



<https://cirp-cats2026.org/>



11th CIRP Conference on Assembly Technologies and Systems

Conference Handbook

Hong Kong, China

April 27-30, 2026



Welcome Message

We are more than honored and delighted to welcome you all to the CIRP CATS 2026 Conference, hosted in the beautiful city of Hong Kong, China on April 27-30, 2026.

CIRP CATS 2026 aims to provide a professional and open platform for leading academics, industry practitioners, and institutions worldwide to present their latest R&D outcomes and share insights on the evolving challenges and solutions in smart factory implementations. This year, with the prevailing research and development in human-centric smart manufacturing, the conference theme has been set as "Human-Machine Symbiotic Assembly and Disassembly", by embracing cutting-edge digitalization, AI and robotic technologies.

Specifically, the conference program will explore cutting-edge trends in human-machine symbiotic dis-/assembly systems and technologies that are shaping the next generation manufacturing industries. Featured topics include, but are not limited to: (Dis)assembly process optimization; Embodied system for (Dis)assembly; and Human-machine collaborative (Dis)assembly.

Hong Kong, ever as a 19th-century trading entrepot, has been rapidly growing into a premier international financial center and one of the world's most popular cities. Home to over 7.5 million residents, it is renowned for its dynamic skyline, deep natural harbor, and its seamless fusion of Cantonese heritage with global influences.

Join us in Hong Kong, where East meets West and ideas converge to drive innovation!



Ir Prof. Pai Zheng
Conference Chair
The Hong Kong Polytechnic University
Hong Kong, China



Prof. Lihui Wang
Conference Co-Chair
KTH Royal Institute of Technology
Stockholm, Sweden

— Hong Kong, China —



Founded in 1951, the International Academy for Production Engineering (CIRP) promotes international cooperation in production science and technology. Our community of around 600 members includes about 180 Fellows and Honorary Fellows, 150 Associate members, Research Affiliates, and 170 Corporate members. (Data as of Sep. 2025)

To realize our vision of promoting academia-industry R&D for environmentally sustainable global prosperity and societal wellbeing, our research is driven by Scientific Technical Committees (STCs), a Cross STC, and Collaborative Working Groups (CWGs). We connect globally through the Winter Meetings in Paris and our internationally rotating General Assembly (GA) every August, featuring over 150 presentations and a highly collaborative social program.

We also pride ourselves on disseminating knowledge globally. CIRP publishes two ISI journals—the CIRP Annals and the CIRP Journal of Manufacturing Science and Technology (JMST)—alongside resources like trilingual dictionaries, CIRPedia, and CIRP Procedia. We also host the CIRP School for hands-on education.

Operating from our headquarters in Paris, we invite you to stay connected with CIRP. Please follow our activities and share in our exciting vision of shaping the future of manufacturing sustainably to promote prosperity worldwide.

— Hong Kong, China —

Contents

Organization 04

Programme at a Glance 09

Opening Speech 11

Plenary Talks 12

Parallel Sessions 17

Lab Visit & City Tour 32

Sponsorship Information 35

Organization

Conference Organizers

Local Organizer:

The Hong Kong Polytechnic University

International Organizer:

KTH Royal Institute of Technology

Industry Sponsors:

Siemens

Linkerbot

CobotAI Limited

Embodied Robotics Art

Beijing Nokov Science & Technology Co., Ltd.

North Star Advanced Recycling Technology (Qingdao) Co., Ltd.

Supporting Journals:

ENGINEERING Management

Manufacturing Science for Sustainability

Institutional Sponsors:

Research Institute for Advanced Manufacturing (RIAM), The Hong Kong Polytechnic University

National Center of Technology Innovation for Intelligent Design and Numerical Control (NCDC)

Conference Committee

Conference Chairs:

Ir Prof. Pai Zheng	The Hong Kong Polytechnic University
Prof. Lihui Wang	KTH Royal Institute of Technology

Honorable Chairs:

Ir Prof. Christopher Chao	The Hong Kong Polytechnic University
Ir Prof. H. C. Man	The Hong Kong Polytechnic University

Award Selection Committee Chair:

Prof. Jörg Krüger	Technical University of Berlin
-------------------	--------------------------------

Conference Sponsors:

Prof. József Váncza	Institute for Computer Science and Control (SZTAKI)
Prof. Robert Gao	Case Western Reserve University

Scientific Committee

Prof. Alain Bernard	École Centrale de Nantes
Prof. Alessandra Caggiano	University of Naples Federico II
Prof. Aydin Nassehi	University of Bristol
Prof. Annika Raatz	Leibniz University Hannover
Prof. Alexander Verl	University of Stuttgart
Prof. Benny C.F. Cheung	The Hong Kong Polytechnic University
Prof. Bernard Hon	University of Liverpool
Prof. Benoit Iung	University of Lorraine
Prof. Bob Wilhelm	University of Nebraska-Lincoln
Prof. Fei Tao	Beihang University
Prof. Franz Dietrich	Technical University of Berlin
Prof. George Q. Huang	The Hong Kong Polytechnic University
Prof. Hong-Chao Zhang	Texas Tech University
Prof. Jürgen Fleischer	Karlsruhe Institute of Technology
Prof. Jörg Krüger	Technical University of Berlin
Prof. Jack S. Hu	University of California, Riverside
Prof. John W. Sutherland	Purdue University
Prof. Klaus Dröder	Technical University of Braunschweig
Prof. Kirsten Tracht	University of Bremen
Prof. Nikolaos Papakostas	University College Dublin
Prof. Rikard Söderberg	Chalmers University of Technology
Prof. Sung-Hoon Ahn	Seoul National University
Prof. Sami Kara	University of New South Wales
Prof. Shinsuke Kondoh	The University of Tokyo
Prof. Soh-Khim Ong	National University of Singapore
Prof. Sotiris Makris	University of Patras
Prof. Sebastian Thiede	University of Twente
Prof. Sandy To	The Hong Kong Polytechnic University
Prof. Wilfried Sihn	Fraunhofer Austria
Prof. Yuanliu Chen	Zhejiang University
Prof. Yingguang Li	Nanjing University of Aeronautics and Astronautics
Prof. Yasushi Umeda	The University of Tokyo

Organizing Committee

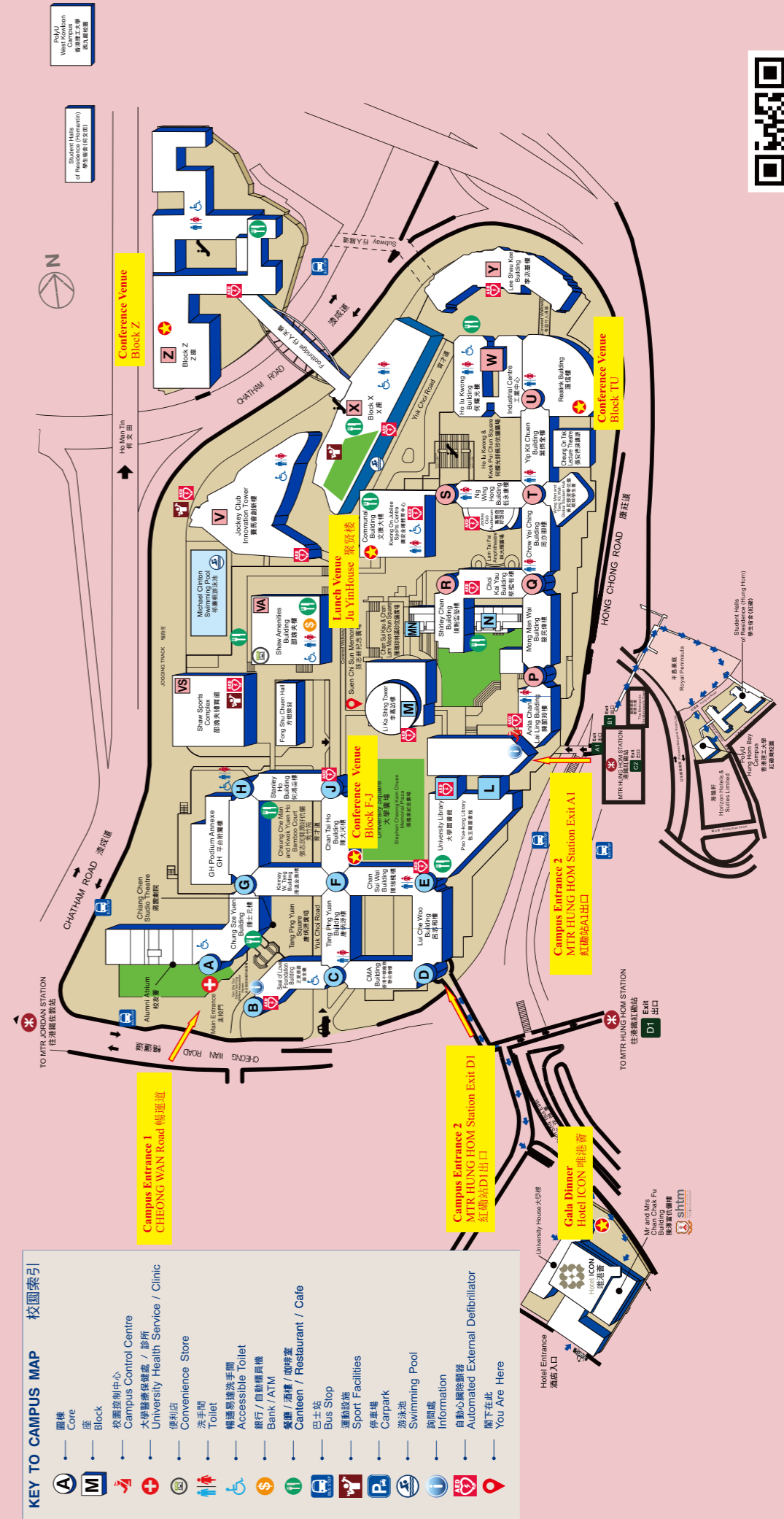
Organizing Committee Chairs:

