IEEE CASE AUCKLAND 2023

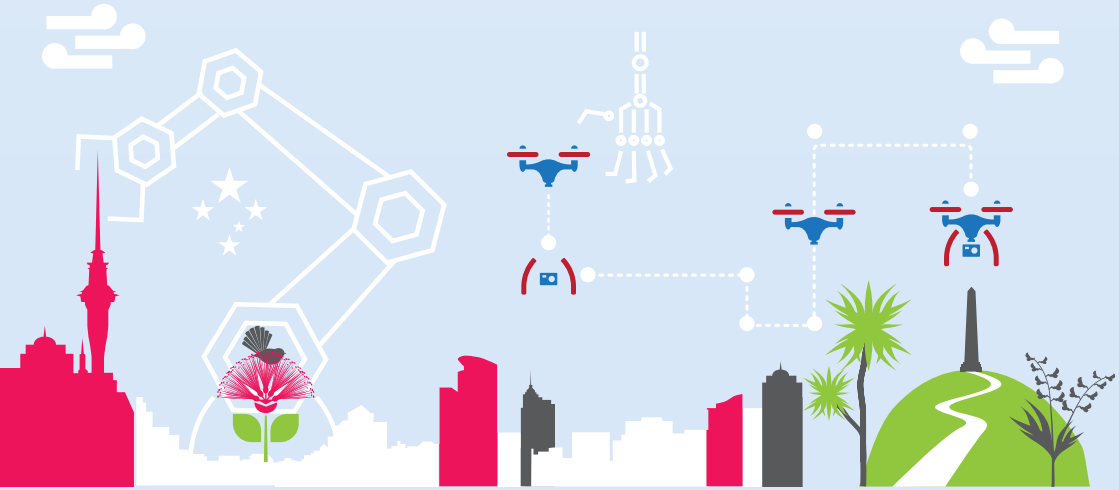
19TH INTERNATIONAL CONFERENCE ON AUTOMATION SCIENCE AND ENGINEERING

Automation for a Resilient Society

CONFERENCE HANDBOOK

26 – 30 August 2023

Cordis, Auckland, New Zealand | case2023.org



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Welcome

On behalf of the Organising Committee, it is our great pleasure to extend a warm welcome to all participants attending the IEEE 19th International Conference on Automation Science and Engineering (IEEE CASE2023), taking place in Auckland, New Zealand, from August 26-30, 2023. As the flagship conference of the IEEE Robotics & Automation Society, CASE serves as a prestigious international platform for researchers and practitioners to present and discuss their cutting-edge work in the field of automation. We are delighted to host this significant event for the first time in this part of the world, amidst the vibrant, multicultural environment and innovative spirit that characterizes Auckland, one of the world's most sustainable and livable cities.

CASE2023 brings together a diverse range of activities, including plenary and keynote sessions, contributed paper sessions, workshops and tutorials, engaging industry panel discussions, WiE luncheon and a host of student activities. The conference will also highlight a panel discussion on the impact of Generative AI on future automation engineering. The session will delve into the potential implications, opportunities, and challenges that arise with the integration of artificial intelligence and automation, paving the way for insightful discussions and future advancements in this rapidly evolving domain.

As the world emerges from the challenges of the Covid pandemic, we are dedicated to revitalizing the face-to-face conferencing experience that fosters dynamic discussions and networking among researchers in the automation domain. However, this year's CASE conference will also be marked with deep remembrance, as we mourn the loss of Prof. Peter Luh, a co-founder of CASE. In commemoration of his profound contributions, CASE2023 features special events such as the "Workshop on Machine Learning for Automation" and the Peter Luh Conference Day (28 August). Additionally, we have established the "Peter Luh Memorial

Contents

Best Paper Award for Young Researcher", and we eagerly await to discover the recipient of this inaugural award. We are also honoured to welcome Prof. Luh's family members to join us in celebrating his legacy.

We are thrilled to announce that CASE2023 received an overwhelming number of submissions from more than 32 countries, including 3 workshop proposals, 36 special session proposals, and 624 technical papers (42 of which are RAL/T-ASE/T-RO papers, 522 are full papers, and 60 are presentation-only papers). After rigorous evaluation, the final program comprises 434 technical papers (392 full papers and 42 presentation-only papers). We extend our heartfelt appreciation to the entire CASE community, including the dedicated authors, diligent reviewers, and meticulous editorial teams, whose unwavering support and commitment have made these achievements possible. Moreover, we extend our gratitude to the esteemed Steering Committee, the hardworking Local Organising Committee, and the enthusiastic volunteers, whose invaluable efforts have culminated in the realization of CASE2023.

In conclusion, we look forward to fostering a vibrant and enriching conference experience that not only embraces innovation and excellence but also pays tribute to the remarkable legacy of Prof. Peter Luh. We hope that CASE2023 will inspire new collaborations, exchange of ideas, and advancements in automation science and engineering that will drive positive changes for a more resilient society.

Thank you for being part of this momentous event.

On behalf of the Organising Committee,
IEEE CASE2023

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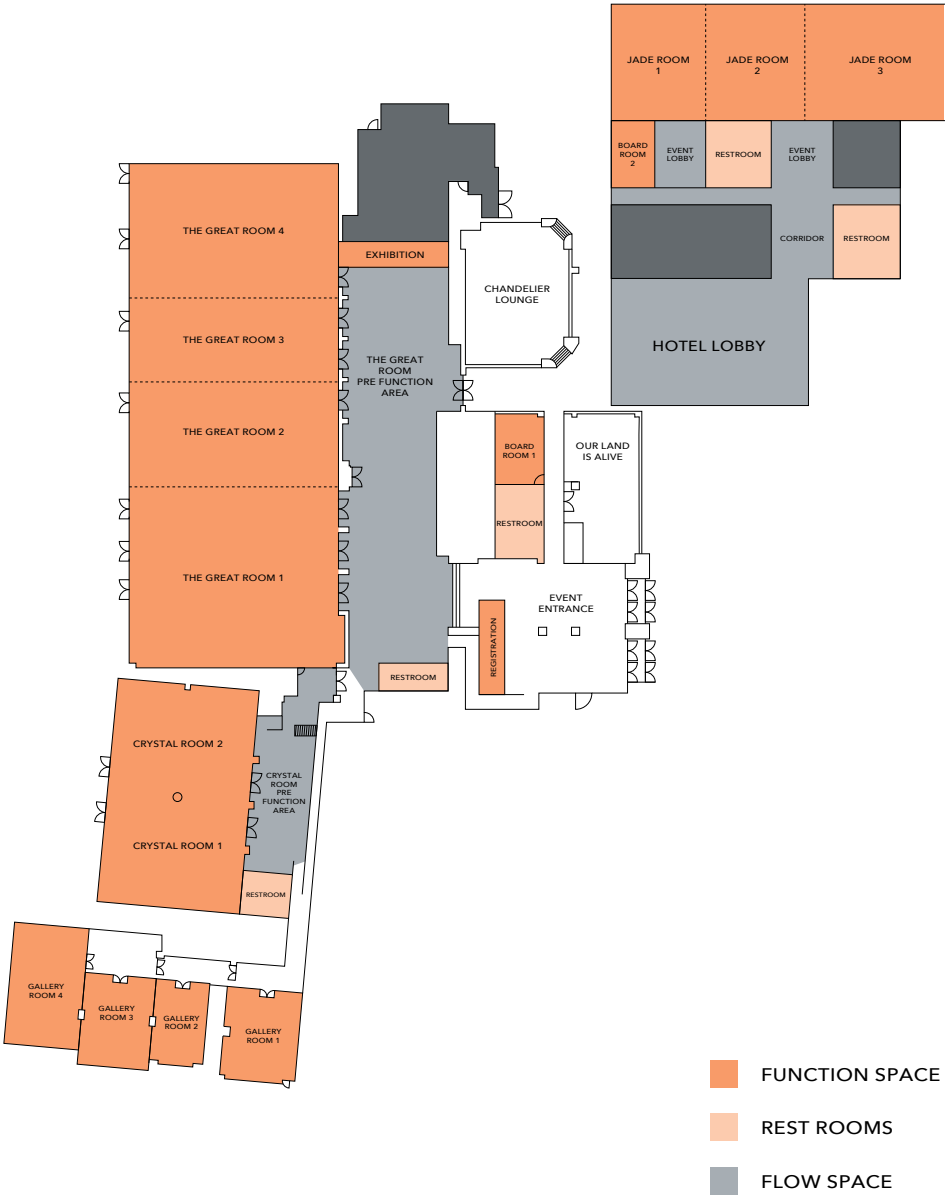
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EVENT LOBBY
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HOTEL LOBBY
THE GREAT ROOM 4
EXHIBITION
CHANDELIER LOUNGE
THE GREAT ROOM 3
THE GREAT ROOM PRE FUNCTION AREA
THE GREAT ROOM 2
BOARD ROOM 1
OUR LAND IS ALIVE
RESTROOM
THE GREAT ROOM 1
EVENT ENTRANCE
REGISTRATION
RESTROOM
CRYSTAL ROOM 2
CRYSTAL ROOM PRE FUNCTION AREA
CRYSTAL ROOM 1
RESTROOM
GALLERY ROOM 4
GALLERY ROOM 3
GALLERY ROOM 2
GALLERY ROOM 1
FUNCTION SPACE
REST ROOMS
FLOW SPACE

Programme overview

26/08/2023		
TIME	**Day 1 (Workshops/Tutorial)**	
8:00		
8:15		
8:30		
8:45		
9:00	**Registration** R1 The Great Room Lobby	
9:15		
9:30		
9:45		
10:00	**Workshop 1:** Workshop on Machine Learning for Automation (Dedicated to the late Professor Peter Luh) *WSMLA-1A* *Great Room 1&2*	
10:15		
10:30		
10:45		
11:00		
11:15		
11:30		
11:45		
12:00	**Lunch** *L1* *The Great Rooms Pre Function Area*	
12:15		
12:30		
12:45		
13:00	**Workshop 1:** Workshop on Machine Learning for Automation *(Dedicated to the late Professor Peter Luh)* *WSMLA-1B* *Great Room 1&2*	**Tutorial:** Biosignals-based design approaches for the development of human-machine interfaces for shared control of computer applications and robotic devices *TBDAHMI-1A* *Great Room 3*
13:15		
13:30		
13:45		
14:00		
14:15		

Workshop 2:
Precise Surgical Robotics: Design, Modeling, Sensing, and Control

WSPSR-1B
Great Room 4

Workshop 2:
Precise Surgical Robotics: Design, Modeling, Sensing, and Control

WSPSR-1B
Great Room 4

26/08/2023 (continued)		
14:30	**Break** *B1*	
14:45		
15:00	**Workshop 1:** Workshop on Machine Learning for Automation *(Dedicated to the late Professor Peter Luh)* *WSMLA-1C* *Great Room 1&2*	**Tutorial:** Biosignals-based design approaches for the development of human-machine interfaces for shared control of computer applications and robotic devices *TBDAHMI-1B* *Great Room 3*
15:15		
15:30		
15:45		
16:00		
16:15		
16:30		
16:45		
17:00	**Welcome Reception and Māori Culture performance** *sponsored by Facteon* *SE1* *The Great Rooms Pre-Function Area*	
17:15		
17:30		
17:45		
18:00		
18:15		
18:30		
18:45		

Workshop 2:
Precise Surgical Robotics: Design, Modeling, Sensing, and Control

WSPSR-1C
Great Room 4

27/08/2023			
TIME	**Day 2**		
8:00 8:15	**Registration** *R2* *The Great Room Lobby*		
8:30 8:45	**Welcome Mihi Whakatau & Opening Address** Steven Roberts, Kaiarataki Prof. Dawn Freshwater, Vice-Chancellor,UoA *O1* *Great Room 1&2*		
9:00 9:15 9:30 9:45	**Cyber-Physical Internet (CPI): Next-Generation of Resilient Logistics of Manufactured Products** Prof. George Q. Huang *K1A* *Great Room 1&2*		
10:00 10:15	**Break** B2A		
10:30 10:45 11:00 11:15 11:30 11:45 12:00 12:15	**Best Paper Award Session** (Best Conference Paper & Best Application Paper) *BPAS-1A* *Great Room 1&2*	**RS: Foundations of Automation** *RFA-1A* *Great Room 3*	**SS: Automation for Manufacturing and Logistics** *SAML-1A* *Great Room 4*
12:30 12:45 13:00 13:15	**Lunch** *L2* *The Great Rooms Pre Function Area*		
13:30 13:45 14:00 14:15	**Digital Twins for Manufacturing Systems: Improving Productivity and Expanding Capabilities** Prof. Dawn Tilbury *K1B* *Great Room 1&2*		

RS: Foundations of Automation *RFA-2* *Crystal Room 1*	**RS: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics** *RAIM-1* *Crystal Room 2*	**SS: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics** *SAIM-1* *Gallery Room 1*	
			Lunch with Leaders *LL1* *Gallery Room 4*

27/08/2023 (Continued)			
14:30 14:45 15:00 15:15	**Best Paper Award Session** (Best Student Paper) *BPAS-1B* *Great Room 1&2*	**RS: Foundations of Automation** *RFA-1B* *Great Room 3*	**SS: Automation for Manufacturing and Logistics** *SAML-1B* *Great Room 4*
15:30 15:45	**Break** *B2B*		
16:00 16:15 16:30 16:45	**Best Paper Award Session** (Best Healthcare Automation Paper) *BPAS-1C* *Great Room 1&2*	**RS: Foundations of Automation** *RFA-1C* *Great Room 3*	**SS: Automation for Manufacturing and Logistics** *SAML-1C* *Great Room 4*
17:00 17:15 17:30 17:45			
18:00 18:15 18:30 18:45 19:00 19:15			

SS: Automation in Life Sciences and Healthcare Systems *SALH-1A* *Crystal Room 1*	**RS: Automation in Life Sciences and Healthcare Systems** *RALH-1A* *Crystal Room 2*	**RS: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics** *RAIM-2A* *Gallery Room 1*	
SS: Automation in Life Sciences and Healthcare Systems *SALH-1B* *Crystal Room 1*	**RS: Automation in Life Sciences and Healthcare Systems** *RALH-1B* *Crystal Room 2*	**RS: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics** *RAIM-2B* *Gallery Room 1*	
			CASE Steering Committee Meeting *M1* *Gallery Room 4*

28/08/2023					
TIME	**Day 3 (Specifically Dedicated to the late Professor Peter Luh)**				
8:00 8:15	**Registration** *R3* *The Great Room Lobby*				
8:30 8:45 9:00 9:15	**Challenges of Trustworthy AI** Prof. Barbara Hammer *K2* *Great Room 1&2*				
9:30 9:45 10:00 10:15	**Industry Panel Discussion – Opportunities and Risks in Flexible, Connected Automation Systems: An Industry 4.0 Discussion** *PD1* *Great Room 1&2*	**RS:Automation for Manufacturing and Logistics** *RAML-1A* *Great Room 3*	**RS: Automation for Data Analytics** *RADA-1* *Great Room 4*		
10:30 10:45	**Break** *B3A*				
11:00 11:15 11:30 11:45 12:00 12:15	**SS: Machine Learning for Automation** *PSMLA-1A* *Great Room 1&2*	**RS:Automation for Manufacturing and Logistics** *RAML-1B* *Great Room 3*	**SS: Machine Learning for Automation** *PSMLA-2A* *Great Room 4*	**SS: Automation for Data Analytics** *SADA-1A* *Jade Room 1*	**SS: Digital Twin - Basis for Adaptable Automation Systems** *SDTAS-1* *Jade Room 2*
12:30 12:45 13:00 13:15	**Lunch** *L3* *The Great Rooms Pre Function Area*				

RS: Automation for Energy and Sustainability *RAES-1* *Jade Room 3*	**RS: Automation for Manufacturing and Logistics** *RAML-2A* *Crystal Room 1*	**SS: Foundations of Automation** *SFA-2A* *Crystal Room 2*			
SS: Automation for Manufacturing and Logistics *SAML-2A* *Jade Room 3*	**RS: Automation for Manufacturing and Logistics** *RAML-2B* *Crystal Room 1*	**SS: Foundations of Automation** *SFA-2B* *Crystal Room 2*	**RS: Automation for Energy and Sustainability** *RAES-2* *Gallery Room 1*	**SS: Smart Manufacturing Control and Optimization Towards Industry 4.0/5.0** *SSMO-1* *Gallery Room 3*	
			WIE Luncheon: Diversity in Automation Science and Engineering (Separate registration) *WIEL1* *Gallery Room 4*		

28/08/2023 (Continued)					
13:30	**SS: Machine Learning for Automation** *PSMLA-1B* *Great Room 1&2*	**RS:Automation for Manufacturing and Logistics** *RAML-1C* *Great Room 3*	**SS: Machine Learning for Automation** *PSMLA-2B* *Great Room 4*	**SS: Automation for Data Analytics** *SADA-1B* *Jade Room 1*	**RS: Automation for Data Analytics** *RADA-2A* *Jade Room 2*
13:45					
14:00					
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15:00					
15:15					
15:30	**Break** *B3B*				
15:45					
16:00			**SS: Machine Learning for Automation** *PSMLA-2C* *Great Room 4*	**RS: Foundations of Automation** *RFA-3* *Jade Room 1*	**RS: Automation for Data Analytics** *RADA-2B* *Jade Room 2*
16:15					
16:30					
16:45					
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17:45					
18:00	**Conference Dinner** *SE2* *Great Room 1&2&3*				
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21:00					
21:15					
21:30					

SS: Automation for Manufacturing and Logistics *SAML-2B* *Jade Room 3*	**SS: Automation for Data Analytics** *SADA-2* *Crystal Room 1*	**SS: Foundations of Automation** *SFA-2C* *Crystal Room 2*	**RS: Foundations of Automation** *RFA-4* *Gallery Room 1*	**IEEE RAS TCs assigned to Automation Cluster Meeting** *M2* *Gallery Room 3*	
SS: Foundations of Automation *SFA-1* *Jade Room 3*	**SS: Automation for Manufacturing and Logistics** *SAML-3* *Crystal Room 1*	**SS: Automation for Data Analytics** *SADA-3* *Crystal Room 2*	**SS: Manufacturing Data Science** *SMDS-1* *Gallery Room 1*	**RS: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics** *RAIM-3* *Gallery Room 3*	**IEEE T-ASE Meeting** *M3* *Gallery Room 4*

29/08/2023			
TIME	**Day 4**		
8:00 8:15	**Registration** *R4* *The Great Room Lobby*		
8:30 8:45 9:00 9:15	**Horticultural Robotics – Challenges and Opportunities, a New Zealand Perspective** Prof. Mike Duke *K3* *Great Room 1&2*		
9:30 9:45 10:00 10:15	**Panel Discussion - The Future of Automation - Impacts of AI and Beyond** *PD2* *Great Room 1&2*	**RS: Automation for Manufacturing and Logistics** *RAML-5A* *Great Room 3*	**RS: Automation for Data Analytics** *RADA-3* *Great Room 4*
10:30 10:45	**Break** B4		
11:00 11:15	**SS: Foundations of Automation** *SFA-3* *Great Room 1&2*	**RS: Foundations of Automation** *RFA-5* *Great Room 3*	**RS: Automation for Manufacturing and Logistics** *RAML-6* *Great Room 4*
11:30 11:45			
12:00 12:15	**Award Ceremony** *AC1* *Great Room 1&2*		
12:30 12:45 13:00 13:15	**Lunch** *L4* *The Great Rooms Pre Function Area*		

SS: Foundations of Automation *SFA-4* *Crystal Room 1*	**RS: Foundations of Automation** *RFA-8A* *Crystal Room 2*			**RS: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics** *RAIM-5* *Gallery Room 4*
RS: Automation for Manufacturing and Logistics *RAML-7* *Crystal Room 1*	**RS: Automation for Manufacturing and Logistics** *RAML-8* *Crystal Room 2*	**RS: Foundations of Automation** *RFA-9* *Gallery Room 1*	**RS: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics** *RAIM-4* *Gallery Room 3*	**RS: Foundations of Automation** *RFA-10* *Gallery Room 4*

29/08/2023 (Continued)				
13:30	**RS: Automation for Manufacturing and Logistics** *RAML-3* *Great Room 1*	**RS: Automation for Manufacturing and Logistics** *RAML-4* *Great Room 2*	**RS: Automation for Manufacturing and Logistics** *RAML-5B* *Great Room 3*	**RS: Foundations of Automation** *RFA-6* *Great Room 4*
13:45				
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15:45				
16:00	**Farewell Reception** *sponsored by Facteon* *SE3* *Great Room Pre Function Area*			
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17:15				
17:30				
17:45				

RS: Foundations of Automation *RFA-7* *Crystal Room 1*	**RS: Foundations of Automation** *RFA-8B* *Crystal Room 2*	**RS: Automation for Energy and Sustainability** *RAES-3* *Gallery Room 1*	**SS: Automation for Energy and Sustainability** *SAES-1* *Gallery Room 3*	**TC Digital Manufacturing and Human-Centered Automation Meeting** *M4* *Gallery Room 4*

30/8/2023			
TIME	**Day 5 (Only for those who signed up)**		
8:00			
8:15			
8:30			
8:45			
9:00	**Chelsea Sugar Factory Tour (9am-12pm)** *T1* *Meeting Point* *Cordis Main Lobby*	**Nautech Electronics Factory Visit (9am-12pm)** *T2* *Meeting Point* *Cordis Main Lobby*	
9:15			
9:30			
9:45			
10:00			**Robotics and Automation Research Tour (10am-12pm)** *T3* *Meeting Point* *Faculty of Engineering, Level 4,* *20 Symonds Street, Auckland CBD*
10:15			
10:30			
10:45			
11:00			
11:15			
11:30			
11:45			
12:00			

Plenary Talks

George Q. Huang

George is Chair Professor of Smart Manufacturing at Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University. He gained BEng and PhD in Mechanical Engineering from Southeast University (China) and Cardiff University (UK) respectively. He has conducted research projects in areas of Smart Manufacturing, Logistics, and Construction Systems Analytics through IoT-enabled Cyber-Physical Internet with substantial government and industrial grants exceeding HK$120M. He collaborated closely with industries through joint projects and start-up companies. He has published extensively and his works have been widely cited by research communities. He serves as associate editors and editorial members for several international journals. He is Chartered Engineer (CEng), Fellow of ASME, CILT, HKIE, IET, and IISE.

