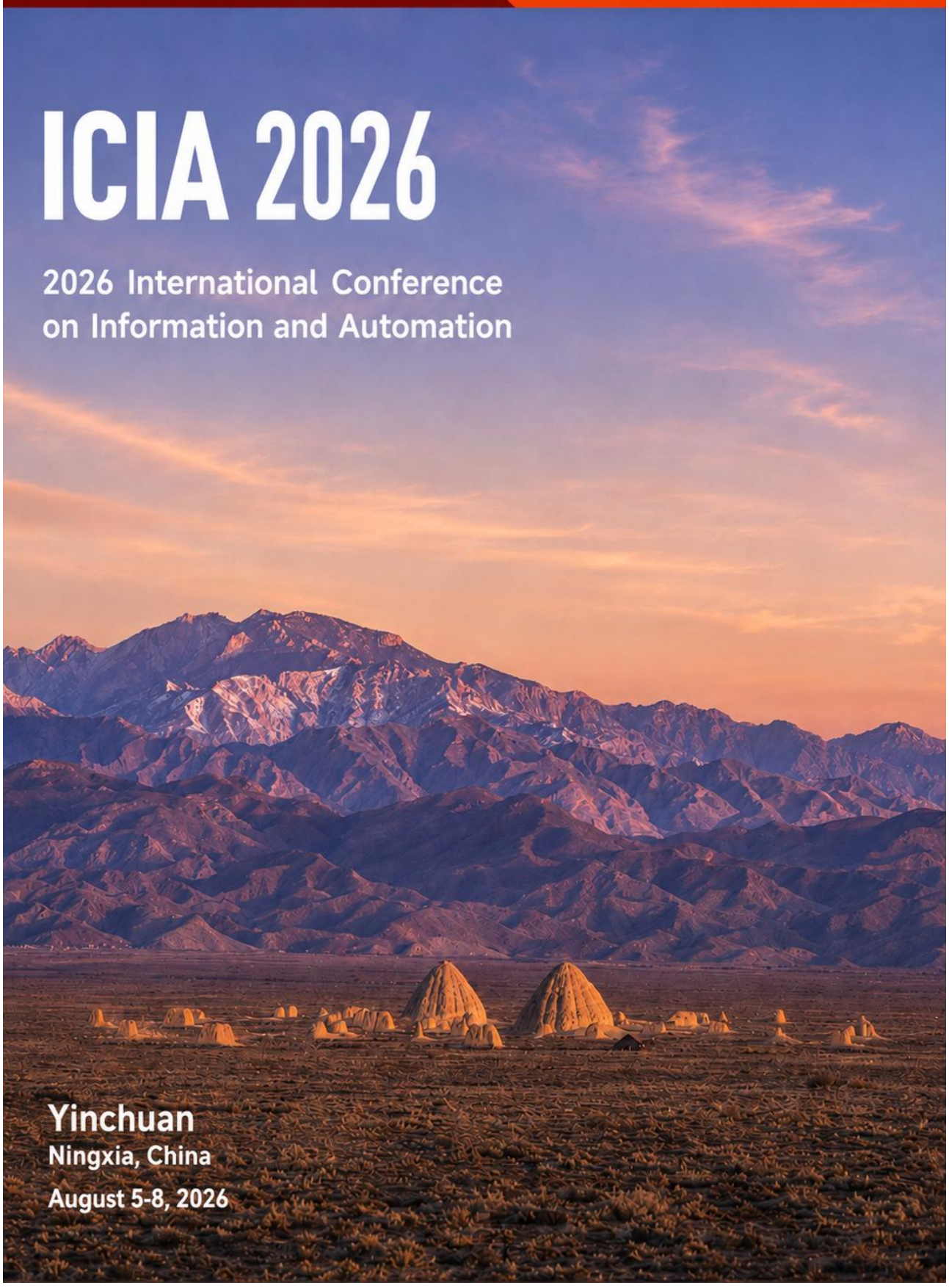
PROGRAM DIGEST

ICIA 2026

2026 International Conference on Information and Automation



Yinchuan
Ningxia, China
August 5-8, 2026

ICIA 2026 Program at a Glance

Thursday, August 6, 2026			
09:00-18:00	Registration (Look for location information in the hotel lobby)		
14:00-14:10	Welcome Ceremony		
14:10-14:50	Plenary Session I Multi-Agent Systems – Issues, Design and Challenges Prof. SHI Peng, University of Adelaide, Australia		
14:50-15:30	Plenary Session II Driving the Future of Transport: Communication-Efficient and Cyber-Secure Coordination Control Prof. HAN Qing-Long, Swinburne University of Technology, Australia		
15:30-15:50	Tea and Coffee Break		
15:50-16:20	Keynote Session I Privacy-Preserving Control and Decision-Making Prof. MA Qian, Nanjing University of Science and Technology, China		
16:20-16:50	Keynote Session II Applications of Autonomous Underwater Vehicle in Submarine Hydrothermal Fields Prof. CAI Wei, Southern University of Science and Technology, China		
16:50-17:20	Keynote Session III Robotic Flexible Disassembly Technology and Applications for Retired EV Battery Packs Prof. ZHOU Xuefeng, Guangdong Academy of Sciences, China		
18:00-20:00	Dinner at Restaurant		
Friday, August 7, 2026			
Time \ Room	Room 1	Room 2	Room 3
08:00-09:30	Award Session FA 1-1	Regular Session FA 2-1	Regular Session FA 3-1
09:30-10:00	Tea and Coffee Break		
10:00-11:30	Award Session FB 1-2	Regular Session FB 2-2	Regular Session FB 3-2
12:00-14:00	Lunch at Restaurant		
Time \ Room	Room 1	Room 2	Room 3
14:00-15:30	Regular Session FC 1-3	Regular Session FC 2-3	Regular Session FC 3-3
15:30-16:00	Tea and Coffee Break		
16:00-17:30	Regular Session FD 1-4	Regular Session FD 2-4	Regular Session FD 3-4
18:00-20:30	Banquet (Grand Ballroom)		

2026 International Conference on Information and Automation (ICIA 2026)

August 5-8, 2026
Yinchuan, Ningxia, China

Conference Program Digest

Sponsored by

IEEE Robotics and Automation Society

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Shandong University

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WELCOME

On behalf of the Organizing Committee, we extend our warmest welcome to all delegates attending the International Conference on Information and Automation (ICIA 2026) in Yinchuan, Ningxia, China, from August 5 to 8, 2026. As a premier forum for advancing robotics, automation, and intelligent systems research, ICIA continues to bridge global innovations with industrial and academic excellence.

Sponsored by the IEEE Robotics and Automation Society, the 18th event of the ICIA conference series, the 2026 International Conference on Information and Automation (ICIA 2026) will be held in Yinchuan, China, August 5-8, 2026. The conference offers a medium for researchers and practitioners to exchange and explore issues and opportunities in electrical and computer engineering research and development from China and around the world. Accepted ICIA 2026 papers will be indexed by EI and included in IEEE Xplore.