Dr. Liqiao Xia	The Hong Kong Polytechnic University
Dr. Feng Zhu	The Hong Kong Polytechnic University
Dr. Xi Zhang	The Hong Kong Polytechnic University
Dr. Weipeng Liu	The Hong Kong Polytechnic University
Dr. Shibo Han	The Hong Kong Polytechnic University
Dr. Shuo Su	The Hong Kong Polytechnic University
Dr. Qingxiao Liu	The Hong Kong Polytechnic University

Organizing Committee Members:

Ms. Yongshi Liang	The Hong Kong Polytechnic University
Ms. Wenhong Dong	The Hong Kong Polytechnic University
Ms. Mengyang Ren	The Hong Kong Polytechnic University
Mr. Benhua Gao	The Hong Kong Polytechnic University
Mr. Hongpeng Chen	The Hong Kong Polytechnic University
Mr. Yangyang Zhou	The Hong Kong Polytechnic University
Ms. Duidi Wu	The Hong Kong Polytechnic University
Mr. Guoquan Zhang	The Hong Kong Polytechnic University
Mr. Haoifei Ma	The Hong Kong Polytechnic University
Ms. Xinyu Ning	The Hong Kong Polytechnic University
Ms. Boya Zhao	The Hong Kong Polytechnic University
Mr. Yuchen Ji	The Hong Kong Polytechnic University
Mr. Xurui Bao	The Hong Kong Polytechnic University
Mr. Hongjin Wu	The Hong Kong Polytechnic University
Ms. Le Zhou	The Hong Kong Polytechnic University
Mr. Xinmiao Yu	The Hong Kong Polytechnic University
Mr. Yusheng Lu	The Hong Kong Polytechnic University

Campus Map 校園地圖



Programme at a Glance

Monday, 27 April 2026

8:30 – 10:00	Exhibition table set-up (Foyer)	Workshop #1 (FJ302, PolyU)
10:00 – 10:30		Coffee Break
10:30 – 12:00		Workshop #2 (FJ302, PolyU)
12:00 – 18:30	Conference registration (Foyer)	/
18:30 – 20:00		CIRP CATS 2026 Welcome Reception (Block Z, PolyU)

Tuesday, 28 April 2026

8:45 – 9:15	Registration & Exhibition (Foyer)	Opening Session and Photo Taking (Z211, PolyU)
9:15 – 9:45		Coffee Break
9:45 – 10:30		Keynote #1 (Z211, PolyU)
10:30 – 11:15		Keynote #2 (Z211, PolyU)
11:15 – 12:00		Keynote #3 (Z211, PolyU)
12:00 – 13:30		Conference Lunch (Ju Yin House)
13:30 – 15:00		Parallel Sessions (Block Z, PolyU)
15:00 – 15:30		Coffee Break
15:30 – 17:00		Parallel Sessions (Block Z, PolyU)
17:00 – 18:30		/
18:30 – 20:30		CIRP CATS 2026 Banquet (Hotel ICON)

Wednesday, 29 April 2026

8:30 – 9:15	Registration & Exhibition (Foyer)	Keynote #4 (Z211, PolyU)
9:15 – 10:00		Keynote #5 (Z211, PolyU)
10:00 – 10:30		Coffee Break
10:30 – 12:00		Parallel Sessions (Block Z & Block TU, PolyU)
12:00 – 13:30		Conference Lunch (Ju Yin House)
13:30 – 15:00		Parallel Sessions (Block Z & Block TU, PolyU)
15:00 – 15:30		Coffee Break
15:30 – 17:00		Closing Ceremony (Z211, PolyU)

Thursday, 30 April 2026

9:00 – 11:00	Lab Visit
13:45 – 18:00	City Tour

Opening Speech



Prof. Jiannong Cao

Fellow of IEEE and China Computer Federation (CCF)

Vice President (Education), Otto Poon Charitable Foundation Professor in Data Science
Chair Professor of Distributed and Mobile Computing
The Hong Kong Polytechnic University, Hong Kong, China

Biography:

Prof. Cao is currently the Otto Poon Charitable Foundation Professor in Data Science and the Chair Professor of Distributed and Mobile Computing in the Department of Computing at The Hong Kong Polytechnic University (PolyU), Hong Kong. He is also the Vice President (Education) of PolyU and the director of the Internet and Mobile Computing Lab (IMCL). He was the founding director and now the director of PolyU's University's Research Facility in Big Data Analytics (UBDA). He served the department head from 2011 to 2017. Prof. Cao is a member of Academia Europaea, a fellow of IEEE, and an ACM distinguished member. He is also a fellow of China Computer Federation (CCF).

Prof. Cao's research interests include distributed systems and blockchain, wireless sensing and networking, big data and machine learning, and mobile cloud and edge computing. He published 5 co-authored and 9 co-edited books, and over 500 papers in major international journals and conference proceedings. He also obtained 16 patents. Prof. Cao received many awards for his outstanding research achievements, including the PolyU President Award for Excellent Performance/Achievement in Research and Scholarly Activities, Ministry of Education Higher Education Outstanding Scientific Research Output Awards – Natural Science (Second Class), China Computer Federation (CCF) Overseas Outstanding Contribution Award, IEEE TCCLD Research Innovation Award, Hong Kong ICT Awards: Best Innovation & Research - Certificate of Merit and Special Mention, Bronze Medal Award of Brussels Innova, CVIC SE Software Talent Award, Ministry of Education Nominated State Science and Technology Award (First Class), National Science and Technology Progress Award (Second Class), and best paper Awards from IEEE Trans. Industrial Informatics 2018, IEEE DSAA 2017, IEEE SMARTCOMP 2016, IEEE/IFIP EUC 2016, IEEE ISPA 2013, IEEE WCNC 2011, etc. Prof. Cao has delivered over 50 keynote speeches / invited talks.

Prof. Cao has directed and participated in over 130 research and development projects and, as a principal investigator, obtained over HK\$67 million grants from funding agencies such as National Natural Science Foundation of China (NSFC), Ministry of Science and Technology of P. R. China (MOST), Hong Kong Research Grant Council (RGC), Hong Kong Innovation and Technology Commission (ITC), The Society of Hong Kong Scholars, and industries and organizations like Alibaba, IBM, Nokia, HK Jockey Club and Hong Kong Construction Industry Council.

Prof. Cao served the Chair of the Technical Committee on Distributed Computing of IEEE Computer Society 2012-2014, a member of IEEE Fellows Evaluation Committee of the Computer Society and the Reliability Society, a member of IEEE Computer Society Education Awards Selection Committee, a member of IEEE Communications Society Awards Committee, and a member of Steering Committee of IEEE Transactions on Mobile Computing. Prof. Cao has also served as chairs and members of organizing and technical committees of many international conferences, including IEEE INFOCOM, IEEE PERCOM, IEEE IoTDI, IEEE ICPADS, IEEE CLOUDCOM, SRDS and OPODIS, and as associate editor and member of the editorial boards of many international journals, including IEEE TC, IEEE TPDS, IEEE TBD, IEEE IoT Journal, ACM ToSN, ACM TIST, ACM TCPS. Prof. Cao has also actively served Hong Kong local professional communities, including Entrepreneurship Advisor of HK A.I. Lab., member of HK Innovation and Technology Fund Research Projects Assessment Panel, member of Engineering Panel of Hong Kong Research Grant Council, member of Incu-Tech Business Incubation Programme Panel of Hong Kong Science and Technology Parks, and member of HKIE's Accreditation Committee for Computer Science Programmes.

Plenary Talks



Prof. Jörg Krüger

Fellow of CIRP

Professor of Industrial Automation Technology at the Institute for Machine Tools and Factory Management
Technical University of Berlin, Berlin, Germany

Keynote:

Artificial Intelligence in Assembly and Disassembly

Abstract:

The rapid progress of Artificial Intelligence in robotics and computer vision shows a high potential for the automation of processes in assembly and disassembly. Nevertheless industrial applications of assembly, disassembly and reassembly still largely rely on human workforce. The keynote presentation gives an overview about new AI based opportunities but also limits for the automation of complex (dis-)assembly processes. It also discusses the role of AI for efficient system integration in automated assembly, which can provide solutions for the increasing demand for flexible and adaptable assembly.

Biography:

Prof. Dr.-Ing. Jörg Krüger studied electrical engineering at the University GH Paderborn and the Technical University Berlin, where he received his diploma in 1991. In 1998, he received his doctorate on the topic of "Methods for improving fault detection on drive trains". In 1999, he founded the company reCognitec Gesellschaft für digitale Bildverarbeitung mbH, which focuses on image-based automation in logistics. In 2003, Prof. Krüger was appointed as a university professor at the Chair of Industrial Automation Technology at the Institute for Machine Tools and Factory Management (IWF) at the TU Berlin. In 2004, he was additionally appointed Director of the Automation Technology Division at the Fraunhofer Institute for Production Systems and Design Technology. In addition to these tasks, Prof. Krüger was acting head of various departments (Industrial Information Technology, Quality Science, Assembly Technology and Factory Operation) at the TU Berlin as well as of the Medical Technology department of Fraunhofer IPK between 2005 and 2018. In addition, he has been involved in the establishment of the Turkish-German University (TDU) in Istanbul since 2008 as coordinator of the engineering faculty and director of studies. In 2005, Prof. Krüger was elected as a member of the Scientific Society for Production Engineering (WGP). Since August 2008, he has been a member of the International Academy of Production Engineering (CIRP), where he has headed the Scientific Technical Committee "Lifecycle Engineering and Assembly" since 2019. Prof. Krüger has also been a founding member of the Scientific Society for Assembly, Handling and Industrial Robotics (MHI) since 2012.

His research focuses on human-centered and image-based automation, in which he and his teams develop control and robotic systems for human-robot collaboration and medical rehabilitation on the one hand, and methods and applications of machine vision for object and position recognition in production on the other.