Cyber-Physical Internet (CPI): Next-generation of Resilient Logistics of Manufactured Products

Abstract:
The talk is about a major research project on Cyber-Physical Internet (CPI) recently initiated in Hong Kong. Its vision is to establish a new paradigm for sending and receiving manufactured goods just like sending and receiving instant messages over the internet using online chatting platforms. Four innovations are critical to achieve this ultimate vision: (1) digitization architecture for entangling the flows of information and materials into one flow of cyber-physical objects for manufacturing and logistics operations; (2) network services for configuring local aera network (LAN), wide area network (WAN) and catchment area network (CAN); (3) value mechanisms to motivate and facilitate participation and collaboration between multiple stakeholders including shippers, carriers, forwarders; and (4) decision analytics for synchronized logistics planning, scheduling and execution. These innovations are based upon some fundamental breakthroughs of CPI routers and TCP/PIP (Transmission Control Protocol / Physical Internet Protocol) protocols that are yet to be developed. CPI contributes to establishing post-pandemic "new norms", while logistics resilience and CO2 emission targets are achieved.

Dawn Tilbury

Dawn M. Tilbury is the inaugural Ronald D. and Regina C. McNeil Department Chair of Robotics at the University of Michigan, and the Herrick Professor of Engineering. She received the B.S. degree in Electrical Engineering from the University of Minnesota, and the M.S. and Ph.D. degrees in Electrical Engineering and Computer Sciences from the University of California, Berkeley. Her research interests lie broadly in the area of control systems, including applications to robotics and manufacturing systems. From 2017 to 2021, she was the Assistant Director for Engineering at the National Science Foundation, where she oversaw a federal budget of nearly $1 billion annually, while maintaining her position at the University of Michigan. She has published more than 200 articles in refereed journals and conference proceedings. She is a Fellow of IEEE, a Fellow of ASME, and a Life Member of SWE.

Digital Twins for Manufacturing Systems: Improving Productivity and Expanding Capabilities

Abstract:
Digital Twins have the potential to reduce cost, improve quality, and expand capabilities in manufacturing systems. As computing and networking technologies improve, the massive amounts of data being collected on manufacturing plant floors can be leveraged through digital twins to create useful information and advise human operators on recommended actions. Even with the huge amount of data available, data quality remains an important challenge. Standards for Digital Twins are emerging, and there are opportunities to create different types of Digital Twins that can best utilize the data that exits. In this talk, we will present a requirements framework for Digital Twins in the manufacturing domain, including the important properties of re-usability, interoperability, interchangeability, extensibility and maintainability. Several examples of digital twins that we have created, in collaboration with our industry partners, will be presented, covering multiple application domains. Future challenges and opportunities in the area will also be discussed, including the automation of the development and maintenance of digital twins.

Barbara Hammer

Barbara Hammer is a full Professor for Machine Learning at the CITEC Cluster at Bielefeld University, Germany. She received her Ph.D. in Computer Science in 1999 and her venia legendi (permission to teach) in 2003, both from the University of Osnabrueck, Germany, where she was head of an independent research group on the topic 'Learning with Neural Methods on Structured Data'. In 2004, she accepted an offer for a professorship at Clausthal University of Technology, Germany, before moving to Bielefeld in 2010. Barbara's research interests cover theory and algorithms in machine learning and neural networks and their application for technical systems and the life sciences, including explainability, learning with drift, nonlinear dimensionality reduction, recursive models, and learning with non-standard data. Barbara has been chairing the IEEE CIS Technical Committee on Data Mining and Big Data Analytics, the IEEE CIS Technical Committee on Neural Networks, and the IEEE CIS Distinguished Lecturer Committee. She has been elected as member of the IEEE CIS Administrative Committee and the INNS Board. She has been an associate editor of the IEEE Computational Intelligence Magazine, the IEEE TNNLS, and IEEE TPAMI. Currently, she is involved in a number of large-scale projects including the DFG collaborative research center on Constructing Explainability, the EU Doctoral Network on Learning with Multiple Representations (LEMUR) and the ERC Synergy Grant Smart Water Futures.

Challenges of Trustworthy AI

Abstract:
In recent years, AI technologies have led to breathtaking successes in diverse areas including computer vision, natural language processing, or insights into biology and medicine. This way, computers reach human or super-human capabilities in many areas. Yet at the same time, machine learning methods face possibly harmful errors which are at odds with human expectations. Adversarial examples in computer vision tasks constitute one prominent example for a misalignment of computer vision and human visual perception. Other examples of misalignment are AI-based decision models which systematically discriminate persons based on ethnicity or gender, or machine learning language models which hallucinate wrong facts.

Within the talk, I will address two modeling paradigms which constitute a step towards mitigating such effects. (I) Incremental learning from data streams: One cause for AI failures is given by the assumption that models act in a stationary environment. In practice, the underlying setup changes due to e.g. ageing sensors, changed demands of costumers, seasonal effects, etc. Hence reliable models need to detect such changes and adjust a model accordingly. In the first part of the talk, I will address the challenge of incremental learning from streaming data which might be subject to drift. I will present how to efficiently learn in such setups, and how to detect and explain drift in such scenarios. (II) Explainability: Another cause for AI failures is caused by a misalignment of human's objective and its mathematical formalization within an AI model. One way to uncover such misalignments is by explanations. In the talk, I will address counterfactual explanations as one particularly intuitive form of local explanation. I will deal with the question how to efficiently compute those and how to use them in modelling pipelines. In addition, I will bridge incremental learning and explanations by having a glimpse at explanations of drift.

Mike Duke

Professor Mike Duke is the Dean of Engineering and the Dr John Gallagher Chair in Engineering at the University of Waikato. He is a founding member of the Waikato Robotics Automation and Sensing (WaiRAS) research group. Mike's group works with growers and robot manufacturers undertaking research into automating horticultural processes. His research includes human assist technologies as an intermediate step towards full automation, electric and hybrid autonomous orchard vehicles, specialist robotic hardware for horticultural tasks and smart automation to replace obsolete horticultural machinery. He was the lead academic on the hardware development of the MBIE Horticultural Robotics project and leads the hardware research on the MBIE MaaraTech: Data informed decision making and automation in orchards and vineyards.

Horticultural Robotics – Challenges and Opportunities, a New Zealand Perspective

Abstract:
Horticultural produce is one of New Zealand's main exports and labour shortages are an on-going threat to the industry. Many other countries face a similar labour problem with regular news stories of valuable crops rotting in fields. Robotics is perceived by many as the way to solve the labour shortage and globally a wide range of prototypes and early market robotic products have been developed. However, nearly all of them face challenges to be commercially viable. These challenges are explained, and as an early developer of horticultural robotics, examples from New Zealand will be used to demonstrate how we have started overcoming these challenges. We will also present the important factors for a successful horticultural robotics industry, including; a 'systems' approach for the entire crop cycle, co-design methods for developing viable solutions, safety challenges for autonomous orchard vehicles, the value of 'human assist' technologies as an intermediate step towards full automation, the importance of high quality validated data for accurate 'in orchard' decision making, developing growing structures that compliment automation and how computer vision and machine learning, combined with best practice horticultural process algorithms can help automate critical tasks such as pruning.

Workshops

Workshop 1

Workshop on Machine Learning for Automation – In Memory of Peter B. Luh

Abstract: There has been tremendous development in machine learning for automation. This is not only witnessed by the successful workshop under the same title in CASE 2022, but also by the growing number of related publications in CASE/ICRA/T-ASE as well as in other journals and conferences. We would like to continue this workshop in CASE2023 to update our review on the exciting research progress as well as research opportunities in this field. This year, our workshop is unique. We organize this event in memory of Professor Peter B. Luh, a founding member of the AdHoc on Machine Learning for Automation, and a beloved friend to many of us, who passed away at the end of 2022. Peter once enthusiastically identified Machine Learning for Automation as "the next big thing" for our research community. We intend to use this workshop to share the exciting progress in this field with more members of our community.

Organizers:
(Samuel) Qing-Shan Jia, Professor
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(corresponding organizer)

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Maria Pia Fanti, Professor
Polytechnic University of Bari, Italy
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Bing Yan, Assistant Professor
Rochester Institute of Technology, USA
E-mail: bxyeee@rit.edu

Workshop 2

Precise Surgical Robotics: Design, Modeling, Sensing, and Control

Abstract: The development of surgical robots has led to the widespread acceptance of minimally invasive surgeries for accessing surgical sites through natural orifices or minimal incisions. While existing abdominal surgical robots have been well-developed in academic and commercial areas, there is still a great need for more sophisticated surgical robots, especially in complex and deep anatomies such as transoral surgery, sinus surgery, and neurosurgery. Therefore, the design, modelling, sensing, and control of precise surgical robots are critical and significant. This workshop aims to bring together professionals from diverse backgrounds, including robotics, medicine, and medical device manufacturing, to share their expertise and insights into the latest technological and business trends in surgical robotics. The workshop will focus on the critical yet contradictory requirements of dexterity and stiffness in surgical robot design, and various actuation methods proposed to meet these requirements, such as cable-driven mechanisms, push-pull rod actuation, concentric pre-curved tubes, pneumatic/hydraulic actuation, smart materials, and magnetic forces. The workshop will also cover the modelling of surgical robots, including kinematic and static analysis, as well as the sensing of shape and interactive force with the environment. The interactive force with the environment is essential for surgical intervention, and force sensors can be used to measure the interaction forces between the robot and tissue. Besides, control is critical for precise surgical robots, and various control strategies have been proposed, including position control, force control, and impedance control. Overall, this workshop will provide a platform for participants to exchange knowledge and build networks to advance the field of precise surgical robotics and improve patient outcomes in complex surgeries.

Organizers:
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Professor Jianshu Zhou, Research Assistant
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Assistant Professor Lin Cao
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Research Assistant Professor Xin Ma
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(corresponding organizer)

Xuchen Wang, PhD Candidate
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Tutorial

Biosignals-based design approaches for the development of human-machine interfaces for shared control of computer applications and robotic devices

Various human-machine interfaces (HMI) have been developed employing various control methods to suit specific needs of the user. These interfaces can employ various types of biosignals to offer an intuitive and hands-free method of robotic control. However, biosignals require pre-processing and can vary depending on the biological differences of the users leading to differences between individuals as well as the same individual between recording sessions. The content covered in this proposed tutorial is based on a very recent work of the authors where they developed semi-autonomous and shared control schemes based on biological signals from the user. Additionally, the tutorial also covers the data collection procedure and data treatment steps in order to train machine learning models to decode these signals. Therefore, the tutorial will provide the participants with all the tools needed to perform data collection, model training and development, and implement control of HMI to perform semiautonomous and shared control for the execution of complex manipulation tasks using robotic devices.

Organizers:
Bonnie Guan, Doctoral Candidate
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The University of Auckland, New Zealand,
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(corresponding organizer)

Ricardo Vilela De Godoy, Doctoral Candidate
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University of Waikato, New Zealand
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Events

Lunch with Leaders

This free luncheon is open to students and young professional attendees offering the chance to meet and interact with Leaders of RAS and/or Industry. Informal discussion over lunch will take place in the round-table style for attendees to get to know leaders in the field of automation science and engineering. Topics vary from career advice to insights into the future of the field to general conversation. It is encouraged that the attendees come with questions.

Event type: Round tables with buffet (event and lunch are free of charge and funded by RAS)

Date: 27 August 2023, 12:30pm – 1:30pm

Venue: Gallery Room 4, Cordis Hotel Auckland

Organiser/moderator: Ilya Kovalenko

Leaders: Dawn Tilbury, Birgit Vogel-Heuser, Frank Park, Peter Xu, Weiming Shen, and George Huang

Women in Engineering Luncheon

This event fosters active discussions and networking opportunities centered around the promotion and embrace of diversity in automation science and engineering. Be a part of this impactful event and seize the opportunity to network and engage in meaningful conversations to create a more inclusive future.

Panellists:
Dulsha Kularatna-Abeywardana, Lecturer at the University of Auckland

Nathan Williams, Section Manager at Beca Applied Technologies

Moderator:
Paige Chong, University of Auckland

Bhagya Athauda, Motorola Solutions

Date: 28 August 2023, 12:15pm - 1:30pm

Venue: Gallery Room 4, Cordis Hotel Auckland

Organisers: Yan Jia, Karinne Ramirez-Amaro, Hyun-Jung Kim.

Panel Discussions

Opportunities and Risks in Flexible, Connected Automation Systems: An Industry 4.0 Discussion

Moderator: Jan Polzer

Panellists: Brett Taylor, Deepak Joseph, Alex Ladur, Neil Pearce, Caleb Millen

Description:
Welcome to a dynamic panel discussion centred around the core tenets of Industry 4.0 - horizontal & vertical integration, and flexibility. These systems offer the promise of flexible, self-adapting, resilient automation, heralding a new era of efficiency. However, the connectivity also introduces the critical factor of cybersecurity risks.

Our panellists are poised to dissect the intricacies of connected, flexible, and resilient automation systems. Drawing from their expertise, they will illuminate the potential benefits while addressing the pressing risks associated with this technological transformation. Join us as we unravel the fabric of Industry 4.0, where innovation meets the imperative of cybersecurity.

The Future of Automation - Impacts of AI and Beyond

Moderator: Birgit Vogel-Heuser, Qing-Shan Jia

Panellists: Frank Park, Ken Goldberg, Weiming Shen, Dawn Tilbury, Fan-Tien Cheng, Bent Lennartson, Maria Pia Fanti, Xun Xu

Description:
With the rapid advances in generative AI such as the recent release of large language models by OpenAI and Google, artificial intelligence is poised to be a major disruptive force in many industries and fields. Automation is no exception. On the other hand, innovation in classical field-level automation is at a slow pace because of its dependability, real-time, safety and security requirements. Open source software might be one option to improve as well as standarized interfaces in between proprietary legacy and multi-vendor systems.

This panel will discuss how recent developments in both areas potentially impact the future of automation. The panel will attempt to address the issue of which subdomains within automation stand to benefit or suffer, how the automation research community can best leverage recent tools and algorithms, and what are some challenges unique to the field of automation.

Award Finalists

IEEE CASE Best Conference Paper Award finalists

Mosbach, Malte; Behnke, Sven.
Learning Generalizable Tool Use with Non-Rigid Grasp-Pose Registration

Larsson Forsberg, Albin; Nikou, Alexandros; Vulgarakis Feljan, Aneta; Tumova, Jana.
Network Parameter Control in Cellular Networks through Graph-Based Multi-Agent Constrained Reinforcement Learning

Estrada-Garcia, Juan-Alberto; Bi, Mingjie; Tilbury, Dawn; Barton, Kira; Shen, Siqian.
A Multi-Objective Mixed-Integer Programming Approach for Supply Chain Disruption Response with Lead-Time Awareness

IEEE CASE Best Application Paper Award finalists

Su, Shuaiming; Jiang, Yishuo; Yu, Chenglin; Zhong, Ray Y.
Digital Twin-enabled Building Demolition Waste Trading Workflow

Satoh, Mineto; Bhat, Akhilesh; Usami, Tamano; Tatsumi, Kenichi.
A Multi-Purpose Autonomous Mobile Robot As a Part of Agricultural Decision Support Systems

Wang, Xianli; Xu, Qingsong.
Improving Robotic Grasping by Using Object-Gripper Motion Space and Directional Data Ensemble Technique

IEEE CASE Best Student Paper Award finalists

Mo, Xuandong; Sun, Andong; Wang, Teng; Hu, Xiaofeng.
Few-Shot Learning for Smart Manufacturing: Tool Wear Prediction Using Out-Of-Domain Data Based on Meta-Learning

Kamat, Varun; Ramakrishnan, Viraj; Mohnot, Yashish; Jalan, Harshika; Isaac, Julia; Schorp, Vincent; Avigal, Yahav; Adler, Aviv; Fer, Danyal; Goldberg, Ken.
Automating 2D Suture Placement

Su, Yutong; Ju, Feng; Ananthanarayanan, Balakrishnan; Dauod, Husam; Patel, Nital.
Decentralized MILP Method for Rescheduling Semiconductor Assembly Systems with Re-Entrance and Time Window Constraints

IEEE CASE Best Healthcare Automation Paper Award finalists

Guo, Yuqin; Zhang, Rongzheng; Qiu, Wanghongjie; Asada, Harry; Wan, Fang; Song, Chaoyang.
Underwater Intention Recognition Using Head Motion and Throat Vibration for Supernumerary Robotic Assistance

Schorp, Vincent; Panitch, William; Shivakumar, Kaushik; Viswanath, Vainavi; Kerr, Justin; Avigal, Yahav; Fer, Danyal; Ott, Lionel; Goldberg, Ken.
Self-Supervised Learning for Interactive Perception of Surgical Thread for Autonomous Suture Tail-Shortening

Wang, Feifan; Huang, Yu-Li; Graff, Susan; Peterson, Joshua.
Technician Scheduling and Staffing for Medical Procedures in Heart Rhythm Services

IEEE CASE Peter Luh Memorial Best Paper Award for Young Researcher finalists

Ruiz, Cesar; Bhatt, Prahar; Gupta, Satyandra K.; Huang, Qiang.
Process-Informed Segmentation of Dense Point Clouds for Layer Quality Assessment in Large-Scale Metal Additive Manufacturing

Lin, Junpeng; Li, Ziyue; Li, Zhishuai; Bai, Lei; Zhao, Rui; Zhang, Chen.
Dynamic Causal Graph Convolutional Network for Traffic Prediction

Tsai, Tsung-Han; Yan, Bing; Luh, Peter; Yang, Haw-Ching; Bragin, Mikhail; Cheng, Fan-Tien.
Near-Optimal Scheduling for IC Packaging Operations Considering Processing-Time Variations and Factory Practices

Special Sessions

Research area: Automation for Manufacturing and Logistics (17)

1. Human-Robot Collaboration for Futuristic Human-Centric Smart Manufacturing

Organisers:	
Pai Zheng	The Hong Kong Polytechnic University
Jinsong Bao	DongHua University
Tao Peng	Zhejiang University
Wenjun Xu	Wuhan University of Technology
Shufei Li	The Hong Kong Polytechnic University
Xi Vincent Wang	KTH Royal Institute of Technology
Ying Liu	Cardiff University
Lihui Wang	KTH Royal Institute of Technology
Duc Truong pham	University of Birmingham

2. Data analytics and artificial intelligence for quality and reliability assurance

Organisers:	
Yongxiang Li	Shanghai Jiao Tong University
Jianguo Wu	Peking University/ University of Wisconsin-Madison

3. Energy-efficient and Flexible Production for Net-Zero Emission Manufacturing

Organisers:	
Congbo Li	Chongqing University
Peiji Liu	Chongqing University
Andrea Matta	Politecnico di Milano

4. Big data analytics and artificial intelligence for automated quality and reliability assurance

Organisers:	
Yongxiang Li	Shanghai Jiao Tong University
Jianguo Wu	Peking University

5. Industrial Intelligence Towards Digital Twin

Organisers:	
Jinsong Bao	College of Mechanical Engineering, Donghua University
Fei Tao	Beihang University
Yuqian Lu	The University of Auckland

Liu Qiang	Guangdong University of Technology
Jun-Qiang Wang	Northwestern Polytechnical University
Yu Zheng	Shanghai Jiao Tong University

6. Manufacturing and Service Systems in the New Era

Organisers:	
Chao-Bo Yan	Xi'an Jiaotong University
Zhi Pei	Zhejiang University of Technology
Liang Zhang	University of Connecticut
Feng Ju	Arizona State University
Junfeng Wang	Huazhong University of Science and Technology
Zhi-Hai Zhang	Tsinghua university
Zhiyang Jia	Beijing Institute of Technology

