof. Wenbin Dai

UniversalAutomation.Org : the missing link to Industry 4.0 Speaker: John Conway

Abstract: An always changing environment imposes more flexibility for the manufacturing which impacts automation.

In order to answer those challenges, machines and processes need to have more integration with IT applications such as Artificial Intelligence, Augmented Reality, Predictive Maintenance. This IT integration requires getting access to the process data and more investment in software. But how to do it when the automation application is dependent from the vendor's hardware?

Mr. Conway has more than 40 years of experience in the automation industry working for different supplier. Managed multiple merger and acquisitions projects in the industrial automation area. Now working as President of the newly formed independent non-profit association UniversalAutomation.Org



T8-02: Computational Intelligence and Signal and Image Processing

Time: Thursday, Aug 25th, 9:00 - 11:20 CST Room: Room 1 Chairs: Prof. Hao Luo

Papers

09:00 - 09:18	ICIT22-000047 Mixtures	Bayesian Model and Feature Selection in Asymmetric Generalized Gaussian		
	Ravi Teja Vemuri, Muhammad Azam, Nizar Bouguila, Zachary Patterson			
09:18 - 09:36	ICIT22-000190 Learning	Night Vision Enhancement for License Plate Recognition based on Deep		
	Kaixin Wang, Linhuang Wu, Shihao Zhang, Renfang Wen			
09:36 - 09:54	<i>ICIT22-000171</i> Kian Ketabchi, N	Fully Bayesian Libby-Novick Beta Mixture Model with Feature Selection arges Manouchehri, Nizar Bouguila		
09:54 - 10:12	ICIT22-000188 Approach with H Rim Nasfi, Nizar	Indoor Activity Recognition Using a Hybrid Generative-Discriminative lidden Markov Models and Support Vector Machines Bouguila		
10:12 - 10:30	<i>ICIT22-000088</i> Duan Han	Defective Surface Detection based on Improved Faster R-CNN		
10:30 - 10:48	ICIT22-000093 systems	Optimal region gradated fusion based automatic image stitching for industrial		
	Yanlin Huang, M	eilian Zheng, Ziwei Song, Songzhu Mei, Zebin Wang, Gangyong Jia		
10:48 - 11:06	ICIT22-000114	Knowledge-Based Scene Text Recognition for Industrial Applications		

Guowei Deng, Jingzheng Tu, Cailian Chen, Jianping He, Xinyi Le

T8-03: Computational Intelligence and Signal and Image Processing

Time: Thursday, Aug 25th, 16:00 - 18:20 CST Room: Room 1 Chairs: Prof. Andrei Lobov, Prof. Hao Luo

16:00 - 16:18	ICIT22-000058	Point-Cloud Mapping by Helmet-Mounted LiDAR Based on NDT SLAM
	Masafumi Hashi	imoto, Akihiko Yoshida, Ibuki Yoshida, Kazuhiko Takahashi
16:18 - 16:36	ICIT22-000170	Graph Neural network based Child Activity Recognition
	Sanka Mohottal	a, Pradeepa Samarasinghe, Dharshana Kasthurirathna, Charith Abhayaratne
16:36 - 16:54	ICIT22-000186	Automated Analysis of Child Emotion Expression Levels
	Madhuka Nadee	eshani, Kovisha Kalaichelvan, Anuradha Karunasena, Pradeepa Samarasinghe
16:54 - 17:12	ICIT22-000144	Unsupervised Person Re-identification via Mining Label Homogeneity
	Qing Tang, Kang	hyun Jo
17:12 - 17:30	ICIT22-000142	Virtual Reality Image Dataset vCAT Helps Research on Semantic Segmentation
	Algorithms	
	Wenjie Li, Wend	huan Jia, Yunxin Fan, Shugen Ma
17:30 - 17:48	ICIT22-000189	A Robust Blind Deblurring Method for Natural Blurry Images
	Renfang Wen, Ji	an Chen, Linhuang Wu, Kaixin Wang
17:48 - 18:06	ICIT22-000146	Discriminating COVID-19 from Pneumonia using Machine Learning Algorithms
	and Chest X-ray	Images
	Rumana Islam	

SS 07: Data-driven fault diagnosis and fault-tolerant control: Recent Advancement

& SS 08: Emerging Technologies and Applications of Wireless Power Transfer

Time: Thursday, Aug 25th, 19:00 - 20:20 CST Room: Room 1 Chairs: Prof. Yunsong Xu, Prof. Yuchen Jiang