Prof. Lihui Wang

Fellow of CIRP, AET, SME, ASME

Member of Canadian Academy of Engineering

Chair Professor and Director of Centre of Excellence in Production Research
KTH Royal Institute of Technology, Stockholm, Sweden

Keynote:

A Human-Centric AIM: AI in Manufacturing

Abstract:

As emerging technologies, artificial intelligence (AI) and collaborative robots have attracted increasing attentions in recent years, both in academia and in industry. Conventional automation approaches in manufacturing assembly have reached a bottleneck in terms of the level of automation, leaving the rest to manual work by human operators. To ease human tasks physically and intellectually, human-centric assembly is considered promising if facilitated by enhanced human abilities by augmented robots, cognitive systems, mixed reality and collaborative intelligence, together with the assistance of thought-driven brain robotics. For example, in human-robot collaborative assembly, robots are often required to dynamically change their pre-planned trajectories and control parameters to collaborate with humans in a shared workspace. Moving into the future, the relationship among AI, robots and humans is essential where human-centricity should be placed centrally in any AI-enabled human-robot systems, to ensure sustainability and resilience in future factories. In response to the need of better adaptability, human motion prediction for example is crucial for both collision avoidance and proactive assistance of robots to humans, in addition to multi-modal robot control and in-situ operator support. AI is proven to be useful for classification, recognition and context awareness identification. Within the context, this presentation first provides a snapshot of AI history, and then offers a futuristic perspective on the latest advancement and technical treatments of relevant technologies employed in human-centric assembly in smart factories. Remaining challenges and future research directions will also be briefly highlighted.

Biography:

Prof. Lihui Wang is a Chair Professor in Sustainable Manufacturing and the Director of Centre of Excellence in Production Research (XPRES) at KTH Royal Institute of Technology, Sweden. His research interests are primarily focused on human-robot collaboration, brain robotics, real-time monitoring and control, cyber-physical systems, and adaptive manufacturing systems. Professor Wang is actively engaged in various professional activities. He is the Editor-in-Chief of Robotics and Computer-Integrated Manufacturing, International Journal of Manufacturing Research, and Journal of Manufacturing Systems. He has published 12 books and authored in excess of 800 scientific publications. Professor Wang is a Fellow of Canadian Academy of Engineering, AET, CIRP, SME and ASME; the current President of International Academy of Engineering and Technology (AET), the President (2020-2021) of North American Manufacturing Research Institution, and the Chairman (2018-2020) of Swedish Production Academy. He was elected one of the 20 Most Influential Professors in Smart Manufacturing in 2020 and a Gold Medal recipient in 2024 from Society of Manufacturing Engineers.



Prof. József Váncza

Fellow of CIRP, AET

Member of Hungarian Academy of Engineering

Vice President Elect, CIRP Council 2025-2026

Head of Research Laboratory of Engineering and Management Intelligence (EMI)
HUN-REN Institute for Computer Science and Control, Budapest, Hungary

Keynote:

Artificial Intelligence Assisted (Dis-)Assembly—Persistence and Transformation

Abstract:

Assembly involves the creation of products through the spatial arrangement of components and the temporal coordination of actions, all within the constraints of limited human and machine resources. The objects and actions involved are tightly interrelated, imposing mutual constraints driven by technology, product structure, geometry, and tolerances. It is no wonder that the solution to this hard puzzle of production engineering called for the application of artificial intelligence (AI) techniques from the very beginning of the field. The talk gives a concise overview of enduring achievements in AI-assisted assembly, with a focus on key areas such as representation, reasoning and planning, sensing, execution and recovery, robotics, multi-agent assembly—including human-robot collaboration—and learning. It will also be discussed how AI technologies have transformed assembly from an automated process into a more autonomous one, and how they have extended its scope to include disassembly and remanufacturing. This transformation is apparently being accelerated by the proliferation of generative AI and industrial foundation models: one can expect smarter representations derived from CAD and GDT models as well as more adaptive planning methods operating under uncertainties. Manipulation and robotic skills can be learned from demonstrations or simulation and transferred to novel product variants. Agentic AI can provide new recovery methods and hitherto unseen immersive and collaborative environment for teamwork. The talk will, finally, pose the question whether these advances can deliver what the field has sought for decades—a true industrial-level breakthrough in autonomous (dis-)assembly.

Biography:

Prof. József Váncza graduated from the Faculty of Electrical Engineering of the Budapest University of Technology and Economics (BME), Hungary in 1984 and received his PhD in Mechanical Engineering in 1994. Since his graduation, he has been working at the Institute for Computer Science and Automation (SZTAKI), where he is leading the Research Laboratory for Engineering and Business Intelligence. His research interests include engineering applications of artificial intelligence, production informatics, cyber-physical manufacturing systems, human-robot collaboration, cooperative and sustainable production in networks and platforms. He was awarded among others with the Order of Merit of the Hungarian Republic, Knight Cross (2008), the Dennis Gábor Prize for Innovation (2021) and the Rudolf Kálmán Prize (2025). He has been involved in university education for three decades, teaching at the Faculty of Mechanical Engineering of BME where he is Honorary Professor. He is Fellow of the International Academy for Production Engineering (CIRP), where he has been Chair of the Production Systems and Organisations Committee (2016-2019) and is now Chair of the Editorial Committee and Vice-President Elect. He is Fellow and Vice-President of the International Academy of Engineering and Technology (AET), and associate editor of the CIRP Journal of Manufacturing Science and Technology and the Robotics and Computer-Integrated Manufacturing journals. He published 250+ papers which received 7000+ references as well as registered 8 international patents.



Prof. Weiming Shen

Fellow of IEEE, EIC, AAIA

Member of Canadian Academy of Engineering

Dean and Chair Professor at School of Smart Manufacturing and Future Technology

Fuyao University of Science and Technology, Fuzhou, China

Huazhong University of Science and Technology, Wuhan, China

Keynote:

Evolution of Agent Concept in Intelligent Manufacturing

Abstract:

This talk discusses the evolution of the agent concept in the context of intelligent manufacturing, tracing its trajectory from distributed artificial intelligence (DAI agent) and reinforcement learning (RL agent) to the recent emergence of large language models (AI agent). We distinguish between rule-driven DAI agents, learning-driven RL agents, and large language model based AI agents, clarifying their distinct architectures and functionalities to address current conceptual confusion. We envision future intelligent manufacturing systems as being based on hybrid multi-agent architectures, which integrate the structural coordination of DAI agents, the adaptability of RL agents, and the reasoning capabilities of AI agents, enabling stronger autonomy, responsiveness, and cognitive capabilities.

Biography

Prof. Weiming Shen is a Chair Professor at Fuyao University of Science and Technology (FYUST) and a Professor at Huazhong University of Science and Technology (HUST). He worked for about 20 years at National Research Council Canada as Research Officer, Senior Research Officer, and Principal Research Officer. He is a Fellow of Canadian Academy of Engineering, Fellow of IEEE, Fellow of Engineering Institute of Canada (EIC), and Fellow of Asia-Pacific Artificial Intelligence Association (AAIA). He is an internationally-recognized expert on Agent-Based Collaborative Technologies and Applications, particularly in intelligent manufacturing. He has published several books and over 700 papers in scientific journals and international conferences in the related areas. His work has been cited about 30,000 times with an h-index of 85. He is the Co-Editor-in-Chief of IET Collaborative Intelligent Manufacturing, an Associate Editor or Editorial Board Member of over ten international journals and served as guest editor for several other international journals. He is a Vice-Chair of the Academic Committee of International Coalition of Intelligent Manufacturing, a Co-Chair of the IEEE Technical Committee on Computer Supported Cooperative Work in Design (CSCWD), has been Program Committee Co-Chair of the CSCWD conferences since 2001, and served as General Chair/Co-Chair or Program Committee Chair/Co-Chair for over 50 international conferences.



Prof. Michael Yu Wang

Fellow of ASME, HKIE, IEEE

Dean and Chair Professor at School of Engineering

Great Bay University, Dongguan, China

Keynote:

Peg-in-Hole Assembly: A Challenge for Robot Learning

Abstract:

In recent years we have seen rapid advancements in the development of robot learning in hand grasping and even fine manipulation. Intelligent robotic manipulation requires and leverages a robot hand to achieve autonomous and rich physical interactions with the surrounding environment. Yet, robotic manipulation is not just about arm and hand motions. Contact is the true heart of manipulation. Precision peg-in-hole assembly is such a challenging problem in robotic learning of fine manipulation. The problem gets at the very heart of manipulation, providing insights that apply across almost all manipulation tasks, whether by human or robot. This presentation will give an overview of the trend in the development of robotic learning with dexterous and versatile capability for grasping and adaptive manipulation. In this perspective, we argue that the multi-modal manipulation capabilities of human-centered robots are essential for a feasible large-scale deployment of the future robotic technology with a potential of commercial success.

Biography

Prof. Michael Yu Wang is a Chair Professor and the Founding Dean of the School of Engineering of the Great Bay University. He has served on the engineering faculty at University of Maryland, Chinese University of Hong Kong, National University of Singapore, Hong Kong University of Science and Technology, and Monash University. He has numerous professional honors—Kayamori Best Paper Award of 2001 IEEE International Conference on Robotics and Automation, the Compliant Mechanisms Award-Theory of ASME 31st Mechanisms and Robotics Conference in 2007, Research Excellence Award (2008) of CUHK, and ASME Design Automation Award (2013). He was the Editor-in-Chief of IEEE Trans. on Automation Science and Engineering, and served as an Associate Editor of IEEE Trans. on Robotics and Automation and ASME Journal of Manufacturing Science and Engineering. He is a Fellow of ASME, HKIE and IEEE. He received his Ph.D. degree from Carnegie Mellon University.