7. Modeling, Control, and Scheduling of Manufacturing Systems with Advanced Techniques

Organisers:	
Hyun-Jung Kim	Korea Advanced Institute of Science and Technology
Yan Qiao	Macau University of Science and Technology
MengChu Zhou	New Jersey Institute of Technology

8. Cyber-Physical Internet for Synchronizing Cross-Border Logistics

Organisers:	
George Q. Huang	The University of Hong Kong
Ray Y. Zhong	The University of Hong Kong
Shenle Pan	MINES Paris, PSL University
Ming Li	The Hong Kong Polytechnic University
Benoit Montreuil	Université de Laval

9. Manufacturing Data Science

Organiser:	
Chia-Yen Lee	National Taiwan University

10. The flexibility and adaptability of the digital twin-driven manufacturing system in the mass customization paradigm

Organisers:	
Shimin Liu	The Hong Kong Polytechnic University
Chengjin Qin	Shanghai Jiao Tong University
Dawei Li	Nanjing University of Science and Technology

Yukan Hou	Northwestern Polytechnical University
Xuemin Sun	Beijing University of Aeronautics and Astronautics
Jinsong Bao	DongHua University

11. Machine Learning Models and Meta heuristic Algorithms for Intelligent Machining

Organisers:	
Elango Natarajan	UCSI University

12. Digital twin-enabled human-centric assembly assistance

Organisers:	
Jiazhen Pang	The Hong Kong Polytechnic University, Hongkong
Jie Zhang	Northwestern Polytechnical University
Zhi-Jia Xu	South China University of Technology
Wenbin Tang	Xi'an Polytechnic University
Tengfei Long	Coventry University

13. Novel Planning and Scheduling Approaches in Semiconductor Supply Chains

Organisers:	
Lars Moench	University of Hagen
Claude Yugma	Ecole des Mines de Saint-Etienne

14. Artificial Intelligence for Digital Additive Manufacturing

Organisers:	
Yunlong Tang	Monash University
Hyunwoong Ko	Arizona State University
Yi Xiong	Southern University of Science and Technology

15. Digital Twin basis for adaptable automation systems

Organisers:	
Birgit Vogel-Heuser	Technical University Munich
Paolo Dario	Scuola Superiore Sant'Anna
Ilya Kovalenko	Pennsylvania State University
George Q. Huang	The University of Hong Kong
Shu-Kai S. Fan	National Taipei University of Technology
Wolfgang Kellerer	Chair of Communication Networks, Technical University of Munich, Germany
Darius Burschka	Technische Universitaet Muenchen
Eckehard Steinbach	Technical University of Munich

Yu-Ming Hsieh	National Cheng Kung University
Timo Markert	Resense GmbH
André Kraft	BMW AG, Germany

16. Cloud-edge collaboration for manufacturing automation

Organisers:	
Yongkui liu	Xidian University
Xun Xu	University of Auckland
Lin Zhang	Beihang University
Lihui Wang	KTH Royal Institute of Technology

17. Design of Scale Collaborative Mobile Robots for Industrial Engineering

Organisers:	
Emilia Gomez	Universidad Iberoamericana de Puebla
Ortiz Ocaña Alejandro	Universidad Iberoamericana Puebla
Rodrigo Mata Rojas	Universidad Iberoamericana de Puebla

Research area: Foundations of Automation (8)

1. Cognitive Intelligence-enabled Self-X Manufacturing

Organisers:	
Tao Peng	Zhejiang University
Pai Zheng	The Hong Kong Polytechnic University
Xinyu Li	Donghua University
Roger Jiao	Georgia Institute of Technology
Aydin Nassehi	University of Bristol
Lihui Wang	KTH Royal Institute of Technology
George Q. Huang	The University of Hong Kong

2. Smart manufacturing control and optimization towards Industry 4.0/5.0

Organisers:	
Yuqian Lu	The University of Auckland
Jiewu Leng	Guangdong University of Technology
Jinsong Bao	College of Mechanical Engineering, Donghua University
Xinyu Li	Huazhong University of Science and Technology
Kira Barton	University of Michigan at Ann Arbor
Kai Ding	Chang'an University

3. Systems Analytics and Intelligent Control in Agriculture 4.0

Organisers:	
Yi-Jia Wang	China Agricultural University
George Q. Huang	The University of Hong Kong

4. Human-AI hybrid intelligence and collaborative decision-making for industrial production systems

Organisers:	
Fei Qiao	Tongji University
Jiewu Leng	Guangdong University of Technology

5. Towards Metamanufacturing and Its Key Technologies

Organisers:	
Sihan Huang	Beijing Institute of Technology

6. Electric and Autonomous Mobility, Transportation and Logistics

Organisers:	
Agostino Marcello Mangini	Politecnico di Bari
Maria Pia Fanti	Politecnico di Bari
Michele Roccotelli	Polytechnic of Bari

7. The Next-Generation Resilient Cyber-Physical Manufacturing Networks

Organisers:	
Liangjing Yang	Zhejiang University
Katherine Driggs-Campbell	University of Illinois at Urbana-Champaign
Hongwei Wang	Zhejiang University
Placid Ferreira	University of Illinois at Urbana-Champaign

8. Cutting-edge Robotic Technologies and Applications Energized by Smart Materials and Advanced Control

Organisers:	
Juntian Qu	Tsinghua University
Zhenkun Li	Beijing Jiaotong University
Qigao Fan	Jiangnan University
Yueyue Liu	Jiangnan University

Hujun Wang	China University of Labor Relations
Hongchao Cui	Beijing Jiaotong University

Research area: Automation for Data Analytics (7)

1. Intelligent Analysis of Industrial Big Data

Organisers:	
Xinyu Li	Huazhong University of Science and Technology
Yiping Gao	Huazhong University of Science and Technology
Wei Qin	Shanghai Jiao Tong University
Pai Zhen	The Hong Kong Polytechnic University
Congbo Li	Chongqing University
Liang Gao	Huazhong Univ. of Sci. & Tech.

2. Complexity and Data Analytics in Intelligent Industrial Systems

Organisers:	
Wei Qin	Shanghai Jiao Tong University
Yanning Sun	Shanghai Jiao Tong University
Yaoming Zhou	Shanghai Jiao Tong University

3. Joint Model- and Data-driven Approaches for Safe and Trustworthy Robotics and Autonomous Systems

Organisers:	
Dachuan Li	Tsinghua University
Chao-Bo Yan	Xi'an Jiaotong University
Dezong Zhao	University of Glasgow
Meng Zhang	Xi'an Jiaotong University
Zhang Chen	Tsinghua University
Pei Wang	University of California at Berkeley

4. AI-enabled system learning and optimization for production and service improvement

Organisers:	
Linhan Ouyang	Nanjing University of Aeronautics and Astronautics
Xi Zhang	College of Engineering, Peking University
Yu An	Peking University

5. Simulation and AI

Organisers:	
Guangxin Jiang	Harbin Institute of Technology
Zhaolin Hu	Tongji University
Yijie Peng	Peking University

6. STMDI: Spatial and Temporal Modeling for Decision Intelligence

Organisers:	
Ziyue Li	University of Cologne
Hao Yan	Arizona State University
Chen Zhang	Tsinghua University
Wolfgang Ketter	University of Cologne
Lei Bai	Shanghai AI Laboratory
Fugee Tsung	HKUST

7. Multi-Disciplinary Aspect of Cyber Security Data Privacy and Security

Organisers:	
Somasiri Nalinda	York St John University
Soonleh Ling	York St John University

Research area: Automation for Energy and Sustainability (2)

1. Smart Remanufacturing Technologies

Organisers:	
Chao Liu	Aston University

2. Automation in Construction and Buildings

Organisers:	
Jingang Yi	Rutgers University
Dikai Liu	University of Technology, Sydney
Wei Yan	Texas A&M University
Chao Wang	Louisiana State University
Jingdao Chen	Mississippi State University

Research area: Automation in Life Sciences and Healthcare Systems (2)

1. Smart health care delivery through advancing health information technology

Organisers:	
Feifan Wang	Mayo Clinic
Xiang Zhong	University of Florida
Xiaolei Xie	Tsinghua University
Hojjat Salehinejad	Mayo Clinic

2. Design of a virtual environment for muscular training of patients with a transradial amputation through electromyographic signals

Organisers:	
Carlos Andres Cancino Escobar	Universidad Iberoamericana Puebla
Emilio Cruz Cruz Mendoza	Universidad Iberoamericana Puebla
Jose Miguel Hernández Ortega	Universidad Iberoamericana Puebla
Nabila Nuñez Alonso	Universidad Iberoamericana Puebla

Schedule

27/08/2023 Day 2

No.	*27/08/2023 10:30-12:30*	*Best Paper Awards Session (Best Conference Paper & Best Application Paper) Session Code: BPAS-1A Place: Great Room 1&2*
391	*10:30-10:50*	*Learning Generalizable Tool Use with Non-Rigid Grasp-Pose Registration*[1] *Mosbach, Malte; Behnke, Sven*
242	*10:50-11:10*	*Network Parameter Control in Cellular Networks through Graph-Based Multi-Agent Constrained Reinforcement Learning*[1] *Larsson Forsberg, Albin; Nikou, Alexandros; Vulgarakis Feljan, Aneta; Tumova, Jana*
267	*11:10-11:30*	*A Multi-Objective Mixed-Integer Programming Approach for Supply Chain Disruption Response with Lead-Time Awareness*[1] *Estrada-Garcia, Juan-Alberto; Bi, Mingjie; Tilbury, Dawn; Barton, Kira; Shen, Siqian*
171	*11:30-11:50*	*Digital Twin-enabled Building Demolition Waste Trading Workflow*[2] *Su, Shuaiming; Jiang, Yishuo; Yu, Chenglin; Zhong, Ray Y.*
327	*11:50-12:10*	*A Multi-Purpose Autonomous Mobile Robot As a Part of Agricultural Decision Support Systems*[2] *Satoh, Mineto; Bhat, Akhilesh; Usami, Tamano; Tatsumi, Kenichi*
354	*12:10-12:30*	*Improving Robotic Grasping by Using Object-Gripper Motion Space and Directional Data Ensemble Technique*[2] *Wang, Xianli; Xu, Qingsong*

No.	**27/08/2023 14:30-15:30**	***Best Paper Awards Session (Best Student Paper)*** *Session Code: **BPAS-1B*** ***Place: Great Room 1&2***
40	14:30-14:50	**Few-Shot Learning for Smart Manufacturing: Tool Wear Prediction Using Out-Of-Domain Data Based on Meta-Learning**[3] *Mo, Xuandong; Sun, Andong; Wang, Teng; Hu, Xiaofeng*
555	14:50-15:10	**Automating 2D Suture Placement**[3] *Kamat, Varun; Ramakrishnan, Viraj; Mohnot, Yashish; Jalan, Harshika; Isaac, Julia; Schorp, Vincent; Avigal, Yahav; Adler, Aviv; Fer, Danyal; Goldberg, Ken*

486	15:10-15:30	**A Decentralized MILP Method for Rescheduling Semiconductor Assembly Systems with Re-Entrance and Time Window Constraints**[3] *Su, Yutong; Ju, Feng; Ananthanarayanan, Balakrishnan; Dauod, Husam; Patel, Nital*

No.	27/08/2023 16:00-17:00	***Best Paper Awards Session (Best Healthcare Automation Paper)*** *Session Code:* ***BPAS-1C*** ***Place: Great Room 1&2***
521	16:00-16:20	**Underwater Intention Recognition Using Head Motion and Throat Vibration for Supernumerary Robotic Assistance**[4] *Guo, Yuqin; Zhang, Rongzheng; Qiu, Wanghongjie; Asada, Harry; Wan, Fang; Song, Chaoyang*
539	16:20-16:40	**Self-Supervised Learning for Interactive Perception of Surgical Thread for Autonomous Suture Tail-Shortening**[4] *Schorp, Vincent; Panitch, William; Shivakumar, Kaushik; Viswanath, Vainavi; Kerr, Justin; Avigal, Yahav; Fer, Danyal; Ott, Lionel; Goldberg, Ken*
207	16:40-17:00	**Technician Scheduling and Staffing for Medical Procedures in Heart Rhythm Services**[4] *Wang, Feifan; Huang, Yu-Li; Graff, Susan; Peterson, Joshua*
No.	**27/08/2023 10:30-12:30**	***Regular Session: Foundations of Automation*** *Session Code:* ***RFA-1A*** ***Place: Great Room 3***
16	10:30-10:45	**Constrained Path Optimization for Automated Directional Drilling** *Karvinen, Kai*
52	10:45-11:00	**MD-RadioMap: Multi-Drone Radio Map Building via Single-Anchor Ultra-Wideband Localization Network** *Gu, Qiuyi; Jincheng, Yu; Lin, Zihan; Bai, Jing gao; Zhang, Bangyan; Shen, Yuan; Wang, Jian; Wang, Yu*
542	11:00-11:15	**Evaluating Visual Odometry Methods for Autonomous Driving in Rain** *Tan, Yu Xiang; Prasetyo, Marcel Bartholomeus; Mohammad Yusof, Mohammad Alif Daffa' Bin; Deshpande, Sunny Nitin; Meghjani, Malika*
83	11:15-11:30	**A New Method for Human-Machine Ratio Configuration Scheduling Problem** *Wang, Chaoran; Shi, Leyuan*
84	11:30-11:45	**Cable Length Estimation for a Hyper-Redundant Robot Based on Cable Hole Clearance Calculation** *Li, Ziqing; Deng, Jiangqin; Zheng, Yang; Liu, Chao; Gu, Guoying*

87	11:45-12:00	**Estimating the Center of Mass of an Object with Non-Uniform Density Via High-Speed Pushing** *Gao, Ziyan; Elibol, Armagan; Chong, Nak Young*
88	12:00-12:15	**Simulation-Based Predictive Real-Time Collision Avoidance for Automated Production Systems** *Klingel, Lars; Heine, Alexander; Acher, Steven; Dausend, Niklas; Verl, Alexander*
130	12:15-12:30	**Motion Planning to Cartesian Targets Leveraging Large-Scale Dynamic Roadmaps** *Cheng, Richard; Petersen, Joshua; Borders, James; Helmick, Daniel; Kaul, Lukas; Kruse, Daniel; Leichty, John; Matl, Carolyn; Papazov, Chavdar; Shankar, Krishna; Tjersland, Mark*

No.	27/08/2023 14:30-15:30	*Regular Session: Foundations of Automation* *Session Code: RFA-1B* *Place: Great Room 3*
133	14:30-14:45	**Dynamics of Path Following and Constrained Path Synchronization Applied to Graded Concrete Element Fabrication** *Blagojevic, Boris; Gienger, Andreas; Sawodny, Oliver*
139	14:45-15:00	**The Heterogeneous Vehicle Routing Problem with Multiple Time Windows for the E-Waste Collection Problem** *Gunawan, Aldy; Nguyen, Minh Pham Kien; Yu, Vincent F.; Nguyen, Dang Viet Anh*
224	15:00-15:15	**Optimization of Cube Storage Warehouse Scheduling Using Genetic Algorithms** *Ha, Won Yong; Jiang, Zhong-Ping*
235	15:15-15:30	**Optimal Operation of Microgrid with Energy Storage Considering the Energy-Loss Rate** *Tang, Ye; Zhai, Qiaozhu; Zhou, Yuzhou; Zhao, Jiexing; Han, Zhihan*

No.	27/08/2023 16:00-18:00	*Regular Session: Foundations of Automation* *Session Code: RFA-1C* *Place: Great Room 3*
248	16:00-16:15	**Time-Efficient Path Planning for Semi-Rigid Multi-Robot Formations** *Recker, Tobias; Prophet, Sönke; Raatz, Annika*
250	16:15-16:30	**Fault-Tolerant and System-Wide Communication for Metamorphic Robots** *Mrázek, Jan; Chlup, Vladimír; Barnat, Jiri*

251	16:30-16:45	**RoFIOS-Flexible Full-Stack Software Solution for Metamorphic Robots** *Mrázek, Jan; Barnat, Jiri*
257	16:45-17:00	**Guided Sampling-Based Motion Planning with Dynamics in Unknown Environments** *Khanal, Abhish; Bui, Hoang-Dung; Stein, Gregory; Plaku, Erion*
288	17:00-17:15	**Optimal Control of Drones for a Train-Drone Railway Diagnostic System** *Proia, Silvia; Cavone, Graziana; Carli, Raffaele; Dotoli, Mariagrazia*
294	17:15-17:30	**A Knowledge-Based Autonomous Decision-Making Method for Agents in Asymmetric Confrontation** *Wang, Lexing; Qiu, Tenghai; Pu, Zhiqiang; Yi, Jianqiang; Zhu, Jinying*
296	17:30-17:45	**The Effect of Dimensional Parameters on the Performance of DDMRs** *Tattersall, Andrew; McGuinness, Benjamin John; Lim, Shen Hin; Au, Chi Kit; Williams, Henry; Duke, Mike*
300	17:45-18:00	**Heterogeneous Multi-Robot Task Allocation for Garment Transformable Production Using Deep Reinforcement Learning** *Bezerra, Ranulfo; Ohno, Kazunori; Kojima, Shotaro; Aryadi, Hanif; Gunji, Kenta; Kuwahara, Masao; Okada, Yoshito; Konyo, Masashi; Tadokoro, Satoshi*

No.	27/08/2023 10:30-12:30	*Special Session: Automation for Manufacturing and Logistics* *Session Code: SAML-1A* *Place: Great Room 4*
44	10:30-10:45	**AGV Path Planning Using Curiosity-Driven Deep Reinforcement Learning** *Yin, Huilin; Lin, Yinjia; Yan, Jun; Meng, Qian; Karin, Festl; Lukas, Schichler; Daniel, Watzenig*
65	10:45-11:00	**Blockchain-Enabled On-Chain Servitization for Resources Matchmaking in Social Manufacturing** *Li, Ming; Wu, Hang; Huang, Xidian; Huang, George Q.*
116	11:00-11:15	**A Framework of Cognitive Intelligence-Enabled Welding Cyber Physical System** *Tianyuan, Liu; Jiang, Yanan; Zheng, Pai; Bao, Jinsong*
117	11:15-11:30	**Digital Twin Enhanced Reinforcement Learning for Integrated Scheduling in Automated Container Terminals** *Zhang, Yuxuan; Bao, Xiangyu; Zhang, Lei; Chen, Liang; Tang, Xue; Zhang, Ziqing; Zheng, Yu*
127	11:30-11:45	**Graph-Enabled Decision Support System for Supplier Disruption Mitigation** *Lim, Kendrik Yan Hong; Chew, Kim Hoe; Liu, Ning; Yang, Shanshan; Chen, Chun-Hsien; Liu, Yangshengyan*

146	11:45-12:00	**Metaverse: Architecture, Technologies, and Industrial Applications** *Yang, Chen; Wang, Yingchao; Jiang, Yinfei; Lan, Shulin; Wang, Lihui*
150	12:00-12:15	**Predicting Future Warping from the First Layer: A Vision-Based Deep Learning Method for 3D Printing Monitoring** *Chen, Zijue; Santhakumar, Pradeep; Granland, Keenan; Troeung, Charles; Chen, Chao; Tang, Yunlong*
153	12:15-12:30	**Generative Adversarial Network-Based Data Augmentation for Tyre Surface Defect Detection** *Wang, Yuanbin; Wang, Wenhu*

No.	27/08/2023 14:30-15:30	*Special Session: Automation for Manufacturing and Logistics* *Session Code: SAML-1B* *Place: Great Room 4*
480	14:30-14:45	**Optimal Parameters Design for Manufacturability under Unknown Feasibility Constraints** *Li, Guoyan; Jin, Xiaoning; Wang, Yujia; Kar, Swastik*
164	14:45-15:00	**Knowledge Graph Based Augmented Reality Work Instruction for Wire Harness Final Assembly on Formboard** *Wang, Junfeng; Shi, Ting; Liu, Maoding; Jiang, Ke*
172	15:00-15:15	**A Control Chart for Monitoring Multivariate Spatiotemporal Correlated Data During Grain Storage** *Wang, Xingyu; Wang, Di*
173	15:15-15:30	**An MBD-enabled Digital Twin Modeling Method for Cognition Assistance in Human-Centric Smart Assembly** *Pang, Jiazhen; Zheng, Pai*

No.	27/08/2023 16:00-18:00	*Special Session: Automation for Manufacturing and Logistics* *Session Code: SAML-1C* *Place: Great Room 4*
179	16:00-16:15	**An Internet Based 5-Layer Framework for Logistics in the Greater Bay Area** *Yu, Chenglin; Zhong, Ray Y.*
181	16:15-16:30	**Deep Learning Agents for Efficient Dynamic Production Control in Semiconductor Manufacturing** *Boydon, Christian John Immanuel; Zhang, Bin; Wu, Cheng-Hung*
187	16:30-16:45	**A Point Cloud Registration Method Based on Plane Projection Contour** *Tang, Wenbin; Lv, YingHao; Zheng, linqing; Yan, Tong*