ICIA 2026 promises to offer participants a great experience with excellent technical and social programs. High quality papers reporting original research results and innovations in all aspects of information, automation, artificial intelligence, robotics, image processing, computer vision, DSP, BME and related areas as well as their applications are invited. Beyond the conference, we invite you to explore Yinchuan, Ningxia, China.

We wish you an exceptional ICIA 2026 experience!

SONG Rui
General Chair

CHEN Zheng
Program Chair

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MENG Lingxiao, SUSTech, China

YAN Tingcui, SUSTech, China

General Information

Conference Venue

Sheraton Yinchuan.
No 155, Houhai Road, Jinfeng District, Yinchuan, Ningxia, China, 750000

银川喜来登酒店
中国宁夏银川市金凤区后海路 155 号 邮政编码 750000

Tel: +86-13895490988
Web: https://www.marriott.com.cn/hotels/incsi-sheraton-yinchuan/overview/

Language

The conference and all its activities will be conducted in English.

Conference Secretariat

YAN Tingcui
Contact E-mail: ieeeicia@163.com
Contact Tel: +86 (0755) 8801-5894

Dietary Needs

Conference delegate or partner with special dietary needs etc. is invited to indicate his/her special dietary needs to the organizing committee at the Registration Desk.

Conference Registration

Venue
Sheraton Yinchuan, Yinchuan

Time

Thursday	Aug. 6, 2026	09:00-18:00
Friday	Aug. 7, 2026	08:00-20:30

Banquet

Date: August 7, 2026 Time: 18:00-20:30 Venue: Grand Ballroom

Yinchuan Travel Guide

Yinchuan, the capital of Ningxia Hui Autonomous Region, is a historic oasis city on the upper reaches of the Yellow River and an important gateway between China's Central Plains and the northwest. Framed by the Helan Mountains to the west and nourished by Yellow River irrigation to the east, the city has long been known as a fertile "Jiangnan beyond the Great Wall." Yinchuan brings together Western Xia heritage, Hui culture, desert scenery, vineyards, lakes, and modern urban development, offering visitors a distinctive blend of history, nature, and Silk Road charm.

Ningxia Helan Mountain National Forest Park (宁夏贺兰山国家森林公园).

Located on the eastern slope of the Helan Mountains, this national forest park is one of Yinchuan's most representative natural landmarks. The mountain range forms a dramatic natural barrier between the Ningxia Plain and the Alxa Plateau, with rugged cliffs, deep valleys, pine forests, and wide views over the city and the desert edge. Visitors can enjoy cool mountain air, hiking routes, cableway views, and encounters with the distinctive landscapes that shaped the region's ecology and history. The park is also close to ancient rock-art sites, making it a memorable place to experience both northwest China's natural grandeur and its early cultural traces.

The Western Xia Mausoleum (西夏陵).

Known as the "Oriental Pyramids," the Western Xia Mausoleum is the imperial burial complex of the Western Xia Dynasty, which ruled parts of northwest China from the 11th to 13th centuries. Spread across the foothills of the Helan Mountains, the site contains royal tombs, companion tombs, rammed-earth towers, and archaeological remains that reveal the unique architecture, writing system, religion, and political culture of the Tangut people. The vast desert backdrop gives the mausoleum a solemn and powerful atmosphere, while the museum and exhibition areas help visitors understand Yinchuan's role as the heartland of this once-flourishing civilization.


China West Film Studio (镇北堡西部影城).

Built on the ruins of old frontier fortresses in Zhenbeibao, China West Film Studio is one of China's best-known film locations and a lively cultural attraction near Yinchuan. Its weathered walls, dusty streets, watchtowers, inns, and courtyard sets recreate the atmosphere of China's northwest frontier and have appeared in numerous classic Chinese films and television productions. Today, visitors can walk through familiar movie scenes, try costume photography, explore themed streets, and experience a playful blend of cinema, history, and desert-town imagination.

Transportation Information

The conference venue is Sheraton Yinchuan, No 155, Houhai Road, Jinfeng District, Yinchuan, Ningxia, China, 750000.

- 9.4 km from Yinchuan Railway Station;

- 17 km from Yinchuan Bus Station;

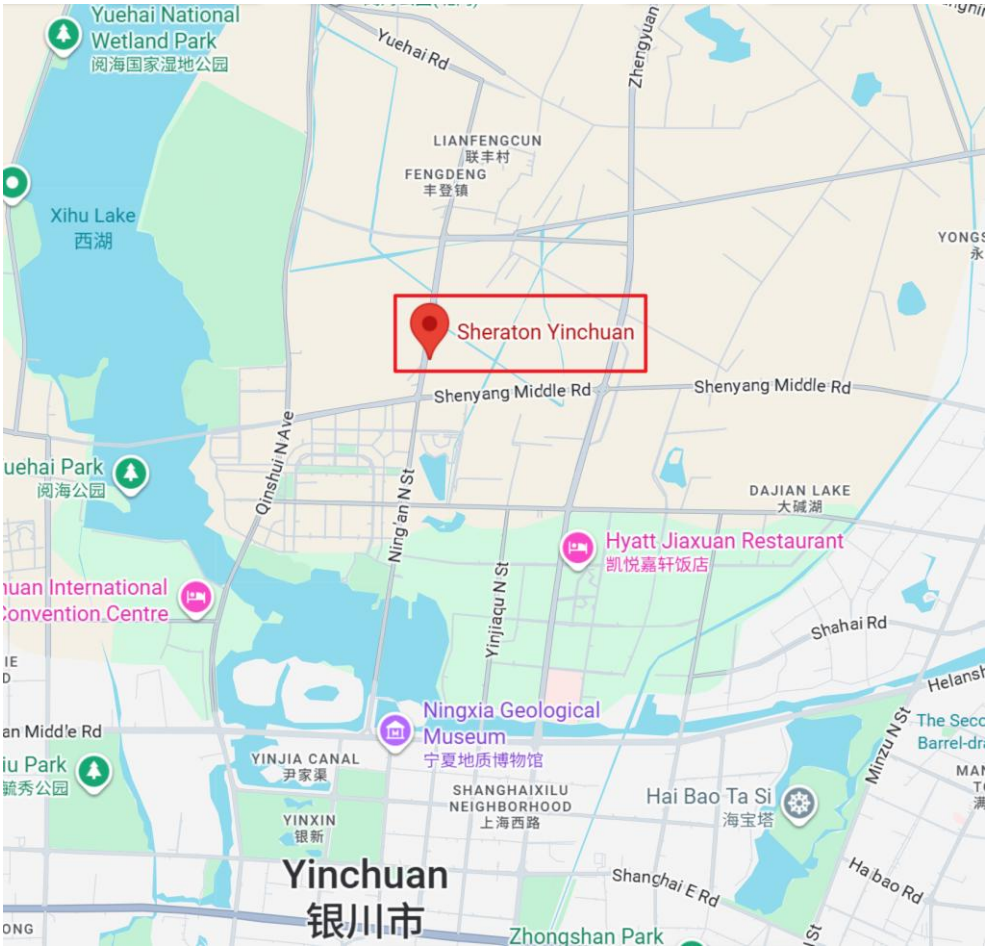
- 39 km from Yinchuan Hedong International Airport;

- Accommodation: Sheraton Yinchuan, Contact: +86-13895490988;

- Accommodation: HOLIDAY INN EXPRESS YINCHUAN YUEHAI, Contact: +86-15109679202;

- Accommodation link: https://www.wjx.cn/vm/mhgc5x9.aspx.