Parallel Sessions

Session topic: (Dis)Assembly Informatics, Modeling, and Analytics

Chairs:

Prof. Pai Zheng (The Hong Kong Polytechnic University)

Prof. Liqiao Xia (The Hong Kong Polytechnic University)

Location: Z211, PolyU

Date: 13:30 - 15:00, 28 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01299	13:30 - 15:00	Duidi Wu, Pai Zheng, Qianyou Zhao, Jin Qi, Jie Hu	Generative AI-Driven Pathways for Robot Skill Learning and Human-Guided Transfer for Smart Assembly
PROCIR-D-25-01449		Cong Ma, Wencan Pei, Yiping Gao, Liang Gao, Xinyu Li, Qihao Liu	SamgPose: Self-Attention Map Guided 6D Pose Estimation Via Diffusion Model
PROCIR-D-25-01679		Zekai Ai, Jianhua Liu, Zhuoheng Liu, Yifan Qie, Nabil Anwer	Human-Centric LLM-Guided Redundancy Resolution Via Particle Swarm Optimization And Multi-Criteria Evaluation
PROCIR-D-25-01451		Niklas Widulle, Oliver Niggemann	Automatic Assembly Instruction Generation From CAD Using Reverse Reinforcement Learning And Large Language Models
PROCIR-D-25-01431		Charbel Tauk, Paul Stief, Xavier Godot, Jean-Yves Dantan	Synchronizing Product And Assembly System Modularization Via The Elementary Technical Functions Matrix

Session topic: (Dis)Assembly Informatics, Modeling, and Analytics

Chairs:

Prof. Pai Zheng (The Hong Kong Polytechnic University)

Prof. Liqiao Xia (The Hong Kong Polytechnic University)

Location: Z211, PolyU

Date: 15:30 - 17:00, 28 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01308	15:30 - 17:00	Feng Lv, Xiaojun Liu, Xiwang Ma, Dazhou Chai, Yang Yi, Haoyu Yu, Zuguang Huang	Contact Deformation Prediction Of Assembly Surface Based On Physics-Informed Neural Network
PROCIR-D-25-01595		Richard Fox, Rui Li, Gustav Jonsson, Farzaneh Goli, Miying Yang, Emel Aktas, Yongjing Wang	State-Augmented Graphs For Circular Economy Triage
PROCIR-D-26-00005		Yifan Pang, Yuanhao Li, Yingfeng Zhang	Explainable Knowledge Recommendation For Human-Centric Assembly Based On Context-Aware Knowledge Graphs
PROCIR-D-25-01680		Mohammad Mahin Shoaib, Karel Kellens, Jef Peeters	A Novel Framework For Quantitative Robotic Grasp Quality Evaluation
PROCIR-D-25-01341		Franz Dietrich, Joost Ohrenberg, Christoph Rosenberg, Wei Lin, Stephan Tschechne	Data-Driven Statistical Tolerance Analysis For Production Machines Demonstrated On Battery Cell Stacking

Session topic: AI, Foundation Models, and Intelligent Automation

Chairs:
 Prof. Bingtao Hu (Zhejiang University)
 Prof. Xingzhi Wang (Northwestern Polytechnical University)
Location: Z207, PolyU
Date: 13:30 - 15:00, 28 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01065	13:30 - 15:00	Changchun Liu, Dunbing Tang, Qingwei Nie	Embodied Multi-Agent System Integrating VLA For AR-Assisted HRC Assembly Task Reasoning And Autonomous Execution
PROCIR-D-25-01185		Yuan Liu, Yun Zhao, Jiao Jiao, Yang Yang, Xingzhi Wang	Generative AI-Enabled Fast Restoration And Repair Of High Value Artifacts
PROCIR-D-25-01265		Wei Wei, Zhuoshi Li, Guangqing Xu, Chenliang Hao, Chuan Jiang, Long Zeng	A Vision-Language Model Based Intelligent Part Matching Method For Assembly Decision Support
PROCIR-D-25-01275		Yongrui Yu, Chao Zhang, Dongxu Ma, Qingfeng Xu, Guanghui Zhou	Towards Autonomous Machine Learning Deployment In Assembly Manufacturing Using Large Language Models
PROCIR-D-25-01276		Ruirui Zhong, Bingtao Hu, Yixiong Feng, Qiang Qin, Gengfeng Zheng, Xi Vincent Wang, Lihui Wang, Jianrong Tan	Guiding Vision-Language Models With Structured Scene Representations For Zero-Shot Assembly Action Recognition
PROCIR-D-25-01339		Sebastian Blankemeyer, David Wendorff, Annika Raatz	A Human-in-the-Loop Point-and-Click AR System for Pose Estimation: A Proof-of-Concept for Intuitive Robot Programming

Chairs:
 Prof. Min Xia (University of Western Ontario)
 Prof. Chunyang Yu (China Academy of Art)
Location: Z207, PolyU
Date: 15:30 - 17:00, 28 April 2026

PROCIR-D-25-01289	15:30 - 17:00	Tianxin Yan, Qiang Cui, Chunyang Yu	Chat-To-CAD: Sequential B-Rep Construction With Constraints Management
PROCIR-D-25-01443		Zian Li, Wenjun Xu, Ziheng Liu, Mengyuan Ba, Xiao Qiu, Bang You	A Vision-Language Based Framework For Context-Aware Task Planning In Human-Robot Collaborative Assembly
PROCIR-D-25-01444		Lve Sun, Youxi Hu, Yongjing Wang, Xixing Li, Ming Zhang, Chao Liu, Yuchun Xu	Leveraging GraphRAG For Human - Robot Collaborative Disassembly Sequence Planning In Remanufacturing
PROCIR-D-25-01448		Wencan Pei, Cong Ma, Xinyu Li, Liang Gao, Yiping Gao, Chunjiang Zhang	CogAssem: A VLM-Driven Architecture Bridging Cognition And Execution For Intelligent Robotic Assembly In Flexible Manufacturing
PROCIR-D-25-01489		Benedikt Frey, David Kostolani, Warren Purcell, Andreas Dorer, Santiago Calvo Salazar, Daniel Schall, Sebastian Schlund	Beyond The "Third Hand": Can Agentic LLMs Promote Cognitive Partnerships In Robotic Assembly?
PROCIR-D-25-01472		Ruo Yu Gu, Lu Lin, Yu Wang	From Designer Insight to AI Collaboration: Reconstructing Pathways to Identify Latent Needs of the Elderly

Session topic: Process Planning, Scheduling, and Control

Chairs:
 Prof. Ray Zhong (The University of Hong Kong)
 Dr. Christos Gkounelos (University of Patras)
Location: Z209, PolyU
Date: 13:30 - 15:00, 28 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01188	13:30 - 15:00	MingLong LI, Peter Chemweno, Sebastian Thiede	Assembly Systems Engineering For Large Scale Electrolyzer Production
PROCIR-D-25-01423		Xiaomei Xu, Jaykumar Bhagigya, Marco Schneider, Rainer Müller	A Physical Feasibility-Aware Sequence Planner For Robotic Assembly-Picking Systems
PROCIR-D-25-01427		Hui Wang, Zesheng Wang, Dongyang Xu, Gang Zhao, Hongqiang Bao, Lifeng Du	Data-Driven Process Optimization Framework For Aero-Engine Rotor Precise Assembly
PROCIR-D-25-01428		Jiahua Zhang	Considering Assembly Relationship Complexity In U-Shaped Assembly Line Balancing
PROCIR-D-25-01344		Angelos Christos Bavelos, Papoutsi Dimitra, Dionisis Valianatos, Dimosthenis Dimosthenopoulos, Christos Gkounelos, Sotiris Makris	AI-Enabled Scheduling Framework For Remanufacturing
PROCIR-D-25-01471		Peng Chen, Peng Zeng, Yanqiu Chen, Jun Ren, Yang Zhang, Yu Liu	Research on Model Slicing and Path Planning for Robot - Assisted Multi - Axis DIW Conformal Additive Manufacturing

Chairs:
 Prof. Xiaofeng Hu (Shanghai Jiao Tong University)
 Prof. Zhijia Xu (South China University of Technology)
Location: Z209, PolyU
Date: 15:30 - 17:00, 28 April 2026

PROCIR-D-25-01458	15:30 - 17:00	Zipeng Su, Bairen Chen, Zhijia Xu, Qi Jiang, Shancong Mo	Intelligent Assembly Sequence Planning System Framework Based On Autonomous Interaction of 3D Models
PROCIR-D-25-01470		Shengchuan Wu, Mingzhi Chen, Yahui Zhang, Xiaofeng Hu	Empowering Assembly Systems Through LLM-Integrated Multi-Agent Scheduling For Ship Sub-Assembly Welding
PROCIR-D-25-01587		Meihua Zeng, Kai Zhang, Ting Qu, Yongheng Zhang, Pai Zheng, Yang Liu, George Q. Huang	Hierarchical Collaborative Optimization Method Of Component Selection And Reassembly Scheduling For Retired Electric Vehicle Batteries
PROCIR-D-25-01606		Chengyu Lu, Zhaoxi Hong, Zhixin Liu, Dinglong Yang, Yixiong Feng, Jianrong Tan	A Flow Matching-Based Generative Optimization Framework For Assembly Line Balancing Problem In Flexible Manufacturing Systems
PROCIR-D-25-01611		Xiaobin Li, Kaikai Zhu, Yuhang Chen, Rui Hu	An Improved Whale Algorithm Based Multi-Objective Optimal Scheduling Of Mixed-Flow Production Lines With Multi-AGVs

Session topic: Human-Robot Collaboration

Chairs:
 Prof. Peiji Liu (Chongqing University)
 Prof. Chao Zhang (Xi'an Jiaotong University)
Location: Z412, PolyU
Date: 13:30 - 15:00, 28 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01201	13:30 - 15:00	Shanghua Mi, Yang Cao, Chen Xu, Yicong Gao, Siyuan Zeng, Hao Zheng	A Human-Friendly Framework And Methodology For Proactive Human-Robot Collaborative Disassembly
PROCIR-D-25-01273		Dongxu Ma, Guanghui Zhou, Yongrui Yu, Yujia Wang, Chao Zhang	A Multi-Agent Enabled Task Planning And Execution Framework For Human-Robot Collaborative Assembly In Industry 5.0
PROCIR-D-25-01340		Noël Scheder, Lorenz Gudat, Maximilian Haug, Georgia Sideri, Matthias Hayek, Sebastian Schlund	Towards Empathic And Resilient Production Systems: Comparing Simulation-Based And Empirical Assessments Of Human-Robot Task Allocation In Maintenance Tasks
PROCIR-D-25-01464		Ducui Wang, Peiji Liu, Huajun Cao, Liqiao Xia, Pai Zheng	Towards Human-Robot Symbiotic Disassembly: A Physiological Information-Fused Human-Robot Mutual Cognition Workcell Architecture
PROCIR-D-25-01662		Jie Zhang, Pengfei Ding, Peng Zhang	Interaction Learning Enhanced Cognition-Centric AI Agent For Proactive Human-Robot Collaboration