189	16:45-17:00	**A Novel Fault Diagnosis Method Based on Feature Fusion and Model Agnostic Meta-Learning** *Lyu, pin; Li, Xueqing; Yu, Wenbing; Xia, Liqiao; Liu, Chao*
191	17:00-17:15	**Human Action Detection Based on Multimodal Feature Fusion for Human-Robot Collaborative Assembly** *Ba, Mengyuan; Ji, Zhenrui; Liu, Zhihao; Yao, Bitao; Xu, Wenjun; Zhong, Yi*
192	17:15-17:30	**Energy Consumption Optimization for Two-Machine Bernoulli Serial Lines with Time-Sensitive Constraint** *Ma, Xu; Zhang, Sheng; Liu, Lingchen; Yan, Chao-Bo*
236	17:30-17:45	**Scheduling Analysis of Diffusion Area in Semiconductor Manufacturing** *Chen, Liangchao; Qiao, Yan; Wu, Naiqi; Zhang, Siwei; Li, Jie; Liu, Bin*
287	17:45-18:00	**Concurrent Execution Semantics for IEC 61499 Based Industrial Edge Applications** *Wei, Daisen; Yang, Fan; Lyu, Weimin; Dai, Wenbin*

No.	27/08/2023 10:30-12:15	*Regular Session: Foundations of Automation* *Session Code: RFA-2* *Place: Crystal Room 1*
606	10:30-10:45	**Separable and Recombinable Magnetic Robot for Robotic Endovascular Intervention** *Sa, Junchi; Park, Jimin; Jung, EunSoo; Kim, Nahyun; Lee, Daehee; Bae, Suhong; Lee, Yonggu; Jang, Gunhee*
652	10:45-11:00	**Towards Task-Specific Modular Gripper Fingers: Automatic Production of Fingertip Mechanics** *Ringwald, Johannes; Schneider, Samuel; Chen, Lingyun; Knobbe, Dennis; Johannsmeier, Lars; Swikir, Abdalla; Haddadin, Sami*
536	11:00-11:15	**Disentangling Planning and Control for Non-Prehensile Tabletop Manipulation** *Mandadi, Vishal Reddy; Saha, Kallol; Guhathakurta, Dipanwita; Qureshi, Mohammad Nomaan; Agarwal, Aditya; Sen, Bipasha; Das, Dipanjan; Bhowmick, Brojeshwar; Singh, Arun Kumar; Krishna, Madhava*
594	11:15-11:30	**Near-Optimal Scheduling for IC Packaging Operations Considering Processing-Time Variations and Factory Practices** *Tsai, Tsung-Han; Yan, Bing; Luh, Peter; Yang, Haw-Ching; Bragin, Mikhail; Cheng, Fan-Tien*
433	11:30-11:45	**Asymptotically Optimized Multi-Surface Coverage Path Planning for Loco-Manipulation in Inspection and Monitoring** *Ly, Kim Tien; Munks, Matthew; Merkt, Wolfgang Xaver; Havoutis, Ioannis*

132	11:45-12:00	**Concurrent Carbon Footprint Reduction (C2FR) Reinforcement Learning Approach for Sustainable Data Center Digital Twin** *Sarkar, Soumyendu; Naug, Avisek; Guillen, Antonio; Luna Gutierrez, Ricardo; Ghorbanpour, Sahand; Mousavi, Sajad; Ramesh Babu, Ashwin; Gundecha, Vineet*
305	12:00-12:15	**Reinforcement Learning Based Black-Box Adversarial Attack for Robustness Improvement** *Sarkar, Soumyendu; Ramesh Babu, Ashwin; Mousavi, Sajad; Ghorbanpour, Sahand; Gundecha, Vineet; Luna Gutierrez, Ricardo; Guillen, Antonio; Naug, Avisek*

No.	27/08/2023 14:30-15:30	*Special Session: Automation in Life Sciences and Healthcare Systems* *Session Code: SALH-1A* *Place: Crystal Room 1*
640	14:30-14:45	**Cooperative Multi-agent Learning for Stabilizing the Joint Microburst Rate in Passive Optical Networks** *Pan, Jinyan; Xia, Li; Peng, Xi*
360	14:45-15:00	**Bionic Robotic Fish Mechanical Structure Optimization Design and Performance Analysis Based on Fluent** *Tang, Wei; Wang, Yunfei; Yu, Zhenping; Li, Zhenkun; Qu, Juntian*
417	15:00-15:15	**Neural Balance Control of Human Quiet Stance for Construction Workers** *Sreenivasan, Gayatri; Zhu, Chunchu; Yi, Jingang*
448	15:15-15:30	**A Scalable Full-Stack Architecture for a Cross-Platform Patient Simulation Application** *Trevena, William; Zhong, Xiang; Lal, Amos; Rovati, Lucrezia; Cubro, Edin; Dong, Yue; Schulte, Phillip; Gajic, Ognjen*

No.	27/08/2023 16:00-18:00	*Special Session: Automation in Life Sciences and Healthcare Systems* *Session Code: SALH-1B* *Place: Crystal Room 1*
628	16:00-16:15	**Screening and Preliminary Exploration of Sarcopenia from Data-Driven Perspectives** *Xie, Xiaolei; Fu, Enqi; Wang, Yanni; Kang, Lin*
630	16:15-16:30	**An Iterative Approach for Workflow Analysis in Operating Rooms** *Zheng, Hanyi; Wang, Qing; Li, Jingshan*
229	16:30-16:45	**Autonomous Hole Search and Insertion Compensation for Peg-In-Hole Assembly Task Using Robotic Arm** *Chen, Shih-Kang; Chen, Chin-Sheng; Li, I-Ching; Lee, Feng Chi*

205	16:45-17:00	**Partially Observable Markov Decision Process Model for Dynamic Human Activity Recognition Using Radio Frequency Signals** *Wang, Feifan; Jones, Derick; Walker, Laura; Borah, Bijan; Salehinejad, Hojjat*
641	17:00-17:15	**Active Observation Approach for a Self-Learning Cobot in a Warehouse Setting** *Averyanov, Anton; Polzer, Jan; Xu, Xun*
180	17:15-17:30	**Cross-Modal Self-Supervised Feature Extraction for Anomaly Detection in Human Monitoring** *Avellaneda Gonzalez, Jose Alejandro, Matsukawa, Tetsu, Suzuki, Einoshin*
383	17:30-17:45	**Continuous and Autonomous Digital Twinning of Large-Scale Dynamic Indoor Environments** *Adam, Michael G.; Piccolrovazzi, Martin; Dalloul, Ahmed; Werner, Christian; Steinbach, Eckehard*
100	17:45-18:00	**Approximate Linear Program for Multi-Type Inpatient Allocation Admission Scheduling Problem** *Gong, Xuran; Dai, Jiajun; Geng, Na*

No.	27/08/2023 10:30-12:30	*Regular Session: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics* *Session Code: RAIM-1* *Place: Crystal Room 2*
450	10:30-10:45	**Industrial Application of 6D Pose Estimation for Robotic Manipulation in Automotive Internal Logistics** *Quentin, Philipp; Knoll, Dino; Goehring, Daniel*
457	10:45-11:00	**Plug-And-Play Software Architecture for Coordinating Multiple Industrial Robots and Sensors from Multiple Vendors** *He, Honglu; Aksoy, Burak; Saunders, Glenn; Wason, John; Wen, Johna*
460	11:00-11:15	**Indoors Traversability Estimation with RGB-Laser Fusion** *Sevastopoulos, Christos; Theofanidis, Michail; Hebri, Aref; Konstantopoulos, Stasinos; Karkaletsis, Vangelis; Makedon, Fillia*
464	11:15-11:30	**MorphoArms: Morphogenetic Teleoperation of Multimanual Robot** *Martynov, Mikhail; Darush, Zhanibek; Altamirano Cabrera, Miguel; Karaf, Sausar; Tsetserukou, Dzmitry*
469	11:30-11:45	**Learn from Robot: Transferring Skills for Diverse Manipulation Via Cycle Generative Networks** *Yang, Quantao; Stork, Johannes A.; Stoyanov, Todor*
504	11:45-12:00	**Applications of Uncalibrated Image Based Visual Servoing in Micro and Macroscale Robotics** *Yin, Yifan; Wang, Yutai; Zhang, Yunpu; Taylor, Russell H.; Vagvolgyi, Balazs*

526	12:00-12:15	**Photorealistic Simulation Approach for Verification of an Aerial Digital Photogrammetry System** *Ferreira, Cauê de Oliveira; Silva, Cesar Luiz; Eguti, Carlos Cesar Aparecido; Rodrigues de Oliveira, Wesley; Villani, Emilia*
535	12:15-12:30	**Force Controlled Robotic Surface Finishing with Variable Tool Centre Point (TCP)** *Balci, Baris; Roberts, Jonathan; Donovan, Jared; Corke, Peter*
No.	**27/08/2023 14:30-15:30**	***Regular Session: Automation in Life Sciences and Healthcare Systems*** *Session Code: RALH-1A* *Place: Crystal Room 2*
361	14:30-14:45	**Anomaly Detection in Sleep Habits Using Deep Learning** *Gasmi, Asma; Augusto, Vincent; Faucheu, Jenny; Morin, Claire; Serpaggi, Xavier*
389	14:45-15:00	**Design and Fabrication of an Array of Touch Sensor for Robotic Applications** *Luong, Tuan; Seo, Sungwon; Jeon, Jeongmin; Park, Chanyong; Doh, Myeongyun; Park, Sang Hyeon; Yumbla, Francisco; Moon, Hyungpil*
66	15:00-15:15	**An Adaptive, Humanlike Prosthetic Hand Equipped with a Series Elastic Differential and a Lightmyography Based Control Interface** *Shahmohammadi, Mojtaba; Guan, Bonnie; de Godoy, Ricardo; Liarokapis, Minas*
147	15:15-15:30	**Automated Determination of Benzoic Acids in Water Samples Using a Biomek I7 Hybrid Workstation, Positive Pressure Solid Phase Extraction and LC with UV Detection** *Fleischer, Heidi; Hoose, Sebastian; Würtz, Felix; Kirks, Thomas; Jost, Jana*

No.	**27/08/2023 16:00-17:30**	***Regular Session: Automation in Life Sciences and Healthcare Systems*** *Session Code: RALH-1B* *Place: Crystal Room 2*
262	16:00-16:15	**An Evaluation of Open Source Trajectory Planners for Robotic Manipulators with Focus on Human-Robot Collaboration** *Hoose, Sebastian; Würtz, Felix; Kirks, Thomas; Jost, Jana*
285	16:15-16:30	**A Multimodal Neural Network for Contact State Recognition During Probe Implantation into Skull Holes** *Song, Yujia; Xiaofeng, Wang; Zhang, Dapeng*
299	16:30-16:45	**Human Part Recognition for Intelligent Cyborg Insect Using an Extremely Low-Resolution Thermopile Array Sensor** *Ariyanto, Mochammad; Refat, Chowdhury Mohammad Masum; Morishima, Keisuke*

137	16:45-17:00	**Decentralized Critical Area Coverage Using Multi-UAV System with Guided Explorations During Floods** *Garg, Armaan; Jha, Shashi Shekhar*
58	17:00-17:15	**Dynamic Parameter Identification of the Kuka LBR Med Robot** *Shao, Fan; Ficuciello, Fanny*
178	17:15-17:30	**Network Design and Service Operations for Heart Transplant** *Hou, Wenjuan; Miao, Yuhan; Zhang, Chao; He, Qiao-Chu*

No.	27/08/2023 10:30-12:15	*Special Session: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics* *Session Code: SAIM-1* *Place: Gallery Room 1*
241	10:30-10:45	**An Architectural Extension for Digital Twin Platforms to Leverage Behavioral Models** *Lehner, Daniel; Santiago, Gil; Peter Hogh, Mikkelsen; Larsen, Peter Gorm; Wimmer, Manuel*
378	10:45-11:00	**Study on a Novel Voxel-Based 3D Printing Method on Magnetic-Controlled Memory Fluid** *Zhang, Shengjie; sun, xudong; Song, Zhongru; Guo, Yifei; Qu, Juntian; Li, Zhenkun*
515	11:00-11:15	**USV Path Planning under Marine Environment Simulation Using DWA and Safe Reinforcement Learning** *Qu, Tianci; Xiong, Gang; Ali, Hub; Dong, Xisong; Han, Yunjun; Shen, Zhen*
582	11:15-11:30	**A User-Oriented Design for Intuitive Man-Machine Interaction in Cell Micromanipulation** *Pu, Tanhong; Wang, Tiexin; Li, Haoyu; Yu, Jiawei; Yang, Liangjing*
619	11:30-11:45	**Resilience Analysis of the Power Battery Recycling Strategy Based on a Complex Dynamics Perspective** *Wang, Zongxian; Dai, Wang; He, Guannan*
624	11:45-12:00	**Remarks on an Optimal Predictive Control Using a Quaternion Neural Network** *Takahashi, Kazuhiko*
571	12:00-12:15	**The Busboy Problem: Efficient Tableware Decluttering Using Consolidation and Multi-Object Grasps** *Srinivas, Kishore; Ganti, Shreya; Parikh, Rishi; Ahmad, Ayah; Agboh, Wisdom C.; Dogar, Mehmet R; Goldberg, Ken*

No.	27/08/2023 14:30-15:30	*Regular Session: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics* *Session Code: RAIM-2A* *Place: Gallery Room 1*
561	14:30-14:45	**Challenges of Indoor SLAM: A Multi-Modal Multi-Floor Dataset for SLAM Evaluation** *Kaveti, Pushyami; Gupta, Aniket; Giaya, Denis; Karp, Madeline; Keil, Colin; Nir, Jagatpreet Singh; Zhang, Zhiyong; Singh, Hanumant*
562	14:45-15:00	**Mobile MoCap: Retroreflector Localization On-The-Go** *Lvov, Gary; Zolotas, Mark; Hanson, Nathaniel; Allison, Austin; Hubbard, Xavier; Carvajal, Michael Angelo; Padir, Taskin*
567	15:00-15:15	**Push-MOG: Efficient Pushing to Consolidate Polygonal Objects for Multi-Object Grasping** *Aeron, Shrey; LLontop, Edith; Adler, Aviv; Agboh, Wisdom C.; Dogar, Mehmet R; Goldberg, Ken*
569	15:15-15:30	**Reactive Dexterous Ungrasping with Tactile Sensing** *Dai, Zhenjiu; Jiang, Chunli; Chen, Hua; Yu, Hongyu; Zhang, Wei*

No.	27/08/2023 16:00-18:00	*Regular Session: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics* *Session Code: RAIM-2B* *Place: Gallery Room 1*
585	16:00-16:15	**Vibration Mitigation in Positioning Control of Slung Load Using Approximate Flat Output Based on Inverse Gudermannian** *Hoshino, Tasuku; Fujiwara, Daisuke*
166	16:15-16:30	**Vision-Based Camera/Robot Pose Estimation Using Both Semantic and Geometric Features on LEGO Baseplates** *Yeh, Shu-Hao; Xie, Shuangyu; Yan, Wei; Song, Dezhen*
208	16:30-16:45	**Near-Optimal Assembly Task Sequencing and Allocation Method for Multi-Arm Robot System** *Enomoto, Atsuko; Hayashi, Naohiro; Inoue, Reiko; Tsutsumi, Daisuke; Kajita, Daiki; Nakasu, Nobuaki*
237	16:45-17:00	**Semi-Implicit Euler Realization of Time-Delayed Super-Twisting Algorithm with Modified Smith Predictor** *Xiong, Xiaogang; Zou, Zhenyu; Lou, Yunjiang; Yang, Xiansheng; Zhu, Xu; Zheng, Fuchun*
396	17:00-17:15	**Adaptive Neural Network Tracking for a Magnetic Microrobot in Presence of Model Uncertainty and Unknown Disturbance** *Wang, Haoyu; Liu, Yueyue; Fan, Qigao; Hu, Yingbai; Wu, Xiaoyu*

304	17:15-17:30	**LieGrasPFormer: Point Transformer-Based 6-DOF Grasp Detection with Lie Algebra Grasp Representation** *Lin, Jianjie; Rickert, Markus; Knoll, Alois*
317	17:30-17:45	**Online Learning of Wheel Odometry Correction for Mobile Robots with Attention-Based Neural Network** *Navone, Alessandro; Martini, Mauro; Angarano, Simone; Chiaberge, Marcello*
577	17:45-18:00	**Design, Manufacturing, Modelling, and Control of a Cable-Driven Parallel Robot for Additive Manufacturing** *Duan, Molong; Feng, Jiaquan; Liu, Shuai*

28/08/2023 Day 3

No.	28/08/2023 11:00-12:30	*Peter Luh Special Session: Machine Learning for Automation* *Session Code: PSMLA-1A* *Place: Great Room 1&2*
199	11:00-11:15	**CNN-Based Task State Estimation for Safer Automation of Oxy-Fuel Metal Cutting** *Akl, James; Kodate, Shreedhar; Calli, Berk*
206	11:15-11:30	**Process-Informed Segmentation of Dense Point Clouds for Layer Quality Assessment in Large-Scale Metal Additive Manufacturing** *Ruiz, Cesar; Bhatt, Prahar; Gupta, Satyandra K.; Huang, Qiang*
212	11:30-11:45	**Deep Segmented DMP Networks for Learning Discontinuous Motions** *Anarossi, Edgar; Tahara, Hirotaka; Komeno, Naoto; Matsubara, Takamitsu*
232	11:45-12:00	**Optimized Walking Assistance of the Soft Exoskeleton with Twisted String Actuators** *Xu, Jiajun; Huang, Kaizhen; Zhang, Tianyi; Liao, Ziyu; Chang, Tianzuo; Chen, Bai; Li, Y.F.*
103	12:00-12:15	**A Comparative Analysis of Deep Learning Models for Short-Term Load Forecasting** *Khalid, Muhammad; Manzoor, Umar; Haq, Ihsan Ul*
115	12:15-12:30	**Headland Turn Automation Concept for Tractor-Trailer System with Deep Reinforcement Learning** *Olcay, Ertug; Rui, Xingyu; Wang, Rui*

No.	28/08/2023 13:30-15:30	*Peter Luh Special Session: Machine Learning for Automation* *Session Code: PSMLA-1B* *Place: Great Room 1&2*
27	13:30-13:45	**Deep Learning-Based Instance Segmentation for Feature Extraction of Branched Deformable Linear Objects for Robotic Manipulation** *Zürn, Manuel; Kienzlen, Annika; Klingel, Lars; Lechler, Armin; Verl, Alexander; Ren, Shiyi; Xu, Weiliang*
76	13:45-14:00	**Domain-Based Graph Neural Network: Evaluations of the Effectiveness of Graph Representation Based on Domain Knowledge** *Horiwaki, Kazuki*
81	14:00-14:15	**Semantic 3D Scene Segmentation for Robotic Assembly Process Execution** *Wiedholz, Andreas; Wucherer, Stefanie; Dietrich, Simon; Kerber, Florian*

85	14:15-14:30	**Cutting Point Detection for Strawberry Fruit Harvesting and Truss Pruning by Agricultural Robot** *Fujinaga, Takuya*
234	14:30-14:45	**Deep Reinforcement Learning for Dynamic Error Compensation in 3D Printing** *Wang, Dong; Shen, Zhen; Dong, Xiangyang; Fang, Qihang; Wang, Weixing; Dong, Xisong; Xiong, Gang*
423	14:45-15:00	**Using Economic Iterative Learning Control for Time-Optimal Control of a Redundant Manipulator** *Van de Vosse, Matthijs; Toner, Tyler; Wu, Maxwell; Tilbury, Dawn; Barton, Kira*
322	15:00-15:15	**An Experimental HVAC Faults Data Generation and Detection Using One-dimensional Convolutional Neural Networks** *Tun, Wunna; Wong, Johnny Kwok-Wai; Ling, Sai Ho*
194	15:15-15:30	**Autonomous Navigation of Wheel Loaders Using Task Decomposition and Reinforcement Learning** *Borngrund, Carl; Bodin, Ulf; Sandin, Fredrik; Andreasson, Henrik*

No.	28/08/2023 9:30-10:30	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-1A* *Place: Great Room 3*
388	9:30-9:45	**Robotic Packaging Optimization with Reinforcement Learning** *Drijver, Eveline; Pérez-Dattari, Rodrigo; Kober, Jens; Della Santina, Cosimo; Ajanovic, Zlatan*
398	9:45-10:00	**Bi-Level Optimization Augmented with Conditional Variational Autoencoder for Autonomous Driving in Dense Traffic** *Singh, Arun Kumar; Shrestha, Jatan; Albarella, Nicola*
409	10:00-10:15	**A Methodology for Robustly Monitoring Assembly Insertion Skills** *Ulloa Rios, Federico; Decré, Wilm; Aertbelien, Erwin; Bruyninckx, Herman*
525	10:15-10:30	**Multi-Agent Pickup and Delivery in Transformable Production** *Aryadi, Hanif; Bezerra, Ranulfo; Ohno, Kazunori; Gunji, Kenta; Kojima, Shotaro; Kuwahara, Masao; Okada, Yoshito; Konyo, Masashi; Tadokoro, Satoshi*