- 19:00 19:18ICIT22-000098Adaptive Frequency Estimator Based on the Observable Canonical FormKuan Li, Dejia Tang, Yang He, Yuansheng Zhao, Hao Luo
- 19:18 19:36ICIT22-000124Random Forest Regression for Battery State-of-Health Estimation Based on
Unsupervised Transfer Component Analysis Domain Adaptation
Jilun Tian, Jiusi Zhang, Congsheng Huang, Mo-Yuen Chow, Hao Luo
- 19:36 19:54ICIT22-000138Collaborative Fault Detection and Diagnosis Architecture for Industrial Cyber-
Physical Systems
Luis Piardi, Paulo Leitao, Pedro Costa, André Oliveira
- 19:54 20:12ICIT22-000166A LOW RADIATION CAPACITIVE COUPLER AND ITS COMPENSATIONShiqi Gao, Yipeng Liu, Yiming Yin, Minfan Fu

SS 03: Coordination control of complex network systems and its industrial

applications

Time: Thursday, Aug 25th, 9:00 - 11:40 CST Room: Room 2 Chairs: Prof. Junjie Fu

Papers

- 09:00 09:18 *ICIT22-000053 Pinning control of multi-agent systems with periodical switching topology* Guangrui ZHANG, Xinghuo Yu, Zhiyi Chen, Mahdi Jalili, Ali Moradi Amani
- 09:18 09:36 ICIT22-000054 Remote sensing image segmentation of ground objects based on improved Deeplabv3+

Min Wang, Haibo Du, Shuiqing Xu, Zhuo Liu

- 09:36 09:54 ICIT22-000073 Collision avoidance of USV by model predictive control-aided deep reinforcement learning Bei Hu, Ying Wan, Yaqing Lei
- 09:54 10:12 *ICIT22-000074 Quadrotor digital twin platform based on Unity* Haibo Du, Fuquan Wang
- 10:12 10:30 ICIT22-000079 Fixed-time distributed secondary control of DC microgrid with energy storage units

Huan Pan, Wanyin Ta, Xiao Feng, Jin Yang

10:30 - 10:48 ICIT22-000117 Full-order Terminal Sliding-mode Control of A Class of Nonlinear Uncertain System

Hongyu Su, Minghao Zhou, Wei Xu, Yi Liu, Jing Hu, Bohuan Li

- 10:48 11:06 *ICIT22-000133 Flux-Weakening Control of PMSM Based on Full-Order Sliding Mode Control* Kemeng Wei, Minghao Zhou, Wei Xu, Ying Chi, Yue Zhang, Zhuohong Huo
- 11:06 11:24 ICIT22-000121 Gaussian Process Based Trajectory Tracking for Nonholonomic Robots with Velocity Constraints Dan Liu, Junjie Fu

T9-01: Industrial Automation, Communication and Networking

Time: Thursday, Aug 25th, 16:00 - 18:40 CST Room: Room 2 Chairs: Prof. Bilal Ahmad, Dr. Stamatis Karnouskos

Papers

16:00 - 16:18 ICIT22-000007 Trust your BMS: Designing a Lightweight Authentication Architecture for Industrial Networks

Fikret Basic, Christian Steger, Christian Seifert, Robert Kofler

16:18 - 16:36 ICIT22-000033 An Analysis of Design Parameters for Energy Management of Wireless Sensor Devices Asbjørn Engmark Espe, Sondre Ninive Andersen, Pierluigi Salvo Rossi, Frank Alexander

Asbjørn Engmark Espe, Sondre Ninive Andersen, Pierluigi Salvo Rossi, Frank Alexander Kraemer, Geir Mathisen

- 16:36 16:54ICIT22-000048Kubernetes Orchestration of High Availability Distributed Control SystemsBjarne Johansson, Alessandro Papadopoulos, Thomas Nolte, Mats Rågberger
- 16:54 17:12 ICIT22-000108 Enhancing a Biological inspired Self-organized Architecture towards Smart Manufacturing Luis Alberto Jimenez, Terrin Pulikottil, Sepideh Kalateh, Sanaz Nikghadam-Hojjati, Jose Barata
- 17:12 17:30 ICIT22-000150 Engineering a Multi-agent Systems Approach for Realizing Collaborative Asset Administration Shells

Lucas Sakurada, Paulo Leitao, Fernando De la Prieta

- 17:30 17:48 ICIT22-000181 Automatic Code Generation for Modular Discrete Manufacturing Systems based on ISA 88 and Module Type Package Huiwen Wu, YINGYUE ZHANG, Wenbin Dai
- 17:48 18:06 ICIT22-000112 Hybrid Traffic Scheduling Based on Adaptive Time Slot Slicing in Time-Sensitive Networking Shouliang Wang, Qimin Xu, Yanzhou Zhang, Lei Xu, Cailian Chen
- 18:06 18:24 ICIT22-000115 A Framework for the Automation of Platform Validation for Use Cases of Wi-Fi