Chairs:
 Prof. Zhengang Guo (Northwestern Polytechnical University)
 Prof. Bugra Alkan (London South Bank University)
Location: Z412, PolyU
Date: 15:30 - 17:00, 28 April 2026

PROCIR-D-25-01440	15:30 - 17:00	Bugra Alkan, Natalia Hartono, Louie Webb, Myo Nyi Nyi Min, Malarvizhi Kaniappan Chinnathai	Human-Robot Cooperation Suitability Assessment For Disassembly Systems
PROCIR-D-25-01454		Jiaxu Gao, Bernd Kuhlenkötter, Weihua Li, Kai Wu	Adaptive Task-Sequence Planning For Human-Robot Collaborative Assembly Using Dynamic Knowledge Graphs And Multi-Agent Reinforcement Learning
PROCIR-D-25-01460		Guoyi Xia, Zied Ghrairi, Wang Lei, Mengmeng Qiao, Klaus-Dieter Thoben	Enhancing Human-Robot Collaborative Assembly: A Structured Hierarchical Modeling Approach
PROCIR-D-25-01478		Yiqi Qian, Ruyao Xia, Yingzhen Jing, Lu Lin	Tool To Bridge: Research On Human-Machine Collaborative Systems For Upper Limb Rehabilitation In Home-Based Elderly Care
PROCIR-D-25-01599		Matteo Manzardo, Davide Ciaghi, Alena Mezentseva, Federico Fraboni, Rabert Rajesh Mallavarapu, Marco De Angelis, Renato Vidoni, Luca Gualtieri	Conflict Prevention In Industrial Human-Robot Tool Sharing: A Comparative Study
PROCIR-D-25-01437	Muhammad Umar, Aqib Mashood Khan, Xiuqing Hao, Adnan Javed, Muhammad Jamil	Integrating Life Cycle Assessment into Human-Robot Collaborative Assembly for Sustainable Manufacturing	

Session topic: Design for Assembly/Disassembly and Joining Technologies

Chairs:
 Prof. Qiangwei Bao (University of Science and Technology Beijing)
 Prof. Tao Peng (Zhejiang University)
Location: Z413, PolyU
Date: 13:30 - 15:00, 28 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01199	13:30 - 15:00	Feiyan Guo, Xiliang Sha, Qiangwei Bao	Research On Green Assembly Technology For Airframe Structure And Its Key Implementation Solutions
PROCIR-D-25-01326		Wenzheng Lin, Ranran Wang, Tao Peng, Renzhong Tang, Hao Wang	A Framework Of Assembly-Informed Cable-Pipeline Joint Layout Design Optimization In Aircraft Wheel Well
PROCIR-D-25-01432		Caner-Veli Ince, Marieke Weber, Sebastian Blankemeyer, Annika Raatz	Influence Of Workpiece Temperature On Gripper Heat Distribution In Tailored Forming
PROCIR-D-25-01425		Yue Zang, Xiazhen Xu, Ze Zhang, Yongjing Wang, Ashutosh Tiwari	Autonomous Disassembly-Assembly Framework For Robotic Remanufacturing Based On Reversible Skill Learning
PROCIR-D-25-01447		Changkun Sun, Nanya Li, Qiang Cheng, Lihui Wang, S.K. Ong	Design For Assembly Of Complex Microwave Waveguides As LEGO Bricks Using Graph Rewriting Method
PROCIR-D-25-01248		Chloé Nerestan, Denis Teissandier, Yann Ledoux, Ferdinand Graeff	Tolerance allocation for multiphysical system – Application to an electrical vehicle battery module

Chairs:
 Prof. Qiangqiang Zhao (Xi'an Jiaotong University)
 Prof. Fan Li (The Hong Kong Polytechnic University)
Location: Z413, PolyU
Date: 15:30 - 17:00, 28 April 2026

PROCIR-D-25-01601	15:30 - 17:00	Shifeng Shi, Liyan Zhang	Model And Calibration For Galvanometric Laser Scanning Systems
PROCIR-D-25-01612		Chuangchuang Cui, Libin Zhu, Yuhao Xue, Haihong Huang	Screw Layout Optimization Based On The Optimal Eye Movement Search Strategies: Improving Disassemblability Of Smartphones
PROCIR-D-25-01669		Baihui Gao, Jiazhen Pang, Yan Ke, Jiajun He, Jianfeng Yu	Prediction Of Surface Figure Error In Dual-Reflector Optical Systems Using Fractal Contact And Virtual Material Layer Modeling
PROCIR-D-25-01688		Kuangqing Hu, Shunuan Liu	Mechanistic Study Of Chip-Induced Secondary Machining On Hole-Wall Morphology In CFRP/Ti Stack Drilling
PROCIR-D-25-01603		Wencai Yu, Yong Zhao, Qingyuan Lin, Yuming Liu, Wei Wang	Sparse Reconstruction Method For Riveting Deformation Fields Based On Neural Operators
PROCIR-D-25-01182		Zhicheng Xu, Wai Sze Yip, Suet To	Multi-modal DL model-driven surface morphology prediction of ultra-precision machining

Session topic: Computer Vision, Perception, and Sensing

Chairs:

Prof. Xuehong Gao (University of Science and Technology Beijing)
Prof. Yuanfa Dong (China Three Gorges University)

Location: Z414, PolyU

Date: 13:30 - 15:00, 28 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01286	13:30 - 15:00	Weibo Li, Jiazhen Pang, Jie Zhang	MatePre: A Graph Attention Network For Part Mating Surface Prediction
PROCIR-D-25-01287		Guang Li, Junfeng Wang, Zhaoli Cao, Yang Mao, Ning Liu, Zhengping Che	A Keypoint Evolution Algorithm For Object 6D Pose Estimation In Assembly Scenarios Based On Imitation Reinforcement Learning
PROCIR-D-25-01293		Yihao Shen, Qifu Meng, Yi Guo, Dechang Zhang, Zhiwei Sun, Qiushuang Zhang, Hualin Yang, Xin Jin	Parallelism Prediction For Flange Precision Assembly Based On Virtual Assembly Model And Point Cloud Deep Learning
PROCIR-D-25-01420		Maocheng Xu, Pengfei Zhang, Changri Xiong, Gang Zhao	A High-Fidelity Virtual Point Cloud Dataset Construction Method For Semantic Recognition In Complex Assembly Scenarios By Rendering Measurement Behaviors
PROCIR-D-25-01494		Shenyuan Gao, Guozhong Huang, Mingxin Liu, Xuehong Gao	A Two-Stage Algorithm For Smoking Detection In Industrial Work Environments
PROCIR-D-25-01385		David Wendorff, Sebastian Blankemeyer, Annika Raatz	Robust Multi-Sensor 6D Pose Estimation with Uncertainty Quantification for Industrial Automation

Chairs:

Prof. Yang Zhang (Dalian University of Technology)
Prof. Zuoxu Wang (Beihang University)

Location: Z414, PolyU

Date: 15:30 - 17:00, 28 April 2026

PROCIR-D-25-01455	15:30 - 17:00	Chao Chen, Zhicheng Huang, Qile Su, Yongqiang Wan, Xinzheng Xu, Zhujia Li	Research On Multimodal Information Recognition Based Intelligent Assembly Operation Detection Method
PROCIR-D-25-01655		Junkai Yao, Xinxin Liang, Jihong Liu, Zuoxu Wang	A Novel Point Cloud And Attribute Adjacency Graph Integrated Machining Feature Recognition Approach
PROCIR-D-25-01664		Ze Zhang, Zhijie Yan, Shufei Li, Zuoxu Wang	Lightweight Drift-Resistant Indoor Localization With Short-Term LIO Odometry And Long-Term RGB-D Factor-Graph Consistency
PROCIR-D-25-01492		Qihang Chen, Yang Zhang, Chenfeng Hou, Yongkang Lu, Yanjun Shi, Pai Zheng, Wei Liu	A High-Precision Multi-Sensor Cooperative Online Perception Method For Force-Position Parameters In The Assembly Of Large Composite Aircraft Components
PROCIR-D-25-01600		Zijian Zhu, Chi Fai Cheung, Chenyang Zhao	Nanoscale Positioning Measurements Based On The Interpolation And Registration Of Microscopic Images Of Ultra-Precision Diamond Turned Surface Topography
PROCIR-D-25-01314		Johannes Bauer, Paul Geng, Stephan Trattng, Petr Dokládál, Rüdiger Daub	Efficient Continual Learning for Visual Quality Inspection in Remanufacturing

Session topic: AI, Foundation Models, and Intelligent Automation

Chairs:

Prof. Jiehan Zhou (Shandong University of Science and Technology)
Prof. Zhongxu Hu (Huazhong University of Science and Technology)

Location: TU103, PolyU

Date: 10:30 - 12:00, 29 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01469	10:30 - 12:00	Lam Kai Yi, Koo Chee Hung, Ong Kevin, Jeon Jinhan, Ong Soh Khim	A Knowledge-Driven Agentic Framework For Multi-Variant Product Disassembly
PROCIR-D-25-01605		Zhixin Liu, Bingtao Hu, Yixiong Feng, Zhifeng Zhang, Zhaoxi Hong, Chengyu Lu, Jianrong Tan	Research On A Large Language Model-Driven Method For Mining Manufacturing Knowledge Rules
PROCIR-D-25-01442		Jiehan Zhou, Jinling Yu, Jie Kong, Tianze Shi, Peifeng Liu, Xun Xu	Agent4Assembly: An Industrial Agent For Autonomous Assembly Fault Diagnosis And Troubleshooting
PROCIR-D-25-01466		Yongqiang Wan, Zhicheng Huang, Chao Chen, Xinzheng Xu, Zhujia Li	An Intelligent Assembly Process Planning Framework Integrating Process Knowledge Graph And Large Language Model
PROCIR-D-25-01660		Jiangkun Hu, Jie Zhang, Youlong Lv, Jutao Guo, Bo Zhao	Automated Construction Method Of Process Knowledge Graph For Aerospace Structural Parts Based On Fine-Tuned LLM
PROCIR-D-25-01438		Xin Zhang; Yanglong Lu	Cross-modal state graph fusion for anomaly detection in digital twin-driven robotic assembly lines