No.	28/08/2023 11:00-12:30	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-1B* *Place: Great Room 3*
422	11:00-11:15	**An Adaptive, State-Based Framework for Fault Prediction in Rotating Equipment** *Toothman, Maxwell; Braun, Birgit; Bury, Scott; Moyne, James; Tilbury, Dawn; Barton, Kira*

426	11:15-11:30	**Addressing Shortcomings in Manual Alignment of Laser Optics Via Automation Tools** *Rakhmatulin, Ildar; Risbridger, Donald; Robb, David A.; Carter, Richard; Chantler, Michael J.; Erden, Mustafa Suphi*
442	11:30-11:45	**Infradar-Localization: Single-Chip Infrared and Radar-Based Monte Carlo Localization** *Wang, Dong; Masannek, Marco; May, Stefan; Nuechter, Andreas*
443	11:45-12:00	**Structural Coverability for Intelligent Automation Systems** *Eros, Endre; Bengtsson, Kristofer; Akesson, Knut*
446	12:00-12:15	**Learning Human-Inspired Force Strategies for Robotic Assembly** *Scherzinger, Stefan; Roennau, Arne; Dillmann, Rüdiger*
455	12:15-12:30	**Using Buildings Proximity Information in UAV Global Localization Over Satellite Images** *Stein, Gean; Pittol, Diego; Mantelli, Mathias Fassini; Kolberg, Mariana; Prestes, Edson; Maffei, Renan*

No.	28/08/2023 13:30-15:30	***Regular Session: Automation for Manufacturing and Logistics*** *Session Code: **RAML-1C*** ***Place: Great Room 3***
459	13:30-13:45	**Planning Dense Object Packing by Pushing Objects** *Iwao, Kazuki; Nishi, Takao; Kiyokawa, Takuya; Petit, Damien; Wan, Weiwei; Harada, Kensuke*
461	13:45-14:00	**Self-Organization and Collaboration in Robotic Manufacturing Systems** *Frotzscher, Andreas; Chen, Xiao; Tran, Duy Lam; Goll, Thore; Sadeghian, Hamid; Wu, Fan; Dehmel, Martin; Wohlfahrt, Tommy; Riedl, Matthias; Haddadin, Sami*
468	14:00-14:15	**Multi-Objective Reinforcement Learning for Sustainable Supply Chain Optimization** *El Shar, Ibrahim; Wang, Haiyan; Chetan, Gupta*
478	14:15-14:30	**Towards Flexible Manufacturing: Motion Generation Concept for Coupled Multi-Robot Systems** *Tang, Yucheng; Shen, Wei; Mamaev, Ilshat; Hein, Björn*
491	14:30-14:45	**Mapping Crowd-Based Dynamic Blockages for Navigation in Indoor Environments** *Deus, Alleff Dymytry; Daudt, Guilherme; Maffei, Renan; Kolberg, Mariana*

507	14:45-15:00	**Efficient Multi-Objective Assembly Sequence Planning Via Knowledge Transfer between Similar Assemblies** *Cebulla, Alexander; Asfour, Tamim; Kroeger, Torsten*
509	15:00-15:15	**TPE-Net: Track Point Extraction and Association Network for Rail Path Proposal Generation** *Ghorbanalivakili, Mohammadjavad; Kang, Jungwon; Sohn, Gunho; Beach, David; Marin, Veronica E.*
517	15:15-15:30	**HDPV-SLAM: Hybrid Depth-Augmented Panoramic Visual SLAM for Mobile Mapping System with Tilted LiDAR and Panoramic Visual Camera** *Ahmadi, Mostafa; Alizadeh Naeini, Amin; Sheikholeslami, Mohammad Moein; Arjmandi, Zahra; Zhang, Yujia; Sohn, Gunho*

No.	28/08/2023 9:30-10:30	*Regular Session: Automation for Data Analytics* *Session Code: RADA-1* *Place: Great Room 4*
129	9:30-9:45	**Understanding URDF: A Survey Based on User Experience** *Tola, Daniella; Corke, Peter*
156	9:45-10:00	**Toward Resilient Manipulation of Food Products: Analysis of 6D-Pose Estimation at the Future Convenience Store Challenge 2022** *Garcia Ricardez, Gustavo Alfonso; Wakayama, Tatsuhiro; Ikemura, Shohei; Fujiura, Eri; Uriguen Eljuri, Pedro Miguel; Ikeuchi, Hiroki; Yamamoto, Masaki; El Hafi, Lotfi; Taniguchi, Tadahiro*
184	10:00-10:15	**Checkmate: Fault Timing Localization for Multi-Robot Scenarios** *Nishitani, Ippei; Yamaguchi, Tomoya; Hoxha, Bardh*
268	10:15-10:30	**Robot Raconteur®: Updates on an Open Source Interoperable Middleware for Robotics** *Wason, John; Wen, John*

No.	28/08/2023 11:00-12:30	*Peter Luh Special Session: Machine Learning for Automation* *Session Code: PSMLA-2A* *Place: Great Room 4*
247	11:00-11:15	**Electric Vehicle Location-Routing Task-Motion Planning** *Warsame, Yazz; Edelkamp, Stefan*
260	11:15-11:30	**A Robot and Sensor Integration Method to Measure Fatty Acid Composition in Salmon Fillets** *Fenelon, Michael Angelo Amith; Aurora Lintvedt, Tiril; Petter Wold, Jens; Candea Leite, Antonio*

123	11:30-11:45	**Autonomous Blimp Control Via H• Robust Deep Residual Reinforcement Learning** *Zuo, Yang; Liu, Yu Tang; Ahmad, Aamir*
530	11:45-12:00	**A Tiny Graph Neural Network for Inverse Graph Partitioning with Imbalance Constraints** *Shao, Yinning; Wang, Jingwei; Zhao, Yukai; Ma, Yunlong; Liu, Min*
138	12:00-12:15	**Boosting Unsupervised Domain Adaptation for 3D Object Detection in Point Clouds with 2D Image Semantic Information** *Ku, Chun-Chieh; Chen, Tsung-Yu; Lai, Shang-Hong*
152	12:15-12:30	**A Bi-LSTM Autoencoder Framework for Anomaly Detection: A Case Study of a Wind Power Dataset** *Raihan, Ahmed Shoyeb; Ahmed, Imtiaz*

No.	28/08/2023 13:30-15:15	*Peter Luh Special Session: Machine Learning for Automation* *Session Code: PSMLA-2B* *Place: Great Room 4*
168	13:30-13:45	**Trajectory Generation for Online Payload Estimation of Robot Manipulators: A Supervised Learning Based Approach** *Duan, Xiaoming; Wang, Yebin; Romeres, Diego; Koike-Akino, Toshiaki; Orlik, Philip*
183	13:45-14:00	**A Combined Deep Q-Network and Graph Search for Three Dimensional Route Planning Problems for Multiple Mobile Robots** *Konosuke, Fukushima; Nishi, Tatsushi; Liu, Ziang*
479	14:00-14:15	**Designing Fair, Cost-optimal Auctions based on Deep Learning for Procuring Agricultural Inputs through Farmer Collectives** *Ratan Bhardwaj, Mayank; Ahmed, Bazil; Diwakar, Prathik; Ghalme, Ganesh; Yadati, Narahari*
369	14:15-14:30	**Calibration-Free Transfer Learning for EEG-based Cross-Subject Motor Imagery Classification** *Wang, Yihan; Wang, Jiaxing; Wang, Weiqun; Su, Jianqiang; Hou, Zeng-Guang*
86	14:30-14:45	**HapNet: A Learning-Based Haptic-Kinematic Model for Surface Material Classification in Robot Perception** *Yan, Tianqiang; Xu, Tiansheng; Zhang, Tianwei; Sun, Zhenglong*
583	14:45-15:00	**ANYexo 2.0: A Fully-Actuated Upper-Limb Exoskeleton for Manipulation and Joint-Oriented Training in All Stages of Rehabilitation** *Zimmermann, Yves Dominic; Sommerhalder, Michael; Wolf, Peter; Riener, Robert; Hutter, Marco*

662	15:00-15:15	**A Fast Soft Robotic Laser Sweeping System Using Data-Driven Modelling Approach** *Wang, Kui; Wang, Xiaomei; Ho, Justin Di-Lang; Fang, Ge; Zhu, Bohao; Xie, Rongying; Liu, Yunhui; Au, K. W. Samuel; Chan, Ying-Kuen; Kwok, Ka-Wai*

No.	28/08/2023 16:00-18:00	*Peter Luh Special Session: Machine Learning for Automation* *Session Code: PSMLA-2C* *Place: Great Room 4*
663	16:00-16:15	**Learning-Based Visual-Strain Fusion for Eye-In-Hand Continuum Robot Pose Estimation and Control** *Wang, Xiaomei; Dai, Jing; Tong, Hon Sing; Wang, Kui; Fang, Ge; Xie, Xiaochen; Liu, Yunhui; Au, K. W. Samuel; Kwok, Ka-Wai*
629	16:15-16:30	**A Preliminary Study on Fatigue Estimation for Underwater Robot Operator Using sEMG Signals** *Park, Daegil; Lee, Yeongjun; Han, Jong-Boo; Kim, Minjae; Yeu, Tae-Kyeong*
633	16:30-16:45	**Design of an Autonomous Underwater Vehicle for Free-Running Model Tests** *Lee, Yeongjun; Park, Jeonghong; Choi, Jinwoo*
634	16:45-17:00	**Pedestrian Indoor Positioning Services Using PeNSI-S: Pedestrian Navigation for Safety and Information-Shoe Mounted Version** *Cho, Seong Yun*
89	17:00-17:15	**Training Demand Prediction Models by Decision Error for Two-Stage Lot-Sizing Problems** *Hailei, Gong; Zhang, Yanzi; Zhang, Zhi-Hai*
598	17:15-17:30	**Human-Robot Collaboration with Commonsense Reasoning in Smart Manufacturing Contexts** *Conti, Christopher; Varde, Aparna; Wang, Weitian*
599	17:30-17:45	**Automated Piezo-Assisted Sperm Immobilization** *Dai, Changsheng; Zhuang, Songlin; Shan, Guanqiao; Liu, Hang; Wang, Yong; Ru, Changhai; Sun, Yu*
608	17:45-18:00	**Model-Free Adaptive Impedance Control for Autonomous Robotic Sanding** *Huo, Yingxin; Li, Peng; Chen, Diancheng; Liu, Yunhui; Li, Xiang*

No.	28/08/2023 11:00-12:30	*Special Session: Automation for Data Analytics* *Session Code: SADA-1A* *Place: Jade Room 1*
227	11:00-11:15	**Level-Wise Band-Partition-Based Hierarchical Representation Residual Feature Learning for Hyperspectral Target Detection** *Guo, Tan; Guo, Jiakun; Li, Dachuan; Cao, Weipeng*
239	11:15-11:30	**Sensitivity Analysis of CoVaR** *Fu, Han; Hong, L. Jeff; Jiang, Guangxin*
243	11:30-11:45	**Robotic Disassembly Task Training and Skill Transfer Using Reinforcement Learning** *Qu, Mo; Wang, Yongjing; Pham, Duc Truong*
341	11:45-12:00	**A Two-Stage Adaptive Method for Predicting the Remaining Useful Life of Winders** *Ren, Jie; Zhang, Jie; Zhao, Xueyi; Wang, Junliang*
90	12:00-12:15	**Trustworthy Dynamic Object Tracking Using Deep Reinforcement Learning with the Self-Attention Mechanism** *Li, Mingfei; Liu, Haibin; Wang, Huanjie; Xia, Minghao*
106	12:15-12:30	**A Framework of Direct Correlation Identification for Wafer Fault Detection** *Xu, Hongwei; Tan, Runzhi; Chen, Qunlong; Zhou, Yu; Qin, Wei*

No.	28/08/2023 13:30-15:30	*Special Session: Automation for Data Analytics* *Session Code: SADA-1B* *Place: Jade Room 1*
270	13:30-13:45	**DETR Based Prohibited Item Detection in X-Ray Security Checking Images** *Xinxin, Wang; Haigang, Zhang; Cao, Weipeng; Yuanfei, Xue; Yang, Xu*
286	13:45-14:00	**Geometry Problem Solving Based on Counter-Factual Evolutionary Reasoning** *Song, Bing; Xiong, Gang; Shen, Zhen; Fenghua, Zhu; Lv, Yisheng; Ye, Peijun*
306	14:00-14:15	**Training Convolutional Neural Networks with Likelihood Ratio Method** *Jiang, Jinyang; Zeliang, Zhang; Peng, Yijie; Yu, Zhaofei*
359	14:15-14:30	**RADNet: A Radar Detection Network for Target Detection Using 3D Range-Angle-Doppler Tensor** *Hu, Kai; Hu, Xiao; Qi, Lei; Lu, Guowei; Zhong, Yi; Han, Yi*
379	14:30-14:45	**Low-Voltage Electrical Product Quality Problem-Solving Based on Improved Deep Structured Semantic Model** *Xu, Yuming; Tao, Jiaqi; Peng, Tao; Zhang, Ningyu*

395	14:45-15:00	**A Physics-Informed Neural Network Modeling Approach to Direct Ink Writing 3D Printing Process** *Sharma, Vaibhav; Pan, Rong; Pedrielli, Giulia*
402	15:00-15:15	**Deep Learning through Parametrically Generated Virtual Building Information Models for Real-World Object Recognition** *Alawadhi, Mohammad; Yan, Wei*
441	15:15-15:30	**Sim2Real Transfer for Traffic Signal Control** *Da, Longchao; Mei, Hao; Sharma, Romir; Wei, Hua*

No.	28/08/2023 16:00-18:00	*Regular Session: Foundations of Automation* *Session Code: RFA-3* *Place: Jade Room 1*
48	16:00-16:15	**Efficient Policy Transfer in Large-Scale Traffic Light Control via Multi-Agent Hierarchical Reinforcement Learning** *Li, Chenghao; Yan, Hu; Zhao, Qianchuan*
420	16:15-16:30	**Automated Testing of Standard Conformance for Robots** *Sohail, Salman Omar; Schneider, Sven; Hochgeschwender, Nico*
472	16:30-16:45	**Design and Analysis of a Reconfigurable Microgripper Integrated With Micro-Vision System** *Guo, Zhongyi; Xu, Qingsong*
134	16:45-17:00	**High-Resolution Image Anomaly Detection via Spatiotemporal Consistency** *Cao, Yunkang; Zhang, Yiheng; Shen, Weiming*
182	17:00-17:15	**Digital Twin-Enabled Two-Stage Optimization Model for Logistics-Assembly Synchronization in Fit-Out Construction** *Jiang, Yishuo; Su, Shuaiming; Zhong, Ray Y.*
358	17:15-17:30	**An MPC-Based Pose Control Framework of Multi-Section Soft Manipulator Using Hybrid Jacobian Estimation** *Zou, Shuangquan; Lyu, Yueyong; Qin, Tanghao; Ma, Guangfu; Guo, Yanning; Li, Chuanjiang*
645	17:30-17:45	**A Physiological Data Anomaly Detection Method Via Multi-Graph-Head Graph Attention Network** *An, Yu; Chen, Lili; Zhang, Xi*
659	17:45-18:00	**ST-DepthNet: A Spatio-Temporal Deep Network for Depth Completion Using a Single Non-Repetitive Circular Scanning Lidar** *Zováthi, Örkény; Palffy, Balazs; Jankó, Zsolt; Benedek, Csaba*

No.	28/08/2023 11:00-12:30	*Special Session: Digital Twin - Basis for Adaptable Automation Systems* *Session Code: SDTAS-1* *Place: Jade Room 2*
279	11:00-11:15	**Digital Twins for Intelligent Manufacturing for Bumping Process** *Hsieh, Yu-Ming; Lin, Yu-Chuan; Wilch, Jan; Vogel-Heuser, Birgit; Cheng, Fan-Tien*
373	11:15-11:30	**A Digital Twin Monitoring System for Belt Conveyor** *Zhong, Jingshu; Wang, Zixin; Bao, Xiangyu; Zhou, Xiaofeng; Wu, Dianliang; Zheng, Yu*
397	11:30-11:45	**Automated Generation of Digital Models for Production Lines through State Reconstruction** *Zhu, Lulai; Lugaresi, Giovanni; Matta, Andrea*
259	11:45-12:00	**Estimating Virtual Fixture Parameters in Digital Twin Environments for Robot Manipulation Tasks Using Reinforcement Learning** *Fernandez Prado, Diego; Steinbach, Eckehard*
581	12:00-12:15	**Development of a Digital Twin System for Wheel Machining Industry Based on 3D Web and Container Technologies** *Lin, Yu-Chuan; Shi, Ming-Jun; Hung, Min-Hsiung; Suryajaya, Benny; Chang, Yao-Xun; Chen, Chao-Chun; Lai, Kuan-Chou; Cheng, Fan-Tien*
471	12:15-12:30	**Architecture of a Versatile Digital Twin with Socket-Based Communication and Azure DT** *Höfgen, Josua; Vogel-Heuser, Birgit; Fandi, Bi; Zhao, Jingyun; Kraft, André; Markert, Timo; Vojanec, Bernd*

No.	28/08/2023 13:30-15:15	*Regular Session: Automation for Data Analytics* *Session Code: RADA-2A* *Place: Jade Room 2*
276	13:30-13:45	**A Digital Twin Based Framework for Real-Time Machine Condition Monitoring** *Chen, Zixiao; Choudhury, Madhurjya Dev; Blincoe, Kelly; Dhupia, Jaspreet*
94	13:45-14:00	**Digital-Twin Enabled Construction System for Supply Chain Risk Management** *Zhang, Wennan; Yu, Chenglin; Xiao, Jijie; Cheung Ho Kin, Dennis; Zhong, Ray Y.*
309	14:00-14:15	**Automated and Continuous Risk Assessment for ROS-Based Software-Defined Robotic Systems** *Grimmeisen, Philipp; Golwalkar, Rucha; Ma, Yuliang; Morozov, Andrey*
580	14:15-14:30	**Correlated Time Series Self-Supervised Representation Learning via Spatiotemporal Bootstrapping** *Wang, Luxuan; Bai, Lei; Li, Ziyue; Zhao, Rui; Tsung, Fugee*

342	14:30-14:45	**Cloud-Based Real-Time Tourism Demand Forecasting System with Deep Learning** *Zhang, Xinyan*
344	14:45-15:00	**A Graph-Based Algorithm for Root Cause Analysis of Faults in Telecommunication Networks** *Chen, Boyan; Li, Jiaxun; Wei, Junhu*
550	15:00-15:15	**Delay Modelling and Measurement of Multi-Agent Systems with Digital Twins in a Gear Assembly Use Case** *Vogel-Heuser, Birgit; Deshpande, Yash; Fandi, Bi; Zhao, Jingyun; Hujo, Dominik; Kellerer, Wolfgang; Kraft, André; Markert, Timo; Vojanec, Bernd*

No.	28/08/2023 16:00-18:00	*Regular Session: Automation for Data Analytics* *Session Code: RADA-2B* *Place: Jade Room 2*
364	16:00-16:15	**A Semi-Supervised Learning Approach for Fault Detection and Diagnosis in Complex Mechanical Systems** *Askari, Bahman; Cavone, Graziana; Carli, Raffaele; Grall, Antoine; Dotoli, Mariagrazia*
415	16:15-16:30	**Fault Detection and Isolation on a Hexacopter UAV Using a Two-Stage Classification Method** *Mulgundkar, Aditya; Singh, Mayank; Bhatt, Munjaal; Turlapati, Prudhvi Raj; Gangadharan, Deepak; Kandath, Harikumar*
434	16:30-16:45	**Constructing Industrial Knowledge Graph through Ontology and Link Prediction** *Wan, Yuwei; Chen, Zheyuan; Liu, Ying; Packianather, Michael S; Wang, Rui*
462	16:45-17:00	**A Real2Sim2Real Method for Robust Object Grasping with Neural Surface Reconstruction** *Wang, Luobin; Guo, Runlin; Vuong, Quan; Qin, Yuzhe; Su, Hao; Christensen, Henrik Iskov*
485	17:00-17:15	**An Innovative Deep Learning Based Approach for Accurate Agricultural Crop Price Prediction** *Ratan Bhardwaj, Mayank; Pawar, Jaydeep; Bhat, Abhijnya; Deepanshu, Deepanshu; Enaganti, Inavamsi; Sagar, Kartik; Yadati, Narahari*
493	17:15-17:30	**A Decision Support Tool for District Level Planning of Agricultural Crops for Maximizing Profits of Farmers** *Ratan Bhardwaj, Mayank; Chaudhary, Abhishek; Enaganti, Inavamsi; Sagar, Kartik; Yadati, Narahari*

518	17:30-17:45	**RF-Enhanced Pavement Markings for Mobile Robot Lane Detection** *Suo, Dajiang; Li, Heyi; Bhattacharyya, Rahul; Melia-Segui, Joan; Sarma, Sanjay E.*
524	17:45-18:00	**A Comprehensive Evaluation on the Impact of Various Spoofing Scenarios on GPS Sensors in a Low-Cost UAV** *Vaddhiparthy, Svsln Surya Suhas; Garapati, Sreya; Turlapati, Prudhvi Raj; Gangadharan, Deepak; Kandath, Harikumar*