Location of the Hotel



Program Schedule

Thursday, August 6, 2026

09:00-18:00	Registration (Look for location information in the hotel lobby)
14:00-14:10	Welcome Ceremony
14:10-14:50	Plenary Session I, Grand Ballroom, Chair: Rui Song
14:50-15:30	Plenary Session II, Grand Ballroom, Chair: Rui Song
15:30-15:50	Tea and Coffee Break
15:50-16:20	Keynote Session I, Grand Ballroom, Chair: Zheng Chen
16:20-16:50	Keynote Session II, Grand Ballroom, Chair: Zheng Chen
16:50-17:20	Keynote Session III, Grand Ballroom, Chair: Zheng Chen
18:00-20:00	Dinner at Restaurant

Friday, August 7, 2026

08:00-09:30	FA 1-1 (Room 1); FA 2-1 (Room 2); FA 3-1 (Room 3)
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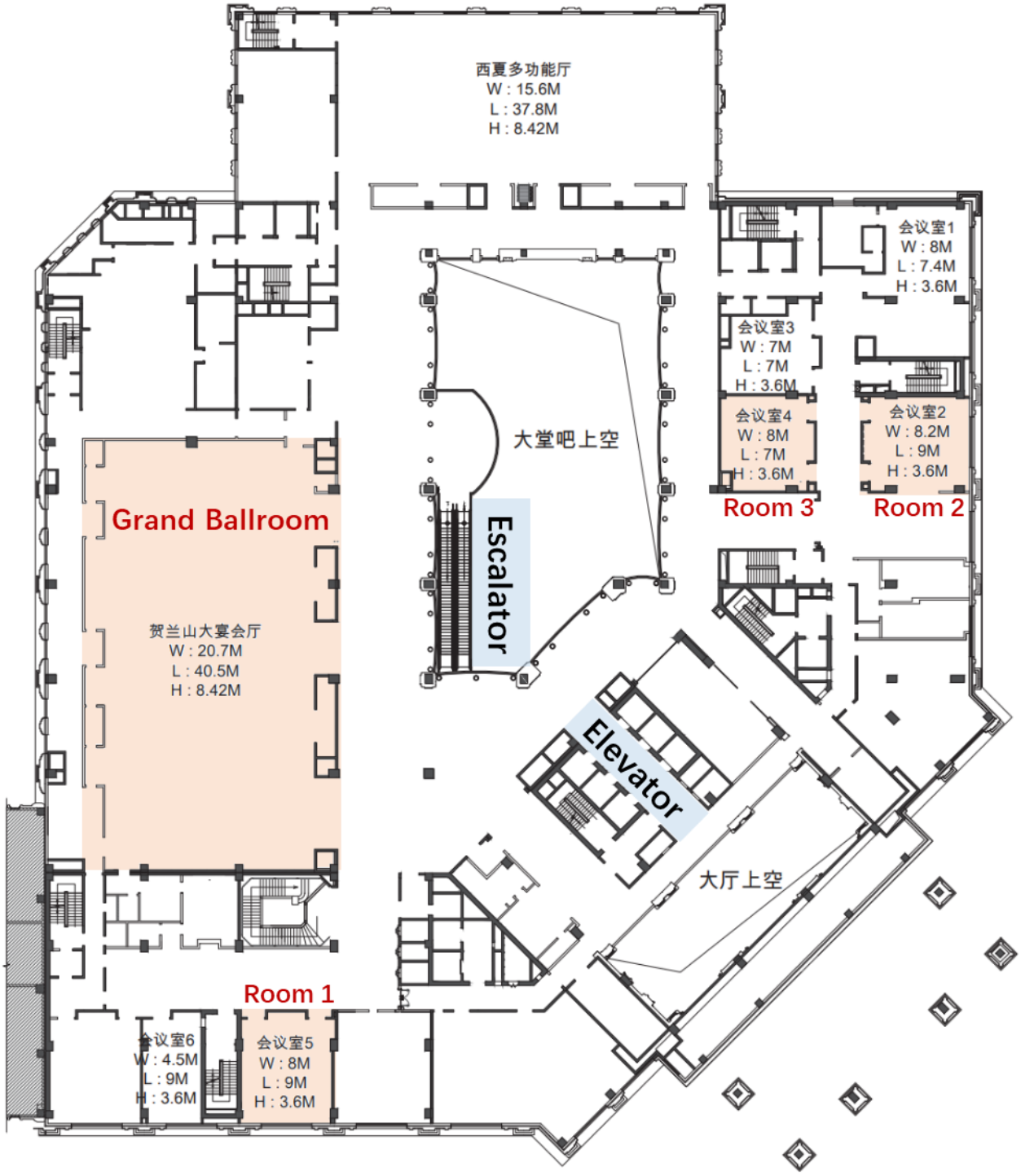
15:30-16:00	Tea and Coffee Break
16:00-17:30	FD 1-4 (Room 1); FD 2-4 (Room 2); FD 3-4 (Room 3)
18:00-20:30	Banquet (Grand Ballroom)

Floor Plan of Meeting Rooms

Plenary and keynote sessions will be held at Grand Ballroom.

Oral sessions will be held in Room 1, Room 2, and Room 3.

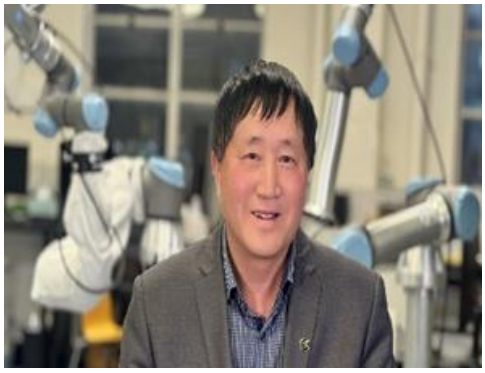


Second Floor (Level 2)

Plenary Session I

14:10-14:50, Thursday, August 6

Grand Ballroom



Professor SHI Peng

Adelaide University, Australia

Peng Shi is a Distinguished Professor, Leader in Systems and Control, and Director of both the Laboratory of Advanced Unmanned Systems and the Laboratory of Cyber-Physics-Human Systems at Adelaide University, Australia.