Chairs:

Prof. Xin Guo (Sichuan University)
Prof. Hualin Yang (Qingdao University of Science and Technology)

Location: TU103, PolyU

Date: 13:30 - 15:00, 29 April 2026

PROCIR-D-25-01654	13:30 - 15:00	Qiu hao Xu, Shizhen Huang, Jin Chen, Yifan Tan, Zelong Song, Xiaochen Zheng	A LLM-Driven Intelligent Model Reconfiguration Framework In Model-Based Systems Engineering For Assembly Systems
PROCIR-D-25-01659		Yanjie Zhang, Tiance Yang, Fan li, ChingHung Lee	Multiple External Representations (MER)Based Multi-Agent G-Code Generation For Part Manufacturing
PROCIR-D-25-01671		Fuji Hu, Yan Gao, Song Du, Qian Li, Yiwei Weng	A VLM-Based Agentic System For Autonomous Assembly In Rebar-Reinforced 3D Concrete Printing
PROCIR-D-26-00011		Bowen Xu, Xin Guo, Wu Zhao, Jun Li	An Intelligent Reasoning Framework Based On Multimodal Knowledge Graph For Assembly Planning Of Complex Aeronautical Structures
PROCIR-D-25-01304		Stylios Nikoladakis, Loukas Prezas, Zoi Arkouli, Polykarpos Zarmakoupis, Nikos Dimitropoulos, Sotiris Makris	Implementing Vision-Language-Action Models For Adaptive Robotic Assembly In Agile Manufacturing
PROCIR-D-25-01468		Qiang Qin, Victor Nan Fernandez-Ayala, Zhihao Liu, Ruirui Zhong, Xi Vincent Wang, Dimos V. Dimarogonas, Lihui Wang	A Digital Twin-enabled and LLM-assisted intelligent assembly method for robotic construction tasks

Session topic: Process Planning, Scheduling, and Control

Chairs:

Prof. Yongjing Wang (University of Birmingham)

Prof. Tingyu Liu (Southeast University)

Location: TU107, PolyU

Date: 10:30 - 12:00, 29 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01658	10:30 - 12:00	Yilin Fang, Xiandong Luo, Muyao Tan, Junyufeng Chen, Ling Gui, Kai Huang, Quan Liu, Zude Zhou	An Ontology Rule-Based Reasoning For Tool-Constrained Disassembly Line Balancing
PROCIR-D-25-01668		Guanhua Gao, Jie Zhang, Jiazhen Pang, Bolin Chen	Decision Optimization Method For Aircraft Final Assembly Line Simulation
PROCIR-D-25-01678		Xin Jin, Xiaole Guan, Shuangying Yan	Parametric Automatic Path Planning Method For Coordinate Measuring Machines With Turntable For Revolving Bodies
PROCIR-D-25-01684		Yuheng Cao, Zhifeng Zhang, Junjie Song, Yixiong Feng, Jianrong Tan	Adaptive Multi-Objective Assembly Scheduling: A Deep Reinforcement Learning Framework
PROCIR-D-25-01324		Michelle Henkies, Nikolai West, Jochen Deuse	Phase-Based Feature Extraction For Error Classification Of Thread-Forming Screw Assembly Using Machine Learning
PROCIR-D-25-01343		Matthias Lück, Oliver Riedel	Integration of machine learning and VDI/VDE standards for holistic monitoring of torque-angle curves

Chairs:

Prof. Sihan Huang (Beijing Institute of Technology)

Prof. Yanglong Lu (Hong Kong University of Science and Technology)

Location: Z412, PolyU

Date: 10:30 - 12:00, 29 April 2026

PROCIR-D-25-01337	10:30 - 12:00	Pengfei Gao, Xiaofu Zou, Lishuang Liu, Xiaohua Wei	A LLM-Driven Multi-Agent Framework For Dynamic Shop Floor Scheduling: Formal Modeling And Testing For AGV Coordination
PROCIR-D-25-01651		Sihan Huang, Xue Wang, Ming Huang, Wei Dong, Yanchao Yin, Zujie Zheng, Liyang Dong, Guoxin Wang, Yan Yan, Guoqing Wang	Scheduling Optimization For Robotic Smart Reconfigurable Manufacturing Systems Based On Coalition Formation Game And Particle Swarm Optimization
PROCIR-D-25-01604		Liyun Yan, Shudong Sun	A Negotiation Algorithm For Multi-Agent Job Shop Scheduling Based On Evolutionary Game
PROCIR-D-25-01607		Kejun Qiu, Lu Chen	An Inverse Optimization Approach For An Aircraft Final Assembly Scheduling Problem
PROCIR-D-25-01290		Jinyue Li, Feiyan Guo, Wensheng Peng, Li Haoyu, Xiangchun Zhang, Yan Zewen, Zhou Yuqing	A Digital Twin-Oriented Evaluating Method For Aircraft Wing Box Assembly Process Parameters Based On Uncertainty Quantification
PROCIR-D-25-01436		Yuxiang Ma, Junhao Wang, Shiduo Ning, Yanjun Shi	A CGP-Based Scheduling Optimization Approach for Dynamic Flexible Job Shop Scheduling Problem considering Multi-level Assembly Operations

Session topic: Human-Robot Collaboration

Chairs:

Prof. Kai Wu (South China University of Technology)

Prof. Jinsong Bao (Donghua University)

Location: TU201, PolyU

Date: 10:30 - 12:00, 29 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01482	10:30 - 12:00	Jiahui Si, Wenchao Li, Jie Li, Jianhao Lv, Tao Peng, Jinsong Bao	Agentic Memory: Enabling Situational Resonance In Human-Robot Collaboration
PROCIR-D-25-01484		Yu Wang, Jiayi Qiu, Lu Lin	Tacit Knowledge Elicitation: A "Disassembly-Integration" Human-AI Framework For Design Cognitive Construction
PROCIR-D-25-01488		Bsher Karbouj, Haokun Pan, Jörg Krüger	Confidence-Aware Temporal Segment Networks For Real-Time Human Action Recognition And Speed Adaptation In Human-Robot Collaboration
PROCIR-D-25-01491		Qian Zhao, Xin Guo, Wu Zhao, Xianglong Li, Xurui Li	Design Of An Intelligent Posture Adjustment Platform And Human-Machine Collaborative Control Strategy For Heavy-Duty Gas Turbine Assembly
PROCIR-D-25-01616		Yonga Chuengwa T., Swanepoel J.A., Kurien A.M., Kanakana-Katumba M.G.	Fatigue-Aware Motion Prediction In Collaborative Assembly

Session topic: Robotic Disassembly and Remanufacturing System

Chairs:
 Prof. Nanya Li (Southeast University)
 Prof. Chengjun Chen (Qingdao University of Technology)
Location: Z211, PolyU
Date: 10:30 - 12:00, 29 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01267	10:30 - 12:00	Pietro Sandrini, Adel Olabi, Quentin Consigny, Richard Bearee	High Accuracy Unscrewing For Robotic Disassembly
PROCIR-D-25-01323		Bence Tipary, Gábor Ferenc Erdős, Ádám Fischer, Máté Gábor Seidl, Dániel Zsigri-Zágori, Ádám Juniki	Mitigating Tool Tip Uncertainty In Robotic Screw Unfastening: A Visual-Servoing Method
PROCIR-D-25-01355		Sven Oldewurtel, Tom Henry Heise, Christoph Imdahl Habel, Christian Wacker, Sabrina Zellmer, Klaus Dröder	Demonstration Of A Flexible Automated Disassembly Process For Connectors In Battery Systems For Electric Vehicles
PROCIR-D-25-01417		Tom Machiels, Louise Brankart, Lander Ketelbuters, Karel Kellens	Development Of Tooling For Robotic Disassembly Of Electrical Connectors
PROCIR-D-25-01303		Christos Gkournelos, Antonis Daskalakis, Nikolas Louka, Dimosthenis Dimosthenopoulos, George Michalos, Sotiris Makris	Towards Reconfigurable Robotic Skills: Open-World Reasoning For Collaborative Product Disassembly

Chairs:
 Prof. Jun Huang (Wuhan University of Technology)
 Dr. Hongmin Wu (Institute of Intelligent Manufacturing, Guangdong Academy of Science)
Location: Z211, PolyU
Date: 13:30 - 15:00, 29 April 2026

PROCIR-D-25-01446	13:30 - 15:00	Jun Huang, Xingqiang Jiang, Yuqin Zeng, Yilin Fang, Zude Zhou, Quan Liu, Yuping Zhang, Huawei Song, Xiuyi Ao, Duc Pham	Robotic Disassembly Of Bonded Components In End-Of-Life Cell-To-Pack Electric Vehicle Batteries
PROCIR-D-25-01673		Haoyang Zhang, Rucheng Xiang, Junyang Wang, Jiangming Zhang, Wu Yan, Shaohua Kong, Zhaoyang Liao, Hailong Xie, Hongmin Wu	Automatic Bolt Removal And Recovery With Adaptive Magnetic Control For Robotic Disassembly Of Retired Power Battery Packs
PROCIR-D-25-01675		Muyao Tan, Junyufeng Chen, Yilin Fang, Jun Huang, Quan Liu, Zude Zhou	Design Of An Autonomous Disassembly System For End-Of-Life Products In Open World
PROCIR-D-25-01676		Jun Huang, Mengying He, Quanyong Huang, Yilin Fang, Quan Liu, Zude Zhou, Huawei Song, Xiuyi Ao	Parameter Optimisation For Robotic Disassembly Of Snap-Fit Plug Connectors In End-Of-Life Electric Vehicle Batteries
PROCIR-D-25-01473		Thore Bochert, Jonas Michael, Kirsten Tracht	Experimental Study On Cleaning Methods For Adhesive Microstructures