Nikhileswar Kota, Sudhir Kumar, Jawar Singh, Dharmendra Muthuswamy

T9-02: Industrial Automation, Communication and Networking

Time: Thursday, Aug 25th, 18:40 - 20:40 CST Room: Room 2 Chairs: Prof. Bilal Ahmad, Dr. Stamatis Karnouskos

- 18:40 18:58 ICIT22-000052 Power Delay Profile investigation in Industrial Indoor Environments at the 24 GHz ISM band
 Smruti Ranjan Panigrahi, Niclas Björsell, Mats Bengtsson
- 18:58 19:16 ICIT22-000122 Assembly Precedence Graph Mining Based on Similar Products
 Ouijdane Guiza, Christoph Mayr-Dorn, Michael Mayrhofer, Alexander Egyed, Heinz Rieger, Frank Brandt
- 19:16 19:34 ICIT22-000132 Enhancing CAD-integrated automatic feature recognition of weld joints with GPU-accelerated multi-directional slicing Tuan Tran, Andrei Lobov, Richard Bachmann
- 19:34 19:52 ICIT22-000191 A path planning method for robot-aided aero-engine fleet inspection considering resource reuse strategy xinyi Song, Ying Cheng, Qinglin Qi, Xiaofu Zou
- 19:52 20:10ICIT22-000118Microservice Dynamic Migration based on Age of Service for Edge Computing
Yuxiang Liu, Bo Yang, Xu Yang, Yu Wu, Cheng Li
- 20:10 20:28 *ICIT22-000035 5G and DetNet: Towards holistic determinism in industrial networks* Niklas Ambrosy, Thomas Kampa, Ulrich Jumar, Daniel Großmann

SS 05: Industrial Internet-of-things (IIoT) Technologies and Security Measures

for Industrial Intelligence

Time: Thursday, Aug 25th, 9:00 - 10:40 CST Room: Room 3 Chairs: Prof. Wei Han

- 09:00 09:18 ICIT22-000195 Survey of Protocols for V2G Communications Subhaditya Shom, Arpan Guha, Kim Fung Tsang, Hiroaki Nishi, Chung Kit Wu, Khaled Shuaib, Hamid Sharif, Mahmoud Alahmad
- 09:18 09:36 ICIT22-000049 AGV Semantic Attack Detection Based on Hidden Markov Model Sichao Zhang, Wei Liang, Yinlong Zhang, Zhibo Pang
- 09:36 09:54 *ICIT22-000169 Evaluation of the Communication Overhead of Rejoin in LoRaWAN Protocol* Yo-Che LEE, Wei Yang, Yucheng Liu, Kim Fung Tsang
- 09:54 10:12 ICIT22-000197 HCD-Mask: a multi-task model for small object detection and instance segmentation in high-resolution UAV images Qun Li, Mingshan Sun, Li Dong, Xiaozhi Gao, Zenghui Wang, Haijun Zhang
- 10:12 10:30ICIT22-000198Automatic Health Monitoring in Health EstateDanni Chen, Zijie Qiu, Yiting Wei, Bingo Ling, Qing Liu

SS 02: Modelling, Estimation and Control of Complex System

Time: Thursday, Aug 25th, 16:00 - 18:40 CST Room: Room 3 Chairs: Dr. Yueyuan Zhang

Papers

- 16:00 16:18 ICIT22-000042 Evaluation of thermal conductivity of amorphous materials using the excluded volume method Zhiguo Liu, Chao Ding, Juekuan Yang
- 16:18 16:36 ICIT22-000095 Building Temperature and Humidity Adaptive Control for a Multi-Zone HVAC System Using Hybrid Modeling Method yuliang Jiang, Shanying Zhu, Qimin Xu, Bo Yang, Xinping Guan
- 16:36 16:54 ICIT22-000116 Latent Factor Learning Under Multiple Rating Patterns for Undirected, Large-Scaled and Sparse Networks Ming Li, Jing Wu, Yan Song, Bohui Wang
- 16:54 17:12 ICIT22-000182 Vehicle Scheduling for Steel Logistics Based on Vehicle Batching Weixiang Wen, Kang Chen, Jinlong Wang, Zhezhuang Xu, Rong Wang, Boyu Chen, Qingdong Zhang
- 17:12 17:30 *ICIT22-000184 Optimization of Stacking Location for Mixed Loading of Steel Products* Rong Wang, Song Zheng, Jinlong Wang, Zhezhuang Xu, Weixiang Wen, Boyu Chen, Qingdong Zhang
- 17:30 17:48 ICIT22-000120 Leader-following consensus for nonlinear multi-agent systems with actuator saturation