His research interests span systems and control theory, with applications to autonomous and robotic systems, intelligent systems, network systems, and cyber-physical systems. His work has been globally recognized with numerous prestigious distinctions. These include the IEEE Lotfi Zadeh Award for Emerging Technologies (2027); the IEEE Lotfi Zadeh Pioneer Award and IEEE Norbert Wiener Award (SMCS, 2025 and 2024); the Annual Scientific Award and the Ramesh Agarwal Lifetime Achievement Award from the International Engineering and Technology Institute (IETI, 2024 and 2023); and the M. A. Sargent Medal (Engineers Australia, 2022).

Additionally, he has been named a Highly Cited Researcher in both engineering and computer science (Web of Science, 2014–2025) and recognized as the Most Cited Researcher in Electrical and Electronic Engineering (Times Higher Education, 2018). He has also earned a place on the Lifetime Achiever Leaderboard and as a Field Leader (The Australian Research Review, 2019–2024). His institutional accolades include the Stephen Cole the Elder Award for Excellence in Research Supervision and the Outstanding Research Achievement Award from the University of Adelaide (2025 and 2020), as well as the Chancellor's Gold Medal for Outstanding Research Performance from Victoria University (2018).

Professor Shi's extensive professional service includes roles as a member of the Fellow Evaluation Committee, Nomination Committee, Award Committee, Board of Governors, Vice President, and Distinguished Lecturer for the IEEE SMC Society, and General Chair for International Conferences. He is a Fellow of the Australian Academy of Technological Sciences and Engineering, and an International Fellow of the Engineering Academy of Japan, the Academy of Europe, the European Academy of Sciences and Arts, and the Academy of Romanian Scientists. He is also a Fellow of the IEEE, IET, IEAust, CAA and IETI. Currently, he serves as the Editor-in-Chief of IEEE Transactions on Cybernetics, a Senior Editor of IEEE Access, and an Associate Editor for Automatica and IEEE Transactions on Artificial Intelligence.

Multi-Agent Systems - Issues, Design and Challenges

Abstract: Multi-Agent Systems (MAS) are characterized by communication, coordination, and collaboration among agents, enabling the collective achievement of complex and demanding objectives with greater effectiveness and efficiency. Although MAS offer significant advantages and have been widely applied across diverse domains, they continue to face critical challenges, particularly in resilient communication, safe cooperation, and adaptability to dynamic and uncertain environments. This talk explores real-world applications of MAS, with a focus on autonomous

systems, and examines the key challenges arising in open and dynamic settings. It further presents the analysis and design of novel cooperative control strategies aimed at addressing these challenges. Experimental case studies are used to validate the proposed methodologies and to evaluate their practical performance. Finally, the talk discusses potential technological breakthroughs over the next five years, highlighting MAS as a foundational paradigm in the ongoing advancement of autonomous systems and robotics.

Plenary Session II

14:50-15:30, Thursday, August 6

Grand Ballroom

Professor HAN Qing-Long

Swinburne University of Technology, Australia

Professor Han is currently Pro Vice-Chancellor (Research Quality) and a Distinguished Professor at Swinburne University of Technology, Melbourne, Australia. He held various academic and management positions at Griffith University, Central Queensland University, Australia, Southern Illinois University Edwardsville, USA, and École Nationale Supérieure d'Ingénieurs de Poitiers, France. His research interests include networked control systems, multi-agent systems, time-delay systems, smart grids, unmanned surface vehicles, and neural networks.

Professor Han was awarded the 2024 IEEE Dr.-Ing. Eugene Mittelmann Achievement Award (Highest Achievement Award in Industrial Electronics), the 2024 Chinese Association of Automation (CAA) Science and Technology Achievement Award (the CAA's Highest Achievement Award in Automation, Information and Intelligent Science), the 2021 Norbert Wiener Award (the Highest Achievement Award in Systems Science and Engineering, and Cybernetics), and the 2021 M. A. Sargent Medal (the Highest Achievement Award of the Electrical College Board of Engineers Australia). He was the recipient of the Journal of Systems Science and Complexity Best Paper Award in 2023, the IEEE Systems, Man, and Cybernetics Society Andrew P. Sage Best Transactions Paper Award in 2019, 2020, and 2022, respectively, the IEEE/CAA Journal of Automatica Sinica Norbert Wiener Review Award in 2020, the IEEE Transactions on Industrial Informatics Outstanding Paper Award in 2020, and the IET Control Theory and Applications Premium (Best Paper) Award in 2020 and 2016, respectively.

Professor Han is a Member of the Academia Europaea (The Academy of Europe). He is a Fellow of the International Federation of Automatic Control (FIFAC), a Fellow of the Institute of Electrical and Electronics Engineers (FIEEE), a Fellow of the Asian Control Association (FACA), an Honorary Fellow of the Institution of Engineers Australia (HonFIEAust), and a Fellow of the Chinese Association of Automation (FCAA). He is a Highly Cited Researcher in both Engineering and Computer Science (Clarivate). He has served as an AdCom Member of IEEE Industrial Electronics Society (IES), a Member of IEEE IES Fellows Committee, a Member of IEEE IES Publications Committee, Chair of IEEE IES Technical Committee on Network-Based Control Systems and Applications, and the Co-Editor-in-Chief of IEEE Transactions on Industrial Informatics. He is currently the President-Elect, an Executive Board Member, and a Steering Committee Member of the Asian Control Association (ACA). He is currently the Vice-President of the Chinese Association of Automation (CAA). He is currently the Editor-in-Chief of IEEE/CAA Journal of Automatica Sinica.

Driving the Future of Transport: Communication-Efficient and Cyber-Secure Coordination Control

Abstract: The evolution of intelligent transportation systems hinges on the seamless integration of connected and automated technologies, yet challenges in communication efficiency and

cybersecurity remain critical barriers to their widespread adoption.

This Keynote Address explores innovative solutions to drive the future of transport, focusing on two pivotal research domains: communication-efficient coordination control and cyber-secure coordination control for connected automated vehicle (CAV) platoons and connected railway systems. The Keynote Address begins with a concise overview of connected automated transport, followed by an in-depth exploration of key design and implementation challenges in such systems. Novel event-triggered coordination control strategies that dynamically schedule vehicle-to-vehicle and train-to-train communication are then presented, enhancing communication resource efficiency by reducing unnecessary data exchanges while preserving precious bandwidth resources. These mechanisms adapt to real-time network conditions, ensuring efficient platooning for CAVs and virtual coupling for railways. Additionally, resilient and secure control techniques designed to withstand, detect, and mitigate cyber threats are discussed, safeguarding the integrity of networked transportation systems against various cyber-attacks such as denial-of-service and data falsification and replaying. Drawing on theoretical advancements, simulation results, and practical implications, this speech highlights how these advancements pave the way for a safer, more efficient, and resilient transportation ecosystem, addressing the pressing demands of future mobility. Finally, concluding remarks are drawn and some emerging challenges in the field are envisioned.