Session topic: Reconfigurable Automation and Robot Skills

Chairs:
 Prof. Sichao Liu (KTH Royal Institute of Technology)
 Prof. Antonio Maffei (KTH Royal Institute of Technology)
Location: Z413, PolyU
Date: 10:30 - 12:00, 29 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01295	10:30 - 12:00	Torge Kolditz, Sascha Pascal Grindel, Annika Raatz	Catch Me If You Can: Grasping Workpieces In Free Fall – A Novel Concept For Flexible Part Feeding
PROCIR-D-25-01298		Benhua Gao, Zeyuan Ren, Haofei Ma, Wei Wang, Pai Zheng	HITL-DP3: Human-In-The-Loop Imitation Learning With 3D Diffusion Policy And Bilateral Teleoperation For Dexterous Tool Manipulation
PROCIR-D-25-01397		Arvid Lang, Antonio Maffei, Fabio Marco Monetti, Edgar Patzel	When Does It Pay Off? Evaluating Automation Potential In Industrial Picking And Placing
PROCIR-D-25-01666		Lukas Tanz, Joel Sánchez Hoffmann, Paul Geng, Rüdiger Daub	Visual Teaching: A Concept For Flexible Robot Programming
PROCIR-D-26-00018		Jihong Yan, Ye Sun, Siyang Ji	An Augmented Reality-Based Human-Machine Collaboration Framework For Handling Industrial Robot
PROCIR-D-25-01485		Geming Chen, Yang Zhang, Yu Liu	Multimodal Tactile Sensing-Enabled Dexterous Hand for Precision Grasping

Chairs:
 Prof. Baicun Wang (Zhejiang University)
 Prof. Geng Zhang (Northwestern Polytechnical University)
Location: TU201, PolyU
Date: 13:30 - 15:00, 29 April 2026

PROCIR-D-25-01652	13:30 - 15:00	Georg Siegemund, Frederik Hoeft, Arne Glodde, Franz Dietrich	Adaptive Leakage-Aware Grasp Optimization For Flexible Granular Vacuum Grippers
PROCIR-D-25-01665		Geng Zhang, Yubin Wang, Yaqi Zhao, Pengcheng Wei, Yi Hao	A Proactive Mobile Robot Material Delivery Method for Complex Assemblt Processes
PROCIR-D-25-01479		Xurui Bao, Haofei Ma, Yuchen Ji, Pai Zheng, Liqiao Xia	Optimizing Action Sequences From Vision–Language–Action Models With Model Predictive Control For Instruction-Guided Human–Robot Collaborative Disassembly
PROCIR-D-25-01657		Yilin Fang, Kai Huang, Muyao Tan, Junyufeng Chen, Ling Gui, Quan Liu, Zude Zhou	A Prior-Guided Framework For Screw Detection And Registration In Automated Disassembly
PROCIR-D-26-00021		Lizhong Zhao, Ying Zhu, Lijun Ma, Jihong Yan	Intelligent Control Of Collaborative Robot Based On Multimodal Human Motion Recognition For Human-Robot Collaborative Assembly
PROCIR-D-25-01481		Junwei Li, Yong Cheng, Hongtao Pan, Yang Yang, Xuanchen Zhang, Yuntao Song	In-situ Milling System Using a Parallel Robot for Large Vacuum Vessel Assembly

Session topic: Digital Twins and Process Monitoring

Chairs:

Prof. Matthias Scholer (Technical University of Applied Sciences Würzburg-Schweinfurt)

Prof. Yuanbin Wang (Northwestern Polytechnical University)

Location: Z414, PolyU

Date: 10:30 - 12:00, 29 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01064	10:30 - 12:00	Qingwei Nie, Changchun Liu, Chao Zhang, Jianning Ding,	Probing A Multi-Agent And Industrial Language Model Framework Of Digital Twin For Human-Robot Collaborative Assembly
PROCIR-D-25-01195		Matthias Scholer	Intelligent Autonomous Adaptation Of (Dis)Assembly Processes Via AI-Agents And In-Process Sensor Feedback
PROCIR-D-25-01230		Lanchun Yang, Zhengang Guo, Zhida Kou	Reinforcement Learning-Based Cascading Failure Analysis For Smart Assembly And Disassembly Networks
PROCIR-D-25-01667		Jinhua Xiao, Kaile Huang, Sergio Terzi, Marco Macchi, Marco Taisch	Digital Twin-Driven Risk Assessment System For Human-Machine Collaboration Production Workshop Toward Industry 5.0
PROCIR-D-25-01288		Tianren Zhang, Yupeng Bai, Jie Jiang, Tao Peng, Yuanbin Wang	Assembly-Oriented Adaptive Machining Engaging Digital Twin - A Case Study Of Turbine Blade Root Grinding
PROCIR-D-25-01218		Zhengang Guo, Weicong Liang, Xiaohua Li, Yingfeng Zhang	Digital Thread-Based Industrial Dataspace Modeling for Smart Assembly and Disassembly Networks

Session topic: Robotic Assembly Systems and Manipulation

Chairs:

Prof. Shufei Li (Tianjin University)

Prof. Bitao Yao (Wuhan University of Technology)

Location: TU107, PolyU

Date: 13:30 - 15:00, 29 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01452	13:30 - 15:00	Yiyang Hu, Bitao Yao, Wenjun Xu, Zude Zhou	Metal Wires Winding By Dual Collaborative Robots Based On Multi-Modal Data And Metal Springback Model
PROCIR-D-25-01681		Yuhao Zhou, Rucheng Xiang, Hongmin Wu, Zhihao Xu, Hailong Xie, Zhaoyang Liao	A Variable Stiffness End-Effector Design And Process Optimization For High-Quality Robotic Drilling Of CFRP
PROCIR-D-25-01450		Qi Chen, Bernd Kuhlenkötter, Weihua Li, Kai Wu	Contact Model-Based Curriculum Reinforcement Learning For Peg-In-Hole Assembly Under Grasp Angle Variations
PROCIR-D-25-01317		Shufei Li, Ray Wai Man Kong, Xiaoliang Liang, Cheng Liu	Towards Human-Like Manipulation: Zero-Shot Part-Granular Semantic Understanding For Robotic Object Cognition
PROCIR-D-25-01283		Yunong Zhai, Yulong Lyu, Dongsheng Li, Yuhui Zhao	Human-Robot Collaborative Drilling-Riveting System For Aircraft Assembly With AR And Vision Assistance
PROCIR-D-25-01486		Qinxiang Liu, Qiuju Zhang, Yu Liu	Collaborative Control Method For 3d Printing Motion-Extrusion Of 6-axis Robot Arm Based On Speed Smoothing And Forward Compensation

Session topic: Augmented Reality and Human-Centric Operator Support

Chairs:

Prof. Yiwei Weng (The Hong Kong Polytechnic University)

Prof. Kai Ding (Chang'an University)

Location: Z414, PolyU

Date: 13:30 - 15:00, 29 April 2026

ID	Time	Authors	Paper Title
PROCIR-D-25-01434	13:30 - 15:00	Marco Lanzone, Thomas Bezzi, Luca Gualtieri, Patrick Dallasega	Augmented Reality And Gamification To Support Training Of Unskilled Workers: A Case Study Of Industrial Cabinet Assembly
PROCIR-D-25-01674		Hengrui Guo, Jianwei Niu, Qiangwei Bao	Research On The User Trust Variations Under Multiple AR-Guidance Modes In Assembly
PROCIR-D-26-00009		Jiqing Fu, Menglu Yu, Chunyang Yu, Yuyang Zhang	A Biomimetic Underwater Device Based On Piezoresistive Sensors For Real-Time Internal Wave Early Warning In Diving Safety
PROCIR-D-25-01476		Haolun Xu, Qian Zhou, Yike Zhang, Hanjian Chen, Lu Lin	Research On Lower Limb Rehabilitation Experience Design Integrating Augmented Reality And Terrain Simulation Technology
PROCIR-D-25-01418		Hao Xu, Linzhen Zhou, Xuanchen Zhou, Pai Zheng	An Augmented Reality-Enhanced Large Language Model-Based Interactive System For Human-Robot Collaboration
PROCIR-D-25-01441		Naimul Hasan, Louie Webb, Safia Barikzai, Bugra Alkan	Real-Time Progress Tracking and Error Detection in Manual Disassembly with Computer-Vision-Enabled Projection-Based Spatial AR

Lab Visit & City Tour

Lab Visit

Date: 30 April

Time: 9:00 AM

Meeting Point: PolyU University Square

Venue: Human-Machine Symbiotic Design & Manufacturing Centre (HMS-DMC), State Key Laboratory of Ultra-precision Machining Technology (SKL-UPMT), and Artificial Intelligence and Robotics Lab (AIR Lab).

Duration: Approximately 2 hours



City Tour

Date: 30 April

Time: 1:45 PM

Meeting Point: PolyU Main Entrance

Duration: Approximately 4 hours

An afternoon city tour of Hong Kong will be arranged by coach.

- The tour will depart from The Hong Kong Polytechnic University and proceed to Tai Kwun in Central, passing by Exchange Square, Central Market, and PMQ. A stop of approximately 45 minutes will be arranged at Tai Kwun.
- The tour will then continue through Admiralty, Wan Chai, and Causeway Bay, passing by Chater Road, Statue Square, Queensway, Admiralty Garden, SOGO Causeway Bay, and the Wan Chai Waterfront Promenade.
- The tour will return to the Kowloon area and proceed to the Avenue of Stars, passing by the Tsim Sha Tsui Star Ferry Pier and the Hong Kong Cultural Centre. A stop of approximately 1 hour will be arranged at the Avenue of Stars.
- The return trip to the meeting point will begin at approximately 5:30 PM.

Remarks: The actual route and schedule are subject to real-time traffic conditions on the day. If it rains, the event will be canceled.