No.	28/08/2023 9:30-10:30	Regular Session: Automation for Energy and Sustainability *Session Code: RAES-1* *Place: Jade Room 3*
196	9:30-9:45	**Fault Trend Prediction of Centrifugal Blowers Considering Incomplete Data** *Zhang, You; Li, Congbo; Tang, Ying; Zhou, Feng; Zhang, Xu*
269	9:45-10:00	**An Energy Utilization Prediction Method for FDM 3D Printing Processes** *Tuo, JunBo; Wang, Xiao; Zhang, Xianming; Liu, Peiji.*
386	10:00-10:15	**Forecasting Membrane Fouling in Filtration Processes Using Univariate Data-Driven Models** *Krüger, Marius; Vogel-Heuser, Birgit; Land, Kathrin Sophie; Brandstetter, Jonas; Josef, Lorenzer; Gunnar, Grim; Franzreb, Matthias; Berensmeier, Sonja*
411	10:15-10:30	**The Need for Task-Specific Execution in Robot Manipulation: Skill Design for Energy-Efficient Control** *Deroo, Boris; Pousett, Brendan; Aertbelien, Erwin; Decré, Wilm; Bruyninckx, Herman*

No.	28/08/2023 11:00-12:15	*Special Session: Automation for Manufacturing and Logistics* *Session Code: SAML-2A* *Place: Jade Room 3*
280	11:00-11:15	**Optimal Cyclic Scheduling of Wafer-Residency-Time-Constrained Dual-Arm Cluster Tools by Configuring Processing Modules and Adjusting Robot Waiting Time** *Wang, Jufeng; Leng, Tingting; Liu, Chunfeng; Zhou, MengChu*
282	11:15-11:30	**Design of Government Low-Carbon Subsidy Contract Considering Cloud Manufacturing Service Platform** *Gao, Wentao; Zhang, Hao; Lu, Jianfeng; Luyao, Xia; Han, Tiaojuan*
293	11:30-11:45	**A Geometric Similarity-based CAD Assembly Model Retrieval for Digital Twin** *Li, Yixuan; Zhang, Jie; Ji, Baoning*

312	11:45-12:00	**Complexity and Solution Methods for a Single-Machine Scheduling Problem with Limited Buffer Space and Transportation Resource** *Berterottière, Lucas; Dauzere-Peres, Stephane; Yugma, Claude*
314	12:00-12:15	**On the Utilization of Fuzzy Rule-Based Systems for Productivity Estimations in Aircraft Final Assembly Lines** *Long, Tengfei; Wang, Zhentao; Harris, Lara; Anbalagan, Arivazhagan; Zhang, Jie*

No.	28/08/2023 13:30-15:00	*Special Session: Automation for Manufacturing and Logistics* *Session Code: SAML-2B* *Place: Jade Room 3*
316	13:30-13:45	**Frustum-LDGCNN: A High Efficient 3D Object Detection Network with Frustum Proposal** *Qian, Junhong; Lv, Youlong; Gao, Yiping; Wang, Junliang*
323	13:45-14:00	**A MR-Assisted and Scene Perception System for Human-Robot Collaborative Disassembly of Power Batteries** *Duan, Liangliang; Li, Jie; Bao, Jinsong; Lv, Jianhao; Zheng, Hangbin*
331	14:00-14:15	**Energy Consumption Optimization for Two-Machine Synchronous Exponential Serial Lines** *Yan, Chao-Bo; Zhang, Sheng*
346	14:15-14:30	**A Fast-Compressive Tracking Integrated with Differential Evolution to Optimise Object Tracking Performance** *Foo, C. Y.; Rajendran, Parvathy; N, Aswini; Raja, Vijayanandh; Natarajan, Elango; Ang, Chun Kit*
349	14:30-14:45	**Hybrid Fuzzy C-Means Using Particle Swarm Optimization (PSO) and Differential Evolution (DE) for Image Segmentation** *Tan, C H; Rajendran, Parvathy; Raja, Vijayanandh; Natarajan, Elango*
367	14:45-15:00	**A Hybrid Co-Evolutionary Algorithm for the PBS Scheduling Problem in Automobile Industry** *Teng, Yue; Li, Xinyu; Liu, Qihao; Tian, Shichen; Ma, Wenxin; Zhang, Chunjiang*

No.	28/08/2023 16:00-18:00	*Special Session: Foundations of Automation* *Session Code: SFA-1* *Place: Jade Room 3*
25	16:00-16:15	**Optimization Framework for Global Path Planning and Local Motion Planning for Robotic Welding of Multiple Large Industrial Parts** *Vazquez-Santiago, Kyshalee; Goh, Chun Fan; Basdeo, Rishi; Shimada, Kenji*

135	16:15-16:30	**Design, Sensing and Control of Service Robotic System for Intelligent Navigation and Operation in Internet Data Centers** *Yin, Jie; Liang, Conghui; Li, Xiong; Xu, Qiwei; Wang, Haitao; Fan, Tingxiang; Wu, Zida; Zhang, Zhengyou*
96	16:30-16:45	**Advancing Digital Twin Implementation Using Edge Adapters Based on Containerization** *Huang, Huiyue; Xu, Xun*
121	16:45-17:00	**An Agricultural Precision Sprayer Deposit Identification System** *Rogers, Harry William; De La Iglesia, Beatriz; Zebin, Tahmina; Cielniak, Grzegorz; Magri, Ben*
318	17:00-17:15	**Automatic Action Space Curriculum Learning with Dynamic Per-Step Masking** *Yasutomi, André Yuji; Ogata, Tetsuya*
99	17:15-17:30	**A multiscale sparse ensemble network for machine prognostics based on infrared image streams** *Jiang, Yimin; Xu, Yuhui; Ding, Yutong; Zheng, Meimei; Wang, Dong; Xia, Tangbin; Xi, Lifeng*
556	17:30-17:45	**Search Based Testing for Code Coverage and Falsification in Cyber-Physical Systems** *Thibeault, Quinn; Khandait, Tanmay; Pedrielli, Giulia; Fainekos, Georgios*
145	17:45-18:00	**Exploring the technical advances and limits of Autonomous UAVs for Precise Agriculture in Constrained Environments** *Ben Miled, Meriem; Grande, Davide; Li, Xudong; Liu, Yuanchang*

No.	28/08/2023 9:30-10:30	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-2A* *Place: Crystal Room 1*
26	9:30-9:45	**Autonomous Mobile Robots in Manufacturing Operations** *Zhao, Xiang; Chidambareswaran, Thiagarajan*
70	9:45-10:00	**Two-Stage Assembly Flow Shop Scheduling Problem with Sequence-Dependent Setup Times** *Meng, Qiunan; Qiu, Di; Liu, Yali*
112	10:00-10:15	**Semantic Mapping and Autonomous Navigation for Agile Production System** *Zhou, Benchun; Klein, Jan-Felix; Wang, Bo; Hillemann, Markus*
124	10:15-10:30	**Shape-Based Path Adaptation and Simulation-Based Velocity Optimization of Initial Tool Trajectories for Robotic Spray Painting** *Verduyn, Arno; De Schutter, Joris; Decré, Wilm; Vochten, Maxim*

No.	28/08/2023 11:00-12:30	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-2B* *Place: Crystal Room 1*
158	11:00-11:15	**Wire Harness Connectors Mating Process by Dual-Arm Co-Manipulation Using Maximum Manipulability** *Yumbla, Francisco; Medrano Yax, Juan Fernando; Luong, Tuan; Seo, Sungwon; Jeon, Jeongmin; Moon, Hyungpil*
160	11:15-11:30	**Automatic Metro Train Regulation Using Adaptive Headway for Large Passenger Flows** *Zhang, Zhengyu; Tong, Yin; Cavone, Graziana*
161	11:30-11:45	**Supporting Model-Based Network Specification for Time-Critical Distributed Control Systems in IEC 61499** *Bruns, Friederike; Wiesmayr, Bianca; Zoitl, Alois*
483	11:45-12:00	**An Integrated Offline and Online Optimization Framework for Large Scale Additive Manufacturing** *Liu, Lu; Eonyeon, Jo; Uday, Vaidya; Seokpum, Kim; Ju, Feng*
289	12:00-12:15	**Multi-Task Regression with Process Knowledge-Based Forest Learners in Process Industries** *Sun, Linjin; Ji, Yangjian; Peng, Tao*
114	12:15-12:30	**AR-driven industrial metaverse for the auxiliary maintenance of machine tools in IoT-enabled manufacturing workshop** *Liu, Changchun; Tang, Dunbing; Wang, Zhen*

No.	28/08/2023 13:30-15:30	*Special Session: Automation for Data Analytics* *Session Code: SADA-2* *Place: Crystal Room 1*
122	13:30-13:45	**Intelligent Predictive Maintenance Strategy for Hybrid Systems Using Model-Data Fusion Approach** *Chenyu, Xiao; Zheng, Pai*
193	13:45-14:00	**A Squeeze-And-Excitation and Transformer Based Model for Remaining Useful Life Prediction in Ion Mill Etching Process** *Yuan, Zengwei; Wang, Rui*
195	14:00-14:15	**AGV Scheduling in Automated Container Terminals Considering Task Priority and Container Handling Time** *Ai, Di; Zhang, Zhanluo; Chen, Yumeng; Qin, Wei*
217	14:15-14:30	**A Data-Driven Status Division Scheme for Automated Container Terminal Production Process based on Graph Information** *Tan, Runzhi; Zhang, Zhanluo; Sun, Yanning; Xu, Hongwei; Qin, Wei; Tian, Yu; Xu, Dong*

670	14:30-14:45	**NR-RRT: Neural Risk-Aware Near-Optimal Path Planning in Uncertain Nonconvex Environments** *Meng, Fei; Chen, Liangliang; Ma, Han; Wang, Jiankun; Meng, Max Q.-H.*
674	14:45-15:00	**Economic model predictive control in buildings based on piecewise linear approximation of predicted mean vote index** *Li, Hongyi; Xu, Jun; Zhao, Qianchuan; Wang, Sixin*
639	15:00-15:15	**Proposal of Anchor-Less Positioning Method with Multiple Tags and Mobile Robot** *Yoshizawa, Mirei; Shimizu, Taku; Nakamura, Sousuke*
308	15:15-15:30	**RTDK-BO: High Dimensional Bayesian Optimization with Reinforced Transformer Deep Kernels** *Shmakov, Alexander; Naug, Avisek; Gundecha, Vineet; Ghorbanpour, Sahand; Luna Gutierrez, Ricardo; Ramesh Babu, Ashwin; Guillen, Antonio; Sarkar, Soumyendu*

No.	28/08/2023 16:00-17:45	*Special Session: Automation for Manufacturing and Logistics* *Session Code: SAML-3* *Place: Crystal Room 1*
394	16:00-16:15	**Design Changes, Saving Materials and Energy in Food Serving Robot Via Topology Optimization** *Alfakih, Muaadh Abdulrahman Ali; Beit, Nour Eldin Mahmoud Taher; Farah, Abdirizak; Allouzi, (Moh'd Alsadeq) Mousa A.; Sheikh Mohamed, Ibrahim Isameldin Ibrahim; Al-Kuhali, Mohammed Hashem Mohammed; Ahmed, Abdelrahman Osman Mohamed Elbashir; Natarajan, Elango*
407	16:15-16:30	**IoT-enabled MRO Intralogistics Management: A Case Study in Hong Kong** *Chen, Qiqi; Zhao, Zhiheng; Luo, Hao; Huang, George Q.*
424	16:30-16:45	**Modeling of Rotary Tool Adapted Electrochemical Machining of AISI 202** *T, Sekar; Natarajan, Elango; Ang, Chun Kit; Lim, Wei Hong; Rajendran, Parvathy*
429	16:45-17:00	**An Ontology-Based Product Modelling Method for Smart Remanufacturing** *Hu, Youxi; Liu, Chao; Zhang, Ming; Lu, Yuqian; Jia, Yu; Xu, Yuchun*
432	17:00-17:15	**An MDP-Based Method for Dynamic Workforce Allocation in Bernoulli Serial Production Lines** *Tu, Jiachen; Zhang, Liang*
436	17:15-17:30	**Parameter Estimation for Two-Machine Non-Exponential Production Line Models Using Parts Flow Data** *Sun, Yuting; Zhang, Liang*

473	17:30-17:45	**Cycle Planning for Concurrent Processing in a Dual-Armed Cluster Tool** *Kim, Hong-Yeon; Lee, Jun-Ho; Kim, Hyun-Jung*

No.	28/08/2023 9:30-10:30	*Special Session: Foundations of Automation* *Session Code: SFA-2A* *Place: Crystal Room 2*
449	9:30-9:45	**Ontology-Based Feedback to Improve Runtime Control for Multi-Agent Manufacturing Systems** *Lim, Jonghan; Pfeiffer, Leander; Ocker, Felix; Vogel-Heuser, Birgit; Kovalenko, Ilya*
465	9:45-10:00	**Distributed Behavior Trees for Heterogeneous Robot Teams** *Heppner, Georg; Berg, Nils; Oberacker, David; Spielbauer, Niklas; Roennau, Arne; Dillmann, Rüdiger*
474	10:00-10:15	**Case Study: ROS-based Fault Injection for Risk Analysis of Robotic** *Ma, Yuliang; Grimmeisen, Philipp; Morozov, Andrey*
277	10:15-10:30	**Towards vision-based dual arm robotic fruit harvesting** ***Gursoy, Ege; Navarro, Benjamin; Cosgun, Akansel; Kulic, Dana; Cherubini, Andrea***

No.	28/08/2023 11:00-12:30	*Special Session: Foundations of Automation* *Session Code: SFA-2B* *Place: Crystal Room 2*
559	11:00-11:15	**Perch a quadrotor on planes by the ceiling effect** *Zou, Yuying; Li, Haotian; Ren, Yunfan; Xu, Wei; Li, Yihang; Cai, Yixi; Zhou, Shenji; Zhang, Fu*
203	11:15-11:30	**A Cooperative DRL Approach for Autonomous Traffic Prioritization in Mixed Vehicles Scenarios** *Volpe, Gaetano; Mangini, Agostino Marcello; Fanti, Maria Pia*
363	11:30-11:45	**Optimization of Image Preprocessing and Background Influences using a Depth Camera for Person Re-Identification on a Mobile Robot** *Flores, Sebastian; Boztoprak, Zeynep; Jost, Jana*
552	11:45-12:00	**Unlocking Insights: Analysing Construction Issues in Request for Information (RFI) Documents with Text Mining and Visualisation** *Afzal, Muneeb; Wong, Johnny Kwok-Wai; Fini, Alireza*
142	12:00-12:15	**Towards Mutual-Cognitive Human-Robot Collaboration: A Zero-shot Visual Reasoning Method** *Li, Shufei; Zheng, Pai; Xia, Liqiao; Wang, Xi Vincent; Wang, Lihui*

332	12:15-12:30	**Secure Co-Creation of Industrial Knowledge Graph: Graph Complement Method with Federated Learning and ChatGPT** *Xia, Liqiao; Zheng, Pai; Liang, Yongshi; Zheng, Ge; Ling, Zhengyang*

No.	28/08/2023 13:30-15:30	*Special Session: Foundations of Automation* *Session Code: SFA-2C* *Place: Crystal Room 2*
496	13:30-13:45	**RUSOpt: Robotic UltraSound Probe Normalization with Bayesian Optimization for In-Plane and Out-Plane Scanning** *Raina, Deepak; R Mathur, Abhishek; Voyles, Richard; Wachs, Juan; Chandrashekhara, Sh; Saha, Subir Kumar*
447	13:45-14:00	**LayoutSLAM++: Simultaneous estimation of layout and object map based on geometric features of object placement** *Gunji, Kenta; Ohno, Kazunori; Bezerra, Ranulfo; Kojima, Shotaro; Aryadi, Hanif; Okada, Yoshito; Kuwahara, Masao; Konyo, Masashi; Tadokoro, Satoshi*
418	14:00-14:15	**Probabilistic modelling and safety assurance of an agriculture robot providing light-treatment** *Adam, Mustafa; Ye, Kangfeng; Anisi, David A.; Cavalcanti, Ana; Woodcock, James; Morris, Robert*
375	14:15-14:30	**A Framework for Learning Behavior Trees in Collaborative Robotic Applications** *Iovino, Matteo; Styrud, Jonathan; Falco, Pietro; Smith, Claes Christian*
143	14:30-14:45	**Exploiting Patent Documents for Cross-domain Knowledge Transfer in Innovative Engineering Design: A Doc2Vec-GAT-based Approach** *Li, Mingrui; Wang, Zuoxu; Yan, Zhijie; Liu, Jihong*
228	14:45-15:00	**Symbolic Sequence Optimization Approach for Task and Motion Planning of Robot Manipulators** *Kawabe, Tomoya; Nishi, Tatsushi; Liu, Ziang; Fujiwara, Tomofumi*
202	15:00-15:15	**An Anthropomorphic Framework for Learning-Based Visual Servoing to Reach Unseen Objects** *Fei, Haolin; Wang, Ziwei; Tedeschi, Stefano; Kennedy, Andrew*
290	15:15-15:30	**An Adaptive Large Neighborhood Search for Heterogeneous Vehicle Routing Problem with Time Windows** *Nguyen, Minh Pham Kien; Gunawan, Aldy; Yu, Vincent F.; Misir, Mustafa*

No.	28/08/2023 16:00-18:00	*Special Session: Automation for Data Analytics* *Session Code: SADA-3* *Place: Crystal Room 2*
502	16:00-16:15	**A Unified Probabilistic Framework for Spatiotemporal Passenger Crowdedness Inference within Urban Rail Transit Network** *Jiang, Min; Wang, Andi; Li, Ziyue; Tsung, Fugee*
527	16:15-16:30	**Dynamic Causal Graph Convolutional Network for Traffic Prediction** *Lin, Junpeng; Li, Ziyue; Li, Zhishuai; Bai, Lei; Zhao, Rui; Zhang, Chen*
635	16:30-16:45	**Applications of Federated Learning in Robotics: Status and Prospects** *Wang, Chenhao; Yang, Howard; Yang, Liangjing*
647	16:45-17:00	**Developing 3D Scene Reconstruction Using Single Depth Camera Mounted on Robotic Arm for Human-Robot Co-Existence** *Mai, Haonan; Shi, Yunze; Yu, Jiawei; Lin, Zhefan; Wang, Tiexin; Yang, Liangjing*
244	17:00-17:15	**A New Prediction Method of Tool Life Considering Cognitive Uncertainty by Delayed Rejection Adaptive Sampling** *Wang, Zenghui; Zhou, Guanghui; Zhang, Chao; Chang, Fengtian; Zhou, Yaguang; Zhao, Dan*
261	17:15-17:30	**Adaptive Hierarchical SpatioTemporal Network for Traffic Forecasting** *Chen, Yirong; Li, Ziyue; Ouyang, Wanli; Lepech, Michael*
113	17:30-17:45	**Deep Learning-Based Connector Detection for Robotized Assembly of Automotive Wire Harnesses** *Wang, Hao; Johansson, Björn*
476	17:45-18:00	**Synthetic Data Generation and Sampling for Online Training of DNNs in Manufacturing Supervised Learning Problems** *Zeng, Yingyan; Thiyagarajan, Prithivrajan; Chan, Brian M.; Jin, Ran*

No.	28/08/2023 11:00-12:30	Regular Session: Automation for Energy and Sustainability *Session Code: RAES-2* *Place: Gallery Room 1*
440	11:00-11:15	**Rotation Control of a Novel Crane Gripper with Visual-Inertial Feedback** *Burkhardt, Mark; Joachim, Lena; Gienger, Andreas; Haala, Norbert; Sörgel, Uwe; Sawodny, Oliver*

62	11:15-11:30	**Miniaturized Leg Adsorption Mechanisms of a Small Hexapod Mobile Robot for Inspecting Narrow Spaces on Walls and in Pipes** *Matsuura, Ami; Domon, Ai; Mizukami, Masato; Hanajima, Naohiko; Fujihira, Yoshinori*
105	11:30-11:45	**Construction of Health Indicators for Performance Evaluation of Lithium-Ion Battery: A Review** *Xia, Ran; Su, Chun*
110	11:45-12:00	**The QUENDA-BOT: Autonomous Robot for Screw-Fixing Installation in Timber Building Construction** *Le, Dinh Dang Khoa; Hu, Gibson; Liu, Dikai; Khonasty, Richardo; Huang, Shoudong; Zhao, Liang*
175	12:00-12:15	**An Entropy and Attention-Based Feature Extraction and Selection Network for Multi-Target Coupling Scenarios** *Wang, Yuhui; Wang, Di*
60	12:15-12:30	**An underactuated tendon-driven gripper with variable stiffness for deformable agri-food objects** *Bluiminck, Mart; Roozing, Wesley*