Keynote Session I

15:50-16:20, Thursday, August 6

Grand Ballroom

Professor MA Qian

Nanjing University of Science and Technology, China

Ma Qian is a Zijin Distinguished Professor and doctoral supervisor at Nanjing University of Science and Technology. She received her Ph.D. degree in Control Science and Engineering from Nanjing University of Science and Technology in 2013. She has been selected as a Young Scholar and Distinguished Professor under the Chang Jiang Scholar Program of the Ministry of Education. She has led key projects of the National Natural Science Foundation of China and the Jiangsu Provincial Outstanding Youth Fund. Her research focuses on control and decision-making in autonomous unmanned systems, as well as privacy protection and data security. She has received the Second Prize of the National Natural Science Award, the First Prize of the Natural Science Award from the Ministry of Education, the First Prize of the Jiangsu Provincial Natural Science Award, the First Prize of the Natural Science Award from the Chinese Association of Automation, and the Young Scientist Award from the Chinese Association of Automation.

Privacy-Preserving Control and Decision-Making

Abstract: With the advancement of technologies such as artificial intelligence and the Internet of Things, the need for data privacy protection is widespread in control and decision-making processes across both national defense and civilian domains, including weapon guidance, attack-defense games, intelligent transportation, and brain-computer interfaces. Information leakage and theft within control systems often lead to severe consequences, even affecting national security. This report focuses on control and decision-making under privacy protection. It introduces data privacy protection and privacy-preserving methods, as well as preliminary research progress by our team in dynamic asymptotic stabilization based on homomorphic encryption and distributed decision-making based on differential privacy.

Keynote Session II

16:20-16:50, Thursday, August 6

Grand Ballroom

Professor CAI Wei

Southern University of Science and Technology, China

Wei Cai is an associate professor at the Institute of Oceanography at Southern University of Science and Technology. He is the young chief scientist under the National Key Research and Development Program, the member of the National Technical Committee for Submersible Standardization, the outstanding young talents recruited under Guangdong Province's Zhujiang Program. He is also the director of the center for deep-sea technology and engineering, the deputy director of the laboratory of marine robotics and propulsion systems, and the distinguished expert at the Shenzhen association for the promotion of the Global Marine Center City. He previously served as director of the Ocean Museum at Shenzhen Ocean University.

Applications of Autonomous Underwater Vehicle in Submarine Hydrothermal Fields

Abstract: The report focuses on the applications of autonomous underwater vehicle (AUV) in submarine hydrothermal fields. Firstly, the development status of AUVs for hydrothermal exploration at home and abroad is introduced. Then, the representative application requirements in the hydrothermal field such as topography, water environment and geophysical field detections and sample collection are proposed. The great achievements in submarine hydrothermal fields by Chinese Qianlong AUVs are also demonstrated. Finally, the technical development tendency of AUV to promote hydrothermal fields research and sulfide resources exploration in the future is prospected.

Keynote Session III

16:50-17:20, Thursday, August 6

Grand Ballroom

Professor ZHOU Xuefeng

Guangdong Academy of Science, China

Zhou Xuefeng is a researcher and deputy director at the Institute of Intelligent Manufacturing, Guangdong Academy of Sciences. Also concurrently serves as the executive director of the Intelligent Robots and Equipment Center of the National Innovation Center for the Guangdong-Hong Kong-Macao Greater Bay Area. He received Ph.D. from South China University of Technology in 2011, with primary research interests in robotic manufacturing technologies and intelligent control of robots. He has won more than 10 awards including the IEEE ROBIO Best Paper Award，the Guangdong Science and Technology Award, and the Best Award of the China Robotics Academic Annual Conference. Poster Award, and was selected as a high-level talent in the Guangdong Province Program.

Robotic Flexible Disassembly Technology and Applications for Retired EV Battery Packs

Abstract: Retired EV battery packs contain diverse irregular components, hierarchical internal structures, and complex assembly connections. Traditional manual disassembly is labor-intensive, risky, inefficient, and inconsistent, making it difficult to meet the requirements of large-scale, refined, and intelligent recycling. This report focuses on the demand for efficient and safe recycling of used battery packs of new energy vehicles, independently developed a dual-arm robot flexible disassembly system for the irregular components of used battery packs, proposed a visual recognition and positioning model integrating disassembly topological relationships and a disassembly sequence planning method integrating spatial geometry, gravity, friction force and the operability constraints of the robot, and achieved the refined disassembly of the battery packs. The related technologies have been verified in typical whole-pack disassembly tasks of used battery packs, providing technical support for the robotic disassembly of used battery packs.

Symbols for Technical Sessions

Symbols for Days of a Week

T = Thursday
F = Friday

Symbols for Session Times Slots

Session A = 08:00-09:30

Session B = 10:00-11:30

Session C = 14:00-15:30

Session D = 16:00-17:30

Symbols for Room Assignments

Room ID	Room
Room 1	Room 1, Second Floor
Room 2	Room 2, Second Floor
Room 3	Room 3, Second Floor

Oral Sessions Information

Award Session (FA 1-1), Room 1, August 7, 2026

Session Chair: Pengyu Wang, Hao Cheng

ID	Time	Title and Authors
221	8:00-8:15	**CogNav: Vision-Language Model Guided Cognitive World Model for Robust Robot Navigation** *Liu, Zhe; Guo, Anqi; Wang, Hesheng**
228	8:15-8:30	**Tool Reasoning and Heterogeneous Functional-Point Planning for Bimanual Robotic Disassembly** *Li, Yawen; Shi, Wenjing; Yang, Lin; Kong, Shaohua; Wang, Junyang; Zhang, Jiangming; Zhou, Xuefeng; Ye, Beifa; Wu, Hongmin**
215	8:30-8:45	**A Two-stage Multi-task VLM Framework for Infrastructural Health Condition Monitoring** *Zeng, Xianlin; Ma, Shuo; Li, Teng*; Pan, Yuxin; Wang, Chaoqun*
96	8:45-9:00	**Reinforcement Learning Navigation with Structured LiDAR Perception and Obstacle Perception Network** *Wu, Lv; Wang, Wenlong*; Liu, Yiwen; Gu, Jianjun*
65	9:00-9:15	**Global Output Feedback Dynamic Quantized Control for Nonlinear Systems** *Meng, Qingtan; Ma, Qian**
207	9:15-9:30	**Research on Dual-Arm Manipulation Methods for Deformable Fabrics** *Cao, Zhijun; Xiao, Leibing; Zhao, Zhongqiang; Fu, Tianyu; Wang, Chaoqun; Song, Rui**
223	9:30-9:45	**Gradient Descent-based Adaptive Impedance Control Strategy for a Hip Exoskeleton** *Cao, Wujing*; Wu, Fan; Zhu, Xinbo; Li, Peihua; Yin, Meng; Xu, Sheng; Wu, Xinyu*