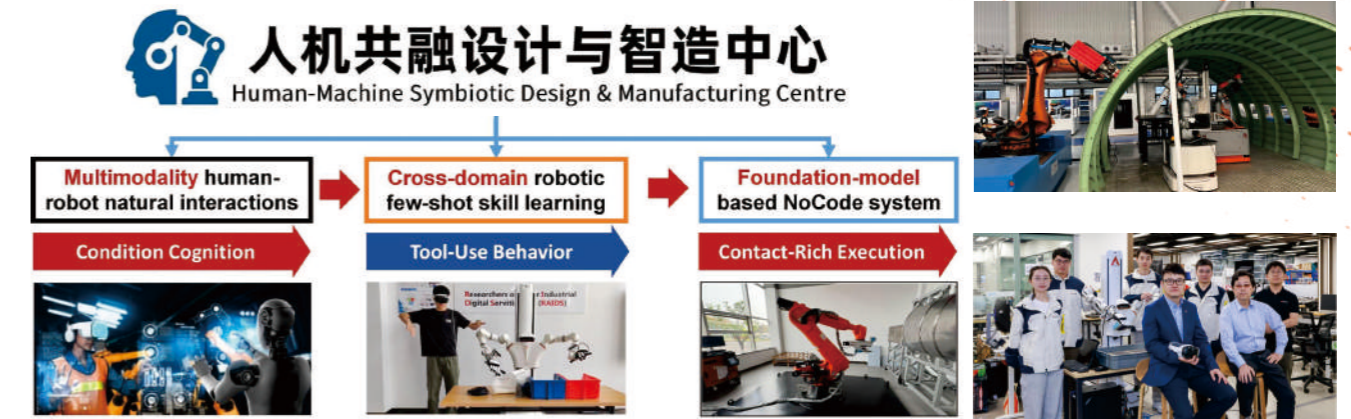
Priority will be given to participants who registered for both activities between 8 and 10 April via the online registration questionnaire. Registered participants who are unable to attend are kindly requested to inform the conference staff in advance.

Limited spaces may also be available for unregistered participants. Please contact the conference staff.

Places will be allocated on a first-come, first-served basis.

Overview of Lab Visit

1. Human-Machine Symbiotic Design & Manufacturing Centre (HMS-DMC)



HMS-DMC aims to develop advanced robotics, digitalization and AI technologies for natural interactions, efficient collaboration and symbiotic human-machine systems.

2. State Key Laboratory of Ultra-precision Machining Technology (SKL-UPMT)



SKL-UPMT advances ultra-precision machining technologies to empower high-tech industries from optoelectronics to biomedical engineering.

3. Artificial Intelligence and Robotics Lab (AIR Lab)



AIR Lab leverages advanced AI and robotics to drive multi-disciplinary research, teaching, and innovation incubation across fields from healthcare to engineering.



NOKOV

Motion Capture for Robotics

NOKOV MoCap specializes in high-precision optical motion capture systems, expertly designed for a diverse range of applications, including medical robotics and film production. Our state-of-the-art technology seamlessly combines unmatched accuracy with cost-effectiveness, ensuring that advanced motion capture solutions are accessible to organizations of all sizes.

By utilizing high-performance infrared cameras, NOKOV can accurately locate the positions of reflective markers and generate 3D motion data through our sophisticated analysis system. This cutting-edge approach is an ideal solution for motion capture in fields such as robotics, UAVs, virtual reality, sports biomechanics, movement analysis, gait rehabilitation, ergonomics, film animation, and game production.

At NOKOV, we are committed to pushing the boundaries of innovation. Our mission is to make high-quality motion capture technology available to a wider audience, empowering countless industries with the tools they need to excel.

Application



Drone & Cluster



Robotic Arms



Exoskeleton Robots



Bionic Robots



Dexterous Hands



Underwater Robots



Medical Robots



Displacement Measurement



Cooperative Control



Bionic Underwater Robots



Soft Robots



Human-Robot Interaction



Humanoid Robots

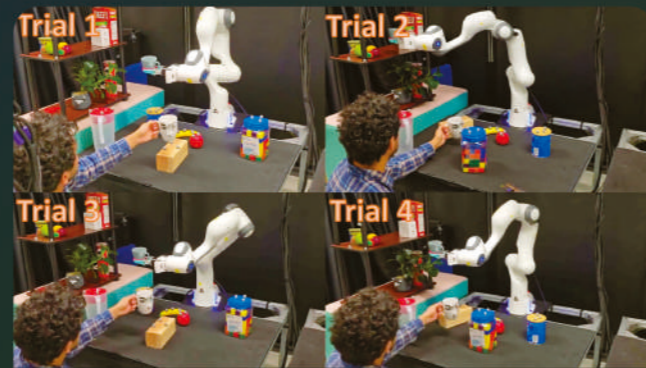


Mobile Robots

Case Studies



The Hong Kong Polytechnic University Pai Zheng



University of Nottingham Luis Figueredo

TeleX

Universal Embodied Intelligence Teleoperation Terminal

Teleop Anyrobot Anywhere

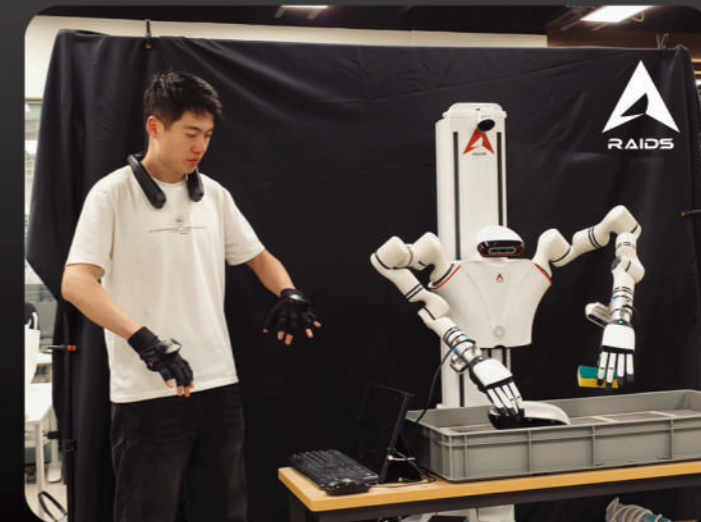


CobotAI Limited, born from the RAIDS Group (<https://www.raids.group>) at The Hong Kong Polytechnic University, is dedicated to solving the "Last Mile" challenge of industrial robotics. Guided by "Data-Driven Embodied Intelligence" we developed the world-leading **TeleX Series** — an **industrial multimodal data collection and human-robot skill transfer system**.

TeleX integrates motion capture, visual perception, and full-hand tactile sensing to collect high-fidelity "touch-vision" data from human operations, enabling efficient skill transfer from human demonstration to robotic execution.

With a **self-developed Learning-based Universal Retargeting Algorithm**, TeleX overcomes hardware differences, allowing one device to control multiple robotic arms — giving robots the ability to perceive, feel, and interact with the physical world.

Designed for smart manufacturing, precision assembly, teleoperation, and research, TeleX helps enterprises build embodied intelligence ecosystems and bridge the full chain from data collection to skill transfer.



Teleoperated Robotic Arm



Egocentric Data Collection



www.nokov.com
info@nokov.com



For More Purchase Information Please Scan QR Code

cobotai.hk@outlook.com

加入灵心巧手一起 创造万物

Join LinkerBot · Create Everything



Linkerbot Beijing Technology Co., Ltd. is the global leader in dexterous hands. As the world's only company capable of mass-producing high-DoF dexterous hands at a scale of over 1,000 units per month, it occupies more than 80% of the global market share, with an annual output of over 10,000 units across its full product line. The company has built a software ecosystem covering the Open TeleDex teleoperation system and LinkerSkillNet skill library with outstanding strength. Its products have been adopted by renowned university labs such as Stanford, Cambridge, Tsinghua, Peking University, as well as leading manufacturing enterprises including Midea, Siemens, and Samsung.

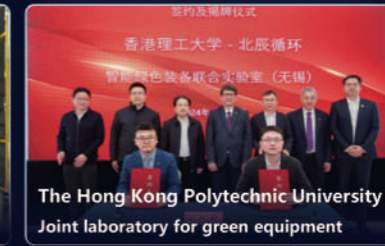
- Won 1st Place in the Dexterous Hand Competition at the 2024 Zhongguancun Humanoid Robot Competition
- Dual First Prizes for Industrial Ecosystem and Scene Application, 2025 Zhongguancun Embodied Intelligence Robot Application Competition
- Ranked TOP 1 in AI and Robots at the 2025 Sci-Tech Innovation Future Star
- Selected for Forbes Asia 100 to Watch annual list
- Selected as one of The Information's "50 Most Promising Startups 2025"

North Star Recycling: Technical solution for sustainable lithium-ion battery recycling

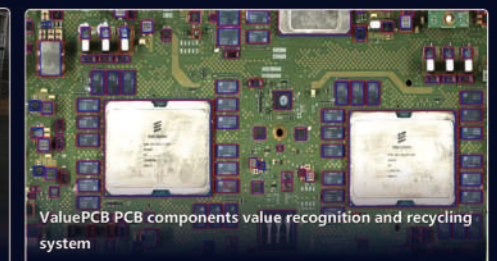
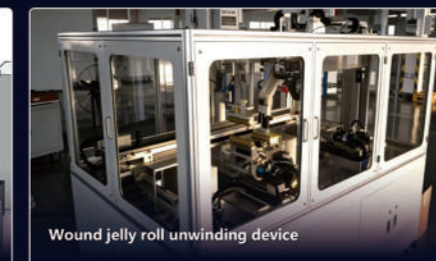
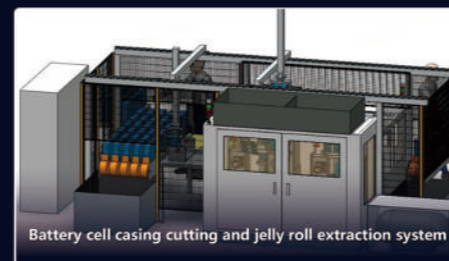
North Star Advanced Recycling Technology (Qingdao) Co., Ltd.

North Star Recycling delivers technology-driven, integrated low-carbon solutions for end-of-life lithium-ion batteries. We provide complete battery recycling solutions—from collection to material regeneration—enabling clients to build world-leading recycling plants.

Partners: Partnering with top-tier research institutions and industry partners to drive innovation



Products



beichen@ns-recycling.com

www.ns-recycling.com
+86 532 89080136