No.	28/08/2023 13:30-15:30	*Regular Session: Foundations of Automation* *Session Code: RFA-4* *Place: Gallery Room 1*
185	13:30-13:45	**Voxel Based Motion Prediction for Efficient HRC Utilizing Latent Space** *Spielbauer, Niklas; Reichard, Daniel; Bolano, Gabriele; Stelzer, Annett; Suppa, Michael; Leske, Michael; Steinbronn, Janus; Rothe, Diana; Roennau, Arne; Dillmann, Rüdiger*
315	13:45-14:00	**Swimming Optimization Method of Soft Bio-Inspired Robotic Fish Based on Improved CPG Model** *Wang, Yunfei; Tang, Wei; Yu, Zhenping; Qian, Xiang; Li, Zhenkun; Qu, Juntian*
119	14:00-14:15	**Design of a 1: 1 Scale Penguin-Like Robot with Effective Flexible Wings** *Shen, Yayi; Ding, Zheming; Chen, Bai; Tanaka, Hiroto*
381	14:15-14:30	**Safe Trajectory Sampling in Model-Based Reinforcement Learning** *Zwane, Sicelukwanda Njabuliso Tunner; Hadjivelichkov, Denis; Luo, Yicheng; Bekiroglu, Yasemin; Kanoulas, Dimitrios; Deisenroth, Marc Peter*

63	14:30-14:45	**Self-Reconfigurable Soft-Rigid Mobile Agent with Variable Stiffness and Adaptive Morphology** *Labazanova, Luiza; Peng, Shuang; Qiu, Liuming; Lee, Hoi-Yin; Nanayakkara, Thrishantha; Navarro-Alarcon, David*
18	14:45-15:00	**IndoorMCD: A Benchmark for Low-Cost Multi-Camera SLAM in Indoor Environments** *Sewtz, Marco; Fanger, Yunis; Luo, Xiaozhou; Bodenmueller, Tim; Triebel, Rudolph*
59	15:00-15:15	**Evolution of UAV Landing Structures in the Bistable Space of Kresling Origami Structures** *Li, Haichuan; Du, Zhenpeng; Luo, Cai*
601	15:15-15:30	**S-VIO: Exploiting Structural Constraints for RGB-D Visual Inertial Odometry** *Gu, Pengfei; Meng, Ziyang*

No.	28/08/2023 16:00-18:00	*Special Session: Manufacturing Data Science* *Session Code: SMDS-1* *Place: Gallery Room 1*
611	16:00-16:15	**Measuring Data Completeness Using Information Theory: A Lowerbound of Conditional Entropy** *Fang, Yu-Hsueh; Lee, Chia-Yen*
638	16:15-16:30	**Reinforcement Learning for Dynamic Electric Vehicle Charging Pricing** *Chiang, Tsai-Pin; Lee, Chia-Yen*
50	16:30-16:45	**An improved spatial scheduling algorithm for sub-assembly in shipbuilding** *Wang, Teng; Mo, Xuandong; Chen, Mingzhi; Hu, Xiaofeng*
295	16:45-17:00	**Penetration State Recognition for GMAW Process Using Stereo Vision Based on Deep Learning** *Zhang, Kun; Yue, Chuangqi; Liang, Zhimin*
574	17:00-17:15	**Analyzing the Severity of Freight Train Derailment Using Choquet Integral-Based Fuzzy Measure Weight Regression** *Li, Haoxuan; Gao, Xuehong*
579	17:15-17:30	**Detecting Foreground in Videos Via Posterior Regularized Robust Bayesian Tensor Factorization** *Xia, Shenghao; Zhang, Yinwei; Zhang, Biao; Liu, Jian*

588	17:30-17:45	**PointSLOT: Real-Time Simultaneous Localization and Object Tracking for Dynamic Environment** *Zhou, Pengkun; Liu, Yuzhen; Meng, Ziyang*
653	17:45-18:00	**Do We Need a New Foundation to Use Deep Learning to Monitor Weld Penetration?** *Mucllari, Edison; Yu, Rui; Cao, Yue; Ye, Qiang; Zhang, Yuming*

No.	28/08/2023 11:00-12:00	*Special Session: Smart Manufacturing Control and Optimization Towards Industry 4.0/5.0* *Session Code: SSMO-1* *Place: Gallery Room 3*
246	11:00-11:15	**An adaptive discrete whale swarm algorithm for the distributed job-shop scheduling problem with limited AGVs** *Yao, Youjie; Wang, Cuiyu; Gao, Yiping; Li, Xinyu; Gao, Liang*
337	11:15-11:30	**Human-Centric UAV-UGV Collaboration** *Krupas, Maros; Chand, Saahil; Lu, Yuqian; Xu, Xun; Kajati, Erik; Zolotova, Iveta*
351	11:30-11:45	**Strictly Decentralized Approaches for Multi-Robot Grasp Coordination** *Muthusamy, Rajkumar; Kyrki, Ville; Muthusamy, Praveen; Taha, Tarek; Hussain, Irfan; Zweiri, Yahya; Prattichizzo, Domenico; Gan, Dongming*
489	11:45-12:00	**Video-based fatigue estimation for human-robot task allocation optimisation** *Zheng, Hao; Chand, Saahil; Keshvarparast, Ali; Battini, Daria; Lu, Yuqian*

No.	28/08/2023 16:00-18:00	*Regular Session: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics* *Session Code: RAIM-3* *Place: Gallery Room 3*
61	16:00-16:15	**Analysis of Acceleration Data Using Low-Power Embedded Devices to Detect Gear Faults** *Rupprecht, Bernhard; Sendlbeck, Stefan; Vogel-Heuser, Birgit; Brederlow, Ralf; Knoll, Erich; Stahl, Karsten*
101	16:15-16:30	**Rapid Adjustment of Position and Orientation Errors for Industrial Robots Using Touch Probe** *Maeda, Masaaki; Kajita, Daiki*

104	16:30-16:45	**Indoor Localization for an Autonomous Model Car: A Marker-Based Multi-Sensor Fusion Framework** *Li, Xibo; Patel, Shruti; Stronzek-Pfeifer, David; Büskens, Christof*
107	16:45-17:00	**Optimal Tuning of High-Order Super-Twisting Differentiators** *Tonti, Giammarco; Shabnam, Shakourzadeh; Guarino Lo Bianco, Corrado*
108	17:00-17:15	**Advanced 6D Sensor Development to Support Utilization of Cobot in High-Accuracy Inspection** *Qiao, Guixiu*
125	17:15-17:30	**Folded, Articulated Manipulator with Inflatable Skin Enabling Bending and Extension Using a Tension Cutoff Mechanism** *Yoshimoto, Yuto; Takahashi, Tomoya; Abe, Kazuki; Watanabe, Masahiro; Tadakuma, Kenjiro; Sano, Shunsuke; Tadokoro, Satoshi*
141	17:30-17:45	**Magnetic-Actuated Flexible Instruments with Enhanced Bending Capability through Magnetic Distribution Optimization** *Huang, Yuanrui; Ma, Rrunyu; Hu, Jian; Chen, Mingcong; Chen, Jian; Liu, Hongbin*
148	17:45-18:00	**Enhancing Constraint-Based Robot Task Specification with Dual Controller and Estimator Synthesis** *Viljoen, Ruan Matthys; Ubbink, Johan Bernard; Pipeleers, Goele; Decré, Wilm; Aertbelien, Erwin; De Schutter, Joris*

29/08/2023 Day 4

No.	29/08/2023 11:00-11:30	*Special Session: Foundations of Automation* *Session Code: SFA-3* *Place: Great Room 1&2*
621	11:00-11:15	**Learning Task Skills and Goals Simultaneously from Physical Interaction** *Chen, Haonan; Mun, Ye-Ji; Huang, Zhe; Niu, Yilong; Xie, Yiqing; McPherson, D. Livingston; Driggs-Campbell, Katherine*
616	11:15-11:30	**Analyzing the Influence of Self-Defined Trajectories on Safety and Task Ownership: An Empirical Study** *Pantano, Matteo; Schmidt, Maximilian; Bolano, Gabriele; Schulenburg, Erik; Regulin, Daniel; Saenz, Jose*

No.	29/08/2023 13:30-16:00	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-3* *Place: Great Room 1*
328	13:30-13:45	**Automated Design of Vibratory Part Feeding Traps for Controlled Reorientation of Parts** *Iversen, Thorbjørn Mosekjær; Sørensen, Lars Carøe; Mathiesen, Simon Faarvang*
338	13:45-14:00	**Simulation Model Selection Process Using Complexity Measurement** *Ghasemi, Golsa; Kharde, Mandar; Müller, Manuel Sebastian; Jazdi, Nasser; Weyrich, Michael*
230	14:00-14:15	**Task Allocation Method of Multi-Logistics Robots Based on Autoencoder-Embedded Genetic Algorithm** *Ma, Qian; Lin, Chengran*
258	14:15-14:30	**Distributed Multi-Robot Equitable Partitioning Algorithm for Allocation in Warehouse Picking Scenarios** *D'urso, Giovanni Salvatore; Sadeghi, Armin; Yoo, Chanyeol; Smith, Stephen L.; Fitch, Robert*
531	14:30-14:45	**Using Knowledge Representation and Task Planning for Robot-Agnostic Skills on the Example of Contact-Rich Wiping Tasks** *Mayr, Matthias; Ahmad, Faseeh; Dürr, Alexander; Krueger, Volker*
278	14:45-15:00	**A Vector Field-Based Method for Human Action Representation and Recognition During Human-Robot Collaboration** *Manitta, Mario; Jayasuriya, Maleen; Liu, Dikai*
537	15:00-15:15	**Towards a Lifelong Mapping Approach Using Lanelet 2 for Autonomous Open-Pit Mine Operations** *Eichenbaum, Julian; Nikolovski, Gjorgji; Mülhens, Leon; Reke, Michael; Ferrein, Alexander; Scholl, Ingrid*

538	15:15-15:30	**A Modular End Effector with Active Rolling Fingertip for Picking Cloth-Like Objects** *Zhang, Kun; Yang, Yuanhang; Chen, Zhiming; Chen, Hua; Wang, Michael Yu; Zhang, Wei*
565	15:30-15:45	**TDLE: 2-D LiDAR Exploration with Hierarchical Planning Using Regional Division** *Zhao, Xuyang; Yu, Chengpu; Xu, Erpei; Liu, Yixuan.*
575	15:45-16:00	**Towards Single Point Incremental Forming Accuracy: An Approach for the Springback Effect Compensation** *Shaker, Walid; Klimchik, Alexandr*

No.	29/08/2023 13:30-15:30	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-4* *Place: Great Room 2*
651	13:30-13:45	**Global Supply Chain Planning and Scheduling in Semiconductor Supply Chains and Supply Chains Requiring a Solid Commit Process and Commit Measurement to Avoid Chip Shortages in a VUCA Environment** *Ehm, Hans; Welling, Tobias Leander*
617	13:45-14:00	**WPT-Robot for AGV: Report on Simultaneous Tracking & Charging Function and Reconsideration of Rectifier for MHz-Order Frequency** *Shimizu, Yuta; Takayama, Naoto; Toga, Syuhei; Shimizu, Taku; Nakamura, Sousuke*
514	14:00-14:15	**Synthesis of Failure-Robust Plans for Multi-Robot Systems under Temporal Logic Specifications** *Huang, Feifei; Li, Shaoyuan; Yin, Xiang*
544	14:15-14:30	**A Variable Stiffness Gripper with Dual Leaf-Spring Mechanism** *Yu, Lei; Jin, Yurui; Qiao, Lin; Jin, Gumin; Qin, Siying; Chen, Yuqing*
549	14:30-14:45	**Model-Free Large-Scale Cloth Spreading With Mobile Manipulation: Initial Feasibility Study** *Chu, Xiangyu; Wang, Shengzhi; Feng, Minjian; Jiaxi, Zheng; Zhao, Yuxuan; Huang, Jing; Au, K. W. Samuel*
546	14:45-15:00	**Flexible Resource Allocation in Intelligent Manufacturing Systems Based on Machine and Worker** *Cui, Di; Qiao, Fei; Ma, Yumin; Liu, Juan*
646	15:00-15:15	**Research on WPT-Robot: Limitations of UWB Tags or Vision Sensors Alone for Pose Estimation of Power-Supplying Targets, and a Fundamental Analysis of Sensor Fusion** *Ozawa, Kotaro; Shimizu, Taku; Nakamura, Sousuke*

256	15:15-15:30	**An Intelligent Robotics Modular Architecture for Easy Adaptation to Novel Tasks and Applications** *Gosselin, Florian; Acher, Gautier; Gradoussoff, Baptiste; Kchir, Selma; Keith, François; Lebec, Olivier; Louison, Céphise; Luvison, Bertrand; Mayran de Chamisso, Fabrice; Meden, Boris; Molina, Valentin; Morelli, Matteo; Rabarisoa, Jaonary; Vienne, Caroline; Ameyugo, Gregorio*

No.	29/08/2023 9:30-10:30	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-5A* *Place: Great Room 3*
204	9:30-9:45	**Towards Integrating 3D Printing and Automated Assembly** *Munguia Galeano, Francisco; Ortega Arroyo, Lesli; Villarreal-Cervantes, Miguel Gabriel; Ji, Ze*
215	9:45-10:00	**A Bi-Objective Optimization Method to Minimize the Makespan and Energy Consumption on Parallel SLM Machines** *Lin, Junjie; Yu, Chunlong; Lu, Jianfeng*
223	10:00-10:15	**Edge-Cloud Automation of Manufacturing Machines: Analysis of Potential Designs and their Impact on the Machine Performance** *Giani, Marco; Tasci, Timur; Wiener, Patrick; Verl, Alexander*
313	10:15-10:30	**A Mixed Integer Linear Programming Formulation for Subway Timetable Optimization Problems with Passenger Waiting and Energy Saving Objectives** *Liu, Anbang; Chen, Xi*

No.	29/08/2023 11:00-12:00	*Regular Session: Foundations of Automation* *Session Code: RFA-5* *Place: Great Room 3*
547	11:00-11:15	**Single Plant Detection and Isolation on High Resolution UAV Data** *Spielbauer, Niklas; Blumenthal, David; Puck, Lennart; Heppner, Georg; Strathmann, Markus; Bauer, Christian; Roth, Moritz; Mink, Robin; Linn, Alexander; Roennau, Arne; Dillmann, Rüdiger*
553	11:15-11:30	**Singularity Free Dynamic Control Allocation for a Tilt-Rotor Multirotor Unmanned Aerial Vehicles** *Liu, Xinyi; Li, Nan; Wang, Yifan; Dong, Yuanye; Fu, Beining; Lu, Qi*
563	11:30-11:45	**Efficient Safety Verification of Discrete Event Systems** *Lennartson, Bengt*
566	11:45-12:00	**The Busboy Problem: Efficient Tableware Decluttering Using Consolidation and Multi-Object Grasps** *Srinivas, Kishore; Ganti, Shreya; Parikh, Rishi; Ahmad, Ayah; Agboh, Wisdom C.; Dogar, Mehmet R; Goldberg, Ken*

No.	29/08/2023 13:30-15:30	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-5B* *Place: Great Room 3*
584	13:30-13:45	**Distributionally Robust Approach for the Two-Stage Flexible Flow-Shop Scheduling with Uncertain Processing Time** *Huang, Jiayan; Pei, Zhi; Ji, Zuzhen; Chen, Yong*
587	13:45-14:00	**Development of a Virtual Metrology System for PET Bottle Machining Based on Hierarchical Deep Learning Network** *O, Tang-Hsuan; Chen, Chao-Chun; Hung, Min-Hsiung; Lin, Yu-Chuan; Suryajaya, Benny*
589	14:00-14:15	**Integrating Machine Learning and Mathematical Optimization for Job Shop Scheduling** *Liu, Anbang; Luh, Peter; Sun, Kailai; Bragin, Mikhail; Yan, Bing*
593	14:15-14:30	**Dynamic Dispatching for Batch Processing Machines in Semiconductor Manufacturing** *Zhang, Bin; Boydon, Christian John Immanuel; Chou, Ywh-Leh; Wu, Cheng-Hung*
597	14:30-14:45	**Hierarchical Approaches to Coordination of Product Transitions in Semiconductor Manufacturing** *Carlos A Leca Perez, Carlos Leca; Karl Kempf, Karl Kempf; Uzsoy, Reha*
618	14:45-15:00	**Deep Learning-Based Optimization for Scanning Sequence in Powder Bed Fusion** *Tang, Hubocheng; Ren, Huilin; Xiong, Yi*
213	15:00-15:15	**Multi-criteria attributed graph embedding-enabled decision support system for resilient manufacturing** *Liu, Yangshengyan; Lim, Kendrik Yan Hong; Tan, Tze En; Peng, Tao; Chen, Chun-Hsien; Gu, Xinjian*
95	15:15-15:30	**Cognitive Digital Twin Framework for Smart Manufacturing** *Ji, Tang; Polzer, Jan; Xu, Xun*

No.	29/08/2023 9:30-10:30	*Regular Session: Automation for Data Analytics* *Session Code: RADA-3* *Place: Great Room 4*
497	9:30-9:45	**Bi-Level Nonstationary Kernels for Online Gaussian Process Regression** *He, Hans; Koppel, Alec; Bedi, Amrit Singh; Farhood, Mazen; Stilwell, Daniel*
503	9:45-10:00	**Leveraging Multi-Modal Sensing for Robotic Insertion Tasks in R&D Laboratories** *Butterworth, Aaron; Pizzuto, Gabriella; Pecyna, Leszek; Cooper, Andrew Ian; Luo, Shan*

506	10:00-10:15	**Object-Centric Representations for Interactive Online Learning with Non-Parametric Methods** *Shinde, Nikhil; Johnson, Jacob; Herbert, Sylvia; Yip, Michael C.*
541	10:15-10:30	**3D Scene Graph Prediction on Point Clouds Using Knowledge Graphs** *Qiu, Yiding; Christensen, Henrik Iskov.*

No.	29/08/2023 11:00-12:00	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-6* *Place: Great Room 4*
240	11:00-11:15	**Close Enough? Criteria for Sufficient Simulations for IEC 61499 Models** *Wiesmayr, Bianca; Mehlhop, Sven; Zoitl, Alois*
249	11:15-11:30	**Volume Flow-Based Process Control for Robotic Additive Manufacturing Processes in Construction** *Lachmayer, Lukas*
252	11:30-11:45	**Artificial Intelligence Planning of Failure Recovery Strategies in Discrete Manufacturing Automation** *Lei, Yumeng; Wilch, Jan; Rupprecht, Bernhard; Vogel-Heuser, Birgit*
253	11:45-12:00	**Design and Fabrication High-Power Amplifier for Plasma Generator at Frequency of 2 MHz** *Thongsopa, Chanchai, Chanchai; Rattananamlom, Adisak, Adisak; Santalunai, Samran, Samran; Thosdeekoraphat, Thanaset, Thanaset; Santalunai, Nuchanart, Nuchanart*

No.	29/08/2023 13:30-16:00	*Regular Session: Foundations of Automation* *Session Code: RFA-6* *Place: Great Room 4*
467	13:30-13:45	**Multi-View Crop Detection Using an Occupancy Grid for Agricultural Applications** *Aviles Mejia, Jorge Eduardo; Soto Guerrero, Daniel; Stephant, Joanny; Labbani-Igbida, Ouiddad*
470	13:45-14:00	**Coordinated Multi-Robot Exploration with Next-Best-View Planning for Scene Reconstruction** *Dutta, Sourav; Cable, Katy; Ekenna, Chinwe*
475	14:00-14:15	**An Efficient Scalable Autonomy Approach for Teams of Heterogeneous Mobile Robots** *Schnell, Tristan; Oberacker, David; Mauch, Felix; Puck, Lennart; Grosse Besselmann, Marvin; Spielbauer, Niklas; Plasberg, Carsten; Roennau, Arne; Dillmann, Rüdiger*

490	14:15-14:30	**Performance Analysis of Mutiple Energy Storage Units in Hydrogen-Enabled Integrated Energy Systems** *Liao, Zelong; Dong, Xiangxiang; Xu, Zhanbo; Wu, Jiang; Liu, Kun; Guan, Xiaohong*
501	14:30-14:45	**PolyPoD: An Algorithm for Polyculture Seed Placement** *Kamat, Varun; Aeron, Shrey; Gu, Anrui; Jalan, Harshika; Adebola, Simeon Oluwafunmilore; Goldberg, Ken*
522	14:45-15:00	**Development of an Autonomous Blower Robot for Cleaning up and Collecting Fallen Leaves** *Nakagawa, Natsu; Date, Hisashi*
523	15:00-15:15	**UAP-BEV: Uncertainty Aware Planning Using Bird's Eye View Generated from Surround Monocular Images** *Dewangan, Vikrant; sharma, basant; Choudhary, Tushar; Sharma, Sarthak; Aanegola, Aakash; Singh, Arun Kumar; Krishna, Madhava*
532	15:15-15:30	**OC3: A Reactive Velocity Level Motion Planner with Complementarity Constraint-Based Obstacle Avoidance for Mobile Robots** *Sinha, Anirban; Laha, Riddhiman; Chakraborty, Nilanjan*
612	15:30-15:45	**A Simulation-Based Primal-Dual Approach for Constrained V2G Scheduling in a Microgrid of Building** *Huang, Qilong; Yang, Li; Jia, Qing-Shan; Qi, Yaowen; Zhou, Cangqi; Guan, Xiaohong*
613	15:45-16:00	**A Novel Incipient Slip Degree Evaluation Method and Its Application in Adaptive Control of Grasping Force** *Sui, Ruomin; Zhang, Lunwei; Huang, Qiyin; Li, Tiemin; Jiang, Yao*