Regular Session (FA 2-1), Room 2, August 7, 2026
Session Chair: Xuheng Gao, Lujia Wang

ID	Time	Title and Authors
195	8:00-8:10	**VLGN-USV: Vision-Language Landmark-Guided Frontier Navigation for Unmanned Surface Vehicles** *Wang, Lujia*; Liu, Xianbang; Qin, Yikai; Wang, Yijia*
196	8:10-8:20	**RA-PPO: Coupling Residual Architectures and Adaptive Optimization for Robust Humanoid Locomotion** *Wu, Qingtian*; Yan, Xiaohu; Yang, Ou; Yang, Jinfeng*
81	8:20-8:30	**IA-SVO: Interaction-Aware Asymmetric Social Velocity Obstacles for Crowd Navigation** *Tong, Tie; Zhang, Yizhou; Chen, Siyuan; Chi, Wenzheng*; Sun, Chengfeng*
97	8:30-8:40	**Research on Improved DWA Obstacle Avoidance Algorithm for Mobile Robots Based on Dynamic Obstacle Prediction** *Pan, Lu**
132	8:40-8:50	**Cross-Domain Path Planning for Amphibious Robots with Clustered Task Sequencing and Dimension-Adaptive Reinforcement Learning** *Li, Qijun; Han, Haotian*; Sun, Qiurong; Nie, Xiaokai*
218	8:50-9:00	**ITG-Net: Variational Information Bottleneck for Causal Feature Disentanglement in Agricultural Visual Navigation** *Liu, Bolong*; Zhao, Rongqiang; Wang, Qiang; Liu, Jie*
182	9:00-9:10	**Design & Testing of a Downhole Robot for In-pipe Inspection with Liquid Flow** *Zhang, Xuping**
184	9:10-9:20	**Reinforcement Learning-Based Glasius Bio-inspired Neural Network Multi-Target Navigation** *dela Cruz, Luicito; Lei, Tingjun; Luo, Chaomin*; Jan, Gene-Eu; Yang, Erfu*
127	9:20-9:30	**Path Optimization for Wheeled Robots in Post-Disaster Environments Based on Dead Reckoning and Semantic-Triggered Trajectory Pruning** *Guan, Zimeng**

Regular Session (FA 3-1), Room 3, August 7, 2026
Session Chair: Teng Chen, Kai Guo

ID	Time	Title and Authors
161	8:00-8:10	**Asymmetric Geometry and Phase Distillation for Safety-Constrained World-Model-Based Quadrupedal Traversal over Structured Terrains** *Liu, Hao; Liu, Junhan; Jiang, Han; Lu, Guanglin; Wen, Guoxing; Li, Bin**
125	8:10-8:20	**Task-space–based Generation Method for Wheeled Humanoid Robots Whole-Body Coordination Control** *Yang, Baoxu**
63	8:20-8:30	**Execution Step Optimization for ACT-Based Imitation Learning on Low-Cost Serial Bus Robotic Arms** *Sun, Shengya; Zhong, Qitian; Wang, Chao*; Wang, Xu; Huang, Xiaohan; Chen, Longmiao*
117	8:30-8:40	**Perception on Demand: Event Triggered World Model for Efficient and Robust Legged Locomotion** *Wang, Jiquan*; Wang, Caiyi; Ding, Chao; Chen, Teng*
68	8:40-8:50	**A Supervision-Aware Evaluation of CONCH Representations for Label-Efficient and Cross-Resolution Gastric Histopathology Classification** *Wang, Jinhui; Wong, PakKin; Chan, InNeng; Yao, Liang*; Guan, Fangliang; Yang, Cui; Zhang, Peng; Zhao, Baoliang; Su, Jingran; Zuo, Xiuli*
114	8:50-9:00	**Robot Stiffness Identification Based on Multi-directional Force Loading** *Wang, Deqing; Guo, Kai*; Wu, Yifan; Zheng, Dongdong; Liu, Yixiang; Song, Rui*
135	9:00-9:10	**A Linear Variable Stiffness Actuator Based on Cam and Leaf Spring Mechanism** *Wang, Caidong; Zhou, Xinfeng; Xu, Yapeng*; Guo, Kai; Zhan, Hong; Shu, Dayu*
165	9:10-9:20	**Dynamic Modeling and Input Shaping for Vibration Suppression of Flexible-Link Manipulator** *Wang, JiaYu; Guo, Kai*; Li, Longtao; Liu, Yixiang; Zheng, Dongdong; Song, Rui*
47	9:20-9:30	**CIA-SmolVLA: Canonical Instruction Alias Normalization for Lexical Robustness Recovery in SmolVLA** *Zhang, Yifan**

Award Session (FB 1-2), Room 1, August 7, 2026
Session Chair: Rong Liu, Jinglan Tian

ID	Time	Title and Authors
101	10:00-10:15	**Contact-Aware Predictive Control of Magnetic Soft Continuum Robots for Vascular Intervention** *Wang, Chen; Song, Zhibo; Gui, Meijiang; Xie, Xiaoliang; Liu, Shiqi; Hou, Zengguang; Zhou, Xiaohu**
217	10:15-10:30	**PRISM: Explainable Zero-Shot HOI Detection via Primitive Decomposition** *Ge, Hongru; Ding, Yi; Pan, Zhiqiang; Tang, Xinyue; Feng, Zhiquan; Tian, Jinglan**
200	10:30-10:45	**Admittance Control with Hindsight Experience Replay Reinforcement Learning for Autonomous Ultrasound Scanning** *Xuan, Qifan; Chen, Guoan; Wang, Yongxuan; Liu, Rong**
130	10:45-11:00	**Residual-Driven Sensor Anomaly Detection and Exclusion for Robust Magnetic Tracking Systems** *Chen, Ziyi; Zeng, Zhenxing; Chen, Weiting; Song, Zhixu; Wei, Yizhi; Yuan, Sishen; Su, Shijian**
4	11:00-11:15	**Powered Knee-Ankle Prosthesis with Accurate Environmental Perception: Self-Calibration of Kinematic Parameters to Unify the Benchmark of Robot-Vision-Environment** *Guo, Yixuan*; Chen, Chuheng; Zhang, Jiashuo; Leng, Yuquan; Fu, Chenglong*
64	11:15-11:30	**Model Predictive Control-Based In-Hand Tactile Servoing of Weakly Rigid Objects** *Li, Changle; Shan, Yihan; Xu, Zhantao; Zhang, Xuehe; Fang, Yu*; Liu, Yubin; Liu, Gangfeng; Zhao, Jie*
113	11:30-11:45	**Integrating Vision-Language Perception and Retrieval-Augmented Generation for Agent-driven Robotic Manipulation** *Guo, Linting; Wang, An*; Ma, Yan; Zhou, Rulin; Xu, Mengya; Ren, Hongliang*