Jing Xu, Jun Huang, Lin Yang, Haixiang Zhang

- 17:48 18:06 ICIT22-000152 Dynamic Assessment of Multi-factor Virus Airborne Model in Enclosed Environment Lei Yu
- 18:06 18:24 ICIT22-000174 Interval observer design for Euler-Lagrange system with application to biped robot system
 Zhihang Yin, Jun Huang, Jianwei Fan, Haoran Zhang

SS 06: Power Electronics Applications Renewable Energy

Time: Thursday, Aug 25th, 19:00 - 20:00 CST Room: Room 3 Chairs: Dr. Rakesh Kumar, Dr. DP Kothari

- 19:00 19:18 ICIT22-000158 Deep-Learning-Based Synchronous Rectification Strategy for CLLC Resonant Converter with High Accuracy in Wide Operating Range Kefan Yu, Fang Zhuo, Feng Wang, Xinyu Jiang
- 19:18 19:36ICIT22-000163Investigation on the Effect of Magnetic Coupling and Power Harvested in an
Electromagnetic Vibration Energy HarvesterTunde Isaiah Toluwaloju, Chung Ket Thein, Dunant Halim, Devinder Yadav
- 19:36 19:54
 ICIT22-000214
 Solar PV Energy Trading Market Blockchain-based: Agent-Models Community

 Ameni Boumaiza

T10-01: AI and Industrial Informatics

Time: Thursday, Aug 25th, 9:00 - 11:00 CST Room: Room 4 Chairs: Dr. Achini Adikari, Dr. Harsha Moraliyage

Papers

- 09:00 09:18 ICIT22-000094 A Two-Stage Efficient 3-D CNN Framework for EEG Based Emotion Recognition Ye Qiao, Mohammed Alnemari, Nader Bagherzadeh
- 09:18 09:36 ICIT22-000004 A Process-Traceable High-Precision Tightening System : System Architecture and Synchronous Control Xinlu Yu
- 09:36 09:54 ICIT22-000162 A Skeleton-based View-Invariant Framework for Human Fall Detection in an Elevator

RASHID ALI, Iva Surya Hutomo, Lan-Da Van, Yu-Chee Tseng

- 09:54 10:12 ICIT22-000167 Anomaly Detection System for Assembly Cells Using Skeletal Information Yuichi Sakurai, Shuichi Nishino, Daisaku Takahashi
- 10:12 10:30 ICIT22-000192 A Learning Approach to Multi-robot Task Allocation with Priority Constraints and Uncertainty Huanzhao Huang
- 10:30 10:48 ICIT22-000130 Improving Convolution Neural Networks with Window-based Transformer Blocks for Laser Welding Process Monitoring Fuqin Deng, Yongshen Huang, Guangwen Yao, Hufei Zhu, Bing Luo, Shufen Liang, Ningbo Yi

T10-02: AI and Industrial Informatics

Time: Thursday, Aug 25th, 16:00 - 17:40 CST Room: Room 4 Chairs: Dr. Mohamed Ali Tnani, Dr. Harsha Moraliyage

- 16:00 16:18 ICIT22-000046 Neural Encoding of Mass Matrices of Articulated Rigid-body Systems in Cholesky-Decomposed Form Shih-Ming Wang, Ryo Kikuuwe
- 16:18 16:36 ICIT22-000100 Comparative Study of Deep Learning Parameter Selection for Multi-Output Regression on Head Pose Estimation Vidushani Dhanawansa, Pradeepa Samarasinghe, Pratheepan Yogarajah, Bryan Gardiner, Anuradha Karunasena
- 16:36 16:54 ICIT22-000107 Extract, Compress and Encode: LitNet an Efficient Autoencoder for Noisy Time-Series Data Mohamed Ali Tnani, Paul Subarnaduti, Klaus Diepold
- 16:54 17:12 ICIT22-000147 Driver Distraction Recognition Based on CBAM Attention Mechanism Yiying Wei, Wei Chen, Jie Yang, Wei Liu, Zhicheng Li, Yucheng Zhang
- 17:12 17:30 *ICIT22-000165 Context-aware multi-feature fusion for open-domain dialogue generation* Liao Jingbo, Yu Hong, Cheng Qi, Wang Ye