No.	29/08/2023 9:30-10:30	*Special Session: Foundations of Automation* *Session Code: SFA-4* *Place: Crystal Room 1*
602	9:30-9:45	**Crane Scheduling Problem in a Steelmaking Shop** *Shin, Woo-Jin; Kim, Hyun-Jung*
614	9:45-10:00	**Energy-Aware Scheduling of Jobs with Uncertain Release Dates on Batch Processing Machines** *Rocholl, Jens; Moench, Lars*
615	10:00-10:15	**Reinforcement Learning for Non-Cyclic Scheduling of Single-Armed Cluster Tools with Multiple Wafer Types** *Kim, Duyeon; Kim, Hyun-Jung*
620	10:15-10:30	**Bi-Criteria Order-Lot Pegging in a Multi-Fab Setting** *Haspecker, Andreas; Moench, Lars*

No.	29/08/2023 11:00-12:00	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-7* *Place: Crystal Room 1*
622	11:00-11:15	**Strategic Backward Operation Ordering for Scheduling Single-Armed Cluster Tools with Purge Operation** *Joo, Sanghyun; Kim, Hyun-Jung; Lee, Tae-Eog*
627	11:15-11:30	**Towards Safe Multi-Level Human-Robot Interaction in Industrial Tasks** *Huang, Zhe; Mun, Ye-Ji; Chen, Haonan; Xie, Yiqing; Niu, Yilong; Li, Xiang; Zhong, Ninghan; You, Haoyuan; McPherson, D. Livingston; Driggs-Campbell, Katherine*
637	11:30-11:45	**Unsupervised Image Demoiréing by Self-Consistent GAN for TFT-LCD Defect Detection** *Hsiao, Jui-Hsin; Lee, Chia-Yen*
642	11:45-12:00	**Prediction of Porosity in Metal Laser Powder Bed Fusion with Conditional Deep Convolutional GAN** *Chen, Zijue; Chiu, Ngai Sum Louis; Gao, Mu; Huang, Aijun; Tang, Yunlong*

No.	29/08/2023 13:30-16:00	*Regular Session: Foundations of Automation* *Session Code: RFA-7* *Place: Crystal Room 1*
298	13:30-13:45	**Collision-Free Trajectory Planning of Mobile Robots by Integrating Deep Reinforcement Learning and Model Predictive Control** *Zhang, Ze; Cai, Yao; Ceder, Kristian; Enliden, Arvid; Eriksson, Ossian; Sridhara, Rajath; Kylander, Soleil; Akesson, Knut*
73	13:45-14:00	**A Lower Bound Guided Hierarchical Approach for a Two-Stage Scheduling Problem** *Wu, Jiaxi; Liang, Ye; Shi, Leyuan*
545	14:00-14:15	**Distributed Scheduling Method for Smart Shop Floor Based on QMIX** *Xing, Jianmin; Ma, Yumin; Cai, Jingwen; Shi, JiaXuan; Liu, Juan*
655	14:15-14:30	**A Weakly Supervised Semi-Automatic Image Labeling Approach for Deformable Linear Objects** *Caporali, Alessio; Pantano, Matteo; Janisch, Lucas; Regulin, Daniel; Palli, Gianluca; Lee, Dongheui*
38	14:30-14:45	**Complete Coverage Path Planning using Adaptive GBNN for Omnidirectional Sweeping Robot** *Lim, Yi; Wan, Ash Yaw Sang; Hayat, Abdullah Aamir; Le, Anh Vu; Qinrui, Tang; Ramalingam, Balakrishnan; Elara, Mohan Rajesh*
660	14:45-15:00	**Data-Driven Encoding: A New Numerical Method for Computation of the Koopman Operator** *Ng, Jerry; Asada, Harry*

325	15:00-15:15	**Privacy-Preserving User Pose Prediction for Safe and Efficient Human-Robot Interaction** *Baselizadeh, Adel; Khaksar, Weria; Uddin, Md. Zia; Saplacan, Diana; Torresen, Jim*
177	15:15-15:30	**Long-Distance Avian Identification Approach Based on High-Frame-Rate Video** *Li, Junhao; Shimasaki, Kohei; Ishii, Idaku*
650	15:30-15:45	**Hierarchical Decision-Making for Qualification Management in Wafer Fabs: A Simulation Study** *Kopp, Denny; Moench, Lars*
656	15:45-16:00	**Proximal Policy Optimization with Time-Varying Muscle Synergy for the Control of an Upper Limb Musculoskeletal System** *Liu, Rong; Wang, Jiaxing; Yaru, Chen; Liu, Yin; Wang, Yongxuan; Gu, Jianjun*

No.	29/08/2023 9:30-10:30	*Regular Session: Foundations of Automation* *Session Code: RFA-8A* *Place: Crystal Room 2*
301	9:30-9:45	**Collaborative Collision Avoidance of Connected Vehicles Using ADMM with PI-Regulated Lagrangian Multipliers** *Tan, Kaige; Feng, Lei; Törngren, Martin*
326	9:45-10:00	**Mixed-Integer Linear Programming for the Scheduling of Seedings in an Industrial Adaptive Vertical Farm** *Bagnerini, Patrizia; Gaggero, Mauro; Ghio, Marco*
335	10:00-10:15	**Legend Pattern Calculation for Dynamic Traffic Management Using ILP** *Verbakel, Jeroen Johannes; Van Meurs, Jeroen; Van de Mortel-Fronczak, Joanna Maria; Fokkink, Wan; Rooda, Jacobus E.*
353	10:15-10:30	**Collision-Free Motion Planning for Multiple Robot Arms by Combining Deep Q-Network and Graph Search Algorithm** *Hara, Kengo; Nishi, Tatsushi; Liu, Ziang; Fujiwara, Tomofumi*

No.	29/08/2023 11:00-11:45	*Regular Session: Automation for Manufacturing and Logistics* *Session Code: RAML-8* *Place: Crystal Room 2*
558	11:00-11:15	**A Novel Bionic Digital Twin-Based Manufacturing System Toward the Mass Customization Paradigm** *Liu, Shimin; Zheng, Pai*

576	11:15-11:30	**A System-Level Energy Efficient Digital Twin Framework for Runtime Control of Batch Manufacturing Processes** *Li, Hongliang; Pangborn, Herschel; Kovalenko, Ilya*
578	11:30-11:45	**Assembly Information Modeling Via the Cognition of Interaction Structures for Digital-Twin Based Assembly** *Xu, Zhi-Jia*

No.	29/08/2023 13:30-16:00	*Regular Session: Foundations of Automation* *Session Code: RFA-8B* *Place: Crystal Room 2*
385	13:30-13:45	**Vision-Based Potential Field Path Planning for Robot Obstacle Avoidance under Field-Of-View Constraints** *Wu, Zesong; Li, Weibing; Wang, Ping; Cao, Kun; Pan, Yongping*
393	13:45-14:00	**SAFER: Safe Collision Avoidance Using Focused and Efficient Trajectory Search with Reinforcement Learning** *Srouji, Mario; Thomas, Hugues; Tsai, Yao-Hung; Farhadi, Ali; Zhang, Jian*
405	14:00-14:15	**Composition of Reactive Coordinated Execution for IEC 62264 Work Centers and Work Units: Best Practices for Traceability and Stability** *Artigas Alfonso, Maria Isabel; Rodrigues, Rômulo; Decré, Wilm; Bruyninckx, Herman*
416	14:15-14:30	**Row Feature Tracking for Improved Localization of Agricultural Robots** *Moss, Dominik; Bregler, Kevin; Kraus, Werner*
419	14:30-14:45	**Offline Model-Free Reinforcement Learning with a Recurrent Augmented Dataset for Highly Transient Industrial Processes** *Ruan, Jianqi; Inyang-Udoh, Uduak; Nooning, Bob; Parkes, Ivan; Blejde, Wal; Chiu, George; Jain, Neera*
427	14:45-15:00	**Automatic Workspace Calibration Using Homography for Pick and Place** *Burde, Varun; Martinez Lema, David Martinez; Zeman, Vít; Kahlert, Lars; Jochman, Tomas; Burget, Pavel*
445	15:00-15:15	**NeuroSMPC: A Neural Network Guided Sampling Based MPC for On-Road Autonomous Driving** *Pal, Kaustab; Sharma, Aditya; Mohd, Omama; Shah, Parth; Krishna, Madhava*
20	15:15-15:30	**Development of a Hybrid Vision Sensor and Its Application in Robotic Welding** *Ma, Yunkai; Fan, Junfeng; Zhou, Zhen; Zhao, Sihan; Jing, Fengshui; Tan, Min*

658	15:30-15:45	**A Fuzzy Inference Model to Identify the Current Industry Maturity Stage in the Transformation Process to Industry 4.0** *Gomes, Alexandre; Basilio, Joao Carlos*
668	15:45-16:00	**SSIOE: Self-Supervised Indoor Occupancy Estimation for Intelligent Building Management** *Huang, Sin-Han; Chao, Tzu-Yin; Wibisono, Beatrice Adelaide; Lin, Mark Po-Hung; Huang, Ching-Chun*

No.	29/08/2023 11:00-12:00	*Regular Session: Foundations of Automation* *Session Code: RFA-9* *Place: Gallery Room 1*
355	11:00-11:15	**A Novel Tightened Integer Linear Programming Formulation for Batch Scheduling** *Sahar, Najmus; Yan, Bing; Liu, Chang; Wang, Zhuoxin; Wang, Rui*
377	11:15-11:30	**An Optimization Study on Modular Reconfigurable Robots: Finding the Task-Optimal Design** *Romiti, Edoardo; Iacobelli, Francesco; Ruzzon, Marco; Kashiri, Navvab; Malzahn, Jörn; Tsagarakis, Nikos*
603	11:30-11:45	**Feature-Based Scanning Lidar-Inertial Odometry Using Factor Graph Optimization** *Setterfield, Timothy Philip; Hewitt, Robert; Teran Espinoza, Antonio; Chen, Po-Ting*
671	11:45-12:00	**Reducing Uncertainty Using Placement and Regrasp Planning on a Triangular Corner Fixture** *Hu, Zhengtao; Wan, Weiwei; Koyama, Keisuke; Harada, Kensuke*

No.	29/08/2023 13:30-15:45	*Regular Session: Automation for Energy and Sustainability* *Session Code: RAES-3* *Place: Gallery Room 1*
149	13:30-13:45	**Multi-Stage Optimization for Long-Term Building Climate Operation with Seasonal Thermal Storage** *Rentz, Anja; Böhm, Michael; Sawodny, Oliver*
210	13:45-14:00	**Robotic Stacking of Irregular Objects with Load Position Identification and Compensation** *Zhou, Xiangyu; Zhao, Guangbao; Xing, Yan; Wu, Jianhua; Xiong, Zhenhua*
219	14:00-14:15	**Flexible Laboratory Automation System Based on Distributed Framework: Implementation for Press Process in Polymer Materials Development** *Asano, Yuki; Yoneda, Satoru; Kitai, Koki; Okada, Kei; Shiomi, Junichiro*

231	14:15-14:30	**Heuristic-Based Service Allocation and Price Determination in Cloud Manufacturing Operations for Industrial Parks** *Mishra, Adarsh; Jain, Aastha; Alfas, Muhammad; Shriyam, Shaurya; Kumar, Amit*
311	14:30-14:45	**Force-Controlled On-Site Assembly Using Pose-Dependent Stiffness of Large-Scale Manipulators** *Lauer, Anja Patricia Regina; Schürmann, Tim; Gienger, Andreas; Sawodny, Oliver*
368	14:45-15:00	**Autonomous Robot for Ceiling Board Construction Work "Robo-Buddy Ceiling"** *Hachijo, Takayoshi; Igarashi, Shunsuke*
382	15:00-15:15	**Wind Farm Power Production and Fatigue Load Optimization through Wake Steering** *Miao, Yizhi; Soltani, Mohsen; Hajizadeh, Amin*
347	15:15-15:30	**Voxelized Cut-And-Fill Models for Deadlock-Free Site Excavation under Accessibility Constraints** *Fouani, Rami; Sengupta, Raunak; Nagi, Rakesh; Sreenivas, R. S.*
222	15:30-15:45	**Construction Data Connectivity—a New Zealand Perspective and an Environmental Focus** *Xia, Jing; Xu, Xun*

No.	29/08/2023 11:00-11:45	***Regular Session: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics*** *Session Code:* ***RAIM-4*** ***Place: Gallery Room 3***
410	11:00-11:15	**An Enhanced Walking Pattern Generator with Variable Height for Robot Locomotion** *Zhu, Hongxi; Thomas, Ulrike*
413	11:15-11:30	**Deep Reinforcement Learning of Dexterous Pre-Grasp Manipulation for Human-Like Functional Categorical Grasping** *Pavlichenko, Dmytro; Behnke, Sven*
437	11:30-11:45	**Enabling Robot Manipulation of Soft and Rigid Objects with Vision-Based Tactile Sensors** *Welle, Michael C.; Lippi, Martina; Lu, Haofei; Lundell, Jens; Gasparri, Andrea; Kragic, Danica*

No.	29/08/2023 13:30-15:30	***Special Session: Automation for Energy and Sustainability*** *Session Code:* ***SAES-1*** ***Place: Gallery Room 3***

273	13:30-13:45	**Building Information Modeling-Powered Augmented Reality and User Study for Learning Architectural Representations** *Ashour, Ziad; Shaghaghian, Zohreh; Yan, Wei*
284	13:45-14:00	**Optimal Strategy for Multi-User Demand Response Based on Carbon Emission Flow and Non-Cooperative Game** *Yu, Zhenting; Liu, Ruijie; Zhang, Chenjian; Bao, Zhejing*
320	14:00-14:15	**An Investigation on Inherent Energy Efficiency Surface for Energy Labelling of Machine Tools** *Liu, Peiji; Wang, Xu; Liu, Chao; Zhu, Qian; Shi, Yameng; Zheng, Pai*
200	14:15-14:30	**Blockchain-Enabled Operation Data Management for Agricultural Machinery** *Chen, Qiqi; Wang, Yi-Jia; Huang, George Q.*
520	14:30-14:45	**A Data-Driven Simulator for Flexible Electric Vehicle Charging: Framework, Model, and Algorithm** *Zhao, Hengxing; Yan, Yi; Liu, Endong; You, Pengcheng*
533	14:45-15:00	**HC-OFD Net: Heterogeneity-Captured Network towards Out-Of-Distribution Generalization in Fault Diagnosis** *Yu, Ge; Zhang, Xi*
631	15:00-15:15	**Performance Evaluation of Production Rate and Energy Usage in Serial Production Lines** *Dong, Heng; Li, Jingshan*
392	15:15-15:30	**Optimal Coordination of Hydrogen-Enabled Integrated Energy Systems Considering Geothermal Energy** *Jian, Xiyan; Dong, Xiangxiang; Xu, Zhanbo; Wu, Jiang; Chen, Xiaopan; Guan, Xiaohong*

No.	29/08/2023 9:30-10:30	*Regular Session: Automation in Meso, Micro and Nano Scale, Industrial Robotics and Mechatronics* *Session Code: RAIM-5* *Place: Gallery Room 4*
345	9:30-9:45	**Robot Task Primitive Segmentation from Demonstrations Using Only Built-In Kinematic State and Force-Torque Sensor Data** *Lyck Bjært Sørensen, Simon; Savarimuthu, Thiusius Rajeeth; Iturrate, Iñigo*
387	9:45-10:00	**Artificial Neural Network Guided Compensation of Nonlinear Payload and Wear Effects for Industrial Robots** *Raible, Julian; Rettig, Oliver; Alt, Benjamin; Yaman, Alper; Gauger, Isabelle; Lorenzo, Biasi; Müller, Silvan; Katic, Darko; Strand, Marcus; Huber, Marco F.*

401	10:00-10:15	**Transformer Based Approach for Sample Generation in Motion Planning** *Tran, Tuan; Dutta, Sourav; Rekabdar, Banafsheh; Ekenna, Chinwe*
444	10:15-10:30	**Magnetic Flux Servoing for Precise Localization Based on Gradient Tensor Contractions** *Martinovic, Dean; Orsag, Matko*

No.	29/08/2023 11:00-12:00	*Regular Session: Foundations of Automation* *Session Code: RFA-10* *Place: Gallery Room 4*
667	11:00-11:15	**A Smooth Orientation Planner for Trajectories in the Cartesian Space** *Tagliavini, Andrea; Guarino Lo Bianco, Corrado*
595	11:15-11:30	**Edge-Based Monocular Thermal-Inertial Odometry in Visually Degraded Environments** *Wang, Yu; Chen, Haoyao; Liu, Yufeng; Zhang, Shiwu*
661	11:30-11:45	**InconSeg: Residual-Guided Fusion with Inconsistent Multi-Modal Data for Negative and Positive Road Obstacles Segmentation** *Feng, Zhen; Guo, Yanning; Navarro-Alarcon, David; Lyu, Yueyong; Sun, Yuxiang*
654	11:45-12:00	**Reinforcement Learning for Outdoor Balloon Navigation** *Jeger, Simon Luis; Lawrance, Nicholas; Achermann, Florian; Pang, Oscar Kwong Fai; Kovac, Mirko; Siegwart, Roland*

Author Index

2024 IEEE 20TH INTERNATIONAL CONFERENCE ON AUTOMATION SCIENCE AND ENGINEERING

CASE 2024

Call for Papers

The 2024 *IEEE 20th International Conference on Automation Science and Engineering* (CASE 2024) is one of the two flagship conferences of the *IEEE Robotics & Automation Society* and provides a primary forum for cross-industry multidisciplinary research in automation.

CASE 2024 will be held on August 28 – September 1, 2024, in charming Puglia (or Apulia), Italy. Puglia is a little slice of idyllic, sun-kissed Italia on the Adriatic Sea coast. An important economic center in Southern Italy, it is also a bridge between West and East with a multicultural, open, and friendly community.

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Key dates and deadlines

February 8, 2024
- Special session proposal submission
- RAL/CASE concurrent paper submission

March 1, 2024
- Regular/Special session paper submission

April 1, 2024
- Tutorial/workshop proposal submission
- Industry paper/work-in-progress submission
- T-ASE/T-RO Presentation-only submission

May 17, 2024
- Paper acceptance notification

June 14, 2024
- Final paper submission due
- Early registration due

July 15, 2024
- Final program

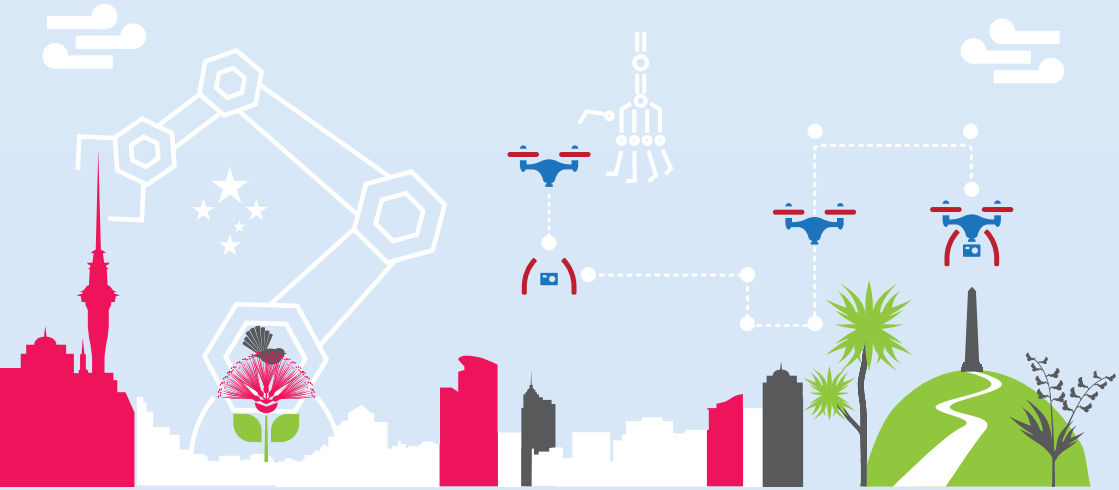
August 28, 2024
- Conference starts

Contributing

IEEE CASE 2024 invites special session and workshop proposals, regular papers, industry papers and presentation-only papers related to the conference topics, which include but are not limited to:

- Human-centered automation
- Automation in life science
- Sustainability and green automation
- Automation in agriculture and horticulture
- Automation sciences for pandemics
- Healthcare automation
- Smart building and construction
- Knowledge-based automation
- Manufacturing automation
- Cloud-based automation
- Big data, data mining and machine learning
- Privacy and security in automation

Notes



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