Regular Session (FB 2-2), Room 2, August 7, 2026
Session Chair: Changsheng Li, Xiao Jia

ID	Time	Title and Authors
108	10:00-10:10	**A Pose Estimation Method Based on KLT-MSAC Joint Tracking and Contour Gradient Refinement In Underground Coal Mines** *Wang, Zihe*; Sun, Wenzhuo; Yuan, Zekai; Zhang, Jianfu*
100	10:10-10:20	**Line Laser Point Cloud Surface Defect Detection Algorithm Based on Hierarchical Progressive Denoising and Kalman Cross-Frame Fusion** *Zhang, Fusen*; Zhang, Zhongyue; Huan, Jiale; Xue, Yiming; Li, Changsheng; Duan, Xingguang*
194	10:20-10:30	**Vision-Language Graph Matching and Text-Guided Image Segmentation** *Yan, Xinyue; Peng, Hao; Lu, Yushan; Xie, Chenshu; Zhao, Xuyang; Jia, Xiao**
38	10:30-10:40	**Hierarchical Semantic Reasoning for Efficient Object Search in Unknown Household Environments** *Zhou, Xianfu; Tian, Guohui*; Shao, Xuyang; Wang, Aoqi*
131	10:40-10:50	**Dual-View Self-Healing for Robotic Scrub Nurse via Lightweight LLM Planning** *Wu, Yahao*; Zhou, Keyu; Zhang, Zhibo; Tong, Zhongkun; Li, Shunlei*
90	10:50-11:00	**SurgMamba: A Lightweight Mamba-Based Vision-Language Framework for Surgical Visual Question Answering** *Li, Lianliang*; Li, Xue; Li, Changsheng; Duan, Xingguang*
103	11:00-11:10	**Momentum Regression-Based Inertial Parameter Identification for Heavy Industrial Robots with Hydro-Pneumatic Counterbalancing Systems** *Liu, Haochen; Guo, Kai*; Jia, Wenhao; Liu, Yixiang; Zheng, Dongdong; Song, Rui*
84	11:10-11:20	**Construction and Application of Intelligent Intelligence Large Model Platform Based on Multimodal Fusion in China Post** *Liu, Dan*; He, Liqun; Liu, Zhiyong; Xu, Ruwei; Wang, Jiafei; Jing, Mengchun*
216	11:20-11:30	**Machine Vision-Based Dynamic Droplet Spreading Measurement Using Deep Learning Segmentation** *Chen, Chengkun*; Yan, Zidan; Guan, Yanyan; Zhang, Bo*

Regular Session (FB 3-2), Room 3, August 7, 2026
Session Chair: Guoteng Zhang, Changsheng Li

ID	Time	Title and Authors
89	10:00-10:10	**Optimal Eye-to-Hand Visual Servoing of Continuum Robots under Joint Constraints** *Yao, Jia; He, Bingwei; Deng, Zhen*; Zhang, Jianwei*
126	10:10-10:20	**Learning Stair Negotiation Skills for Wheeled-Legged Humanoid Robots with Jumping and Contact-Triggered Climbing** *Yang, Yaning*; Yang, Baoxu; Wang, Yu; Zhang, Guoteng; Chen, Teng; Rong, Xuewen*
122	10:20-10:30	**Physics-Based Imitation Learning for Human-Like Humanoid Sitting and Standing** *Liu, Junhan; Liu, Hao; Man, Luxin; Jiang, Han; Guo, Xin; Li, Bin**
180	10:30-10:40	**VeMamba: An Efficient State Space Model Framework for Vehicle Re-Identification** *Yang, Yifei; Ou, Yongsheng**
128	10:40-10:50	**A Study on Heterogeneous Acceleration for Dynamics Computation of Serial Robots** *Yin, Zhijian*; Wang, Kaifeng; Zhang, Zekun; Guo, Kai; Liu, Yixiang; Song, Rui*
6	10:50-11:00	**Design of a Compact Hydraulic Actuating Unit and Feedforward Motion Controller for a Three-Chamber Underwater Soft Robotic Arm** *Peng, Shiyi; Lei, Yu; Zhang, Zipeng; Qi, Manzhi; Chen, Zheng; Lyu, Litong**
118	11:00-11:10	**Experimental Modeling of Industrial Robot Friction Considering Temperature and Load Torque** *Wu, Yifan; Guo, Kai*; Wang, Deqing; Liu, Yixiang; Zheng, Dongdong; Song, Rui*
93	11:10-11:20	**Safe Teleoperation in Nuclear Environments: A Passivity-Assured Robust Gravity Compensation Scheme** *Xue, Yiming*; Huan, Jiale; Zhang, Zhongyue; Zhang, Fusen; Li, Changsheng; Duan, Xingguang*
136	11:20-11:30	**Lightweight Super-Resolution Network for UAV Oblique Photography with Integrated Low-Light Enhancement** *Hao, Wenyuan*; Chen, Meixi; Liu, Wenliang; Lee, Chiawen*

Regular Session (FC 1-3), Room 1, August 7, 2026
Session Chair: Guoliang Liu, Hongyi Qiu

ID	Time	Title and Authors
78	14:00-14:10	**An Anti-Swing and Obstacle Avoidance Method for Bridge Cranes** *Li, Fanzhe*; Liu, Guoliang; Ma, Xin; Liu, Tiantian; Rong, Hailin; Tian, Guohui*
88	14:10-14:20	**A Downsampling-Prediction-based Real-Time Zero-Phase Filtering Method for Precision Control** *Hou, Bingyang; Wang, Ze*; He, Zhiru; Hu, Chuxiong; Zhu, Yu*
171	14:20-14:30	**BIM-Assisted Robot Localization: Evaluating Point Cloud Filtering Algorithms for NDT Registration** *Zeng, Lingdong*; Jiang, Qianyuan; Sun, Chenzhao; Guo, Shaui; Tao, Zhongxing*
213	14:30-14:40	**An Investigation of Dual-Droplet Impact and Spreading Dynamics Using the Volume of Fluid (VOF) Method** *Guan, Yanyan*; Zhang, Bo; Chen, Chengku*
92	14:40-14:50	**Precision Motion Control of Valve-Controlled Hydraulic Winch System for Active Heave Compensation** *Qiu, Hongyi; Liu, Jiajia*; Chen, Jiajun; Su, WeiHong; Liu, Zihao; Nie, Yong; Chen, Zheng*
74	14:50-15:00	**Multipath Observation Correction for Ground-Based Navigation Using Post-Fit Residuals and Code-Minus-Carrier Consistency** *He, Chengyan; Wang, Yumo*; Zhang, Zhaolin; Sun, Yandong; Wang, Ling*
76	15:00-15:10	**Traction Performance Calculation of Long-Stator DFLM for High-Speed Maglev Applications** *Kuang, Renguang*; Jiang, Bowen; Zhong, Zaimin*
69	15:10-15:20	**Fault Diagnosis of Automotive DC Motors with Imbalanced Data: Based on WGAN-GP-SECNN** *Cui, Ye**
225	15:20-15:30	**Design and Experimental Study of a Micro Piezoelectric Ultrasonic Motor with a diameter of 1 mm** *Li, Zeshi; Yang, Zhengbao**

Regular Session (FC 2-3), Room 2, August 7, 2026
Session Chair: Yifei Yang, Yixiang Liu

ID	Time	Title and Authors
115	14:00-14:10	**Improved EV Charging Socket Detection with DySample, SimAM and RFAConv** *Zaw, Nyein*; Wang, Qiang*
98	14:10-14:20	**A Local Transformer-Mamba Network for Defect Segmentation in Cast Workpiece Point Clouds** *Zhang, Qimin*; Wang, Qiang; Liu, Jiaxuan; Jin, Jing*
75	14:20-14:30	**Dual-Scale RT-DETR for Real-Time Detection of Small-Scale Reservoir Boundary Markers in Complex Backgrounds** *Yang, Yifei*; Liu, Guoliang; Li, Yingxiu; Wang, Peng; Yan, Xianfeng*
116	14:30-14:40	**Dynamic Modeling and Parameter Identification of Industrial Robots With Parallelogram Structure** *Shen, Wenyuan; Guo, Kai*; Yang, Sutong; Liu, Yixiang; Zheng, Dongdong; Song, Rui*
67	14:40-14:50	**An Improved YOLO-Based Battery Cell Defect Detection Method with RefConv and iAFF** *Wu, Jinlong*; Liu, Yixiang; Guo, Haihua; Li, Yibin*
186	14:50-15:00	**A Hybrid Offline-Online Path Correction Algorithm for CMM Scanning of Complex Surfaces with Sparse Input Points** *Miao, Song; Feng, Zhiqiang; Jing, Yinhaoyu; Liang, Shuang; Luo, Ruiyang; Wang, Ze**
5	15:00-15:10	**Research on Robust Pallet Pose Recognition Algorithm Based on Instance Segmentation** *Bai, Xinlong*; Dong, Quancheng*
99	15:10-15:20	**A Bio-Inspired Multi-Scale Object Detection Method Based on Visual Cortex Mechanisms** *Jing, Mengchun*; Di, Ruohai; Zhang, Juncai*
62	15:20-15:30	**End-to-End Pixel-Level Diffusion for Fine-Grained Underwater Sonar 3D Reconstruction** *Zhang, Zhengyan; Lu, Yanze; Hu, Haochen; Wang, Bing*; Lin, Jinghua; Li, Jiamin; Liu, Meimei; Wen, Chih-yung*

Regular Session (FC 3-3), Room 3, August 7, 2026
Session Chair: Yuanlong Li, Yujie Xu

ID	Time	Title and Authors
183	14:00-14:10	**A Multi-Robot Goal-Directed Cognitive Map Model with Tangent Bug Algorithm** *Hicks, Matthew; Gregory, Noah; Lei, Tingjun; Luo, Chaomin*; Jan, Gene-Eu*
166	14:10-14:20	**A Composite Low-and-High Gain Adaptive Sliding Mode Control for Formation-Containment of UAV Fleets Subject to Input Saturation** *Wu, Xiongjun*; Li, Yuxiang; Ma, Liang; Li, Yuanlong*
106	14:20-14:30	**PCHA: Passage Conditioned Hierarchical Attention for Multi-Agent Coordination** *Zhang, Yizhou; Tong, Tie; Sun, Chengfeng; Chi, Wenzheng**
102	14:30-14:40	**Privacy-Preserved Optimal Synchronization Control for General Linear Multiagent Systems via Isomorphism Transformation** *Chen, Yaohui; Jin, Peng*; Ma, Qian; Huang, Jinhua; Li, Youneng; Luo, Xiao*
151	14:40-14:50	**Safe Formation-Containment Control of Heterogeneous Systems via Adaptive Integral Sliding Mode and APF** *Wu, Xiongjun*; Li, Yuxiang; Ma, Liang; Li, Yuanlong*
43	14:50-15:00	**Persistent Coverage by Multiple Underwater Gliders: A Study of Coordination Architectures** *Liu, Jiayi; Wang, Xinling; Zhou, Zifeng; Wu, Jingyi; He, Rui; Fan, Shuangshuang**
85	15:00-15:10	**Multi-Robot Task Allocation for Dynamic Warehousing** *Li, Wei; Peng, Xiaojia*; Kang, Hongbo*
226	15:10-15:20	**Composite Trajectory Tracking Control for Surface Vessels Based on Sliding-Mode LMPC and Genetic Algorithm** *Chen, Yidan; Xu, Yujie*; Fu, Mingyu; Feng, Zhiguang*
227	15:20-15:30	**Formation Maneuver Control of Underactuated Unmanned Surface Vehicles Under Relative Displacement Measurements** *Dong, Lijing*; Wang, Wei; Fan, Zhipeng; Xu, Yujie; Bao, Duanhua; Fu, Mingyu*

Regular Session (FD 1-4), Room 1, August 7, 2026
Session Chair: Jian Li, Xin Wang

ID	Time	Title and Authors
44	16:00-16:10	**An Interference-Resilient Array-Based Flexible Pressure Sensing System for In-Bed Posture Recognition** *Mo, Yadong*; Lv, Minghan; Zhang, Ziqi; Wang, Jiahe; Chen, Pengyu; Lv, Deng'ao; Ma, Xin; Wei, Shimin; Li, Jian*
94	16:10-16:20	**Kinematic-Informed TPMixer-BiLSTM-Attention Network for Knee Angle Prediction Using sEMG Signals** *Zhong, Jinyong*; Wang, Zhuo; Wu, Xinyu; Chen, Chunjie*
77	16:20-16:30	**Automatic Tracking and Targeting System Based on Ultrasonic Radar in Complex Indoor Environments** *Wu, Jun*; Pu, Yanzhao; Yan, Minghao; Yan, Zeqi*
112	16:30-16:40	**Multimodal Physiological Signal Textualization for Shooting Performance Prediction and Training Feedback via Large Language Models** *Tao, Wenchen**
95	16:40-16:50	**Finger-Level Decoding in Brain-Computer Interfaces via Rhythmic Motor Imagery** *Wei, Yuxuan*; Meng, Jianjun*
169	16:50-17:00	**DOA Estimation Method for Coherent Weak Signal Sources with Arbitrary Number of Strong Jamming** *Wu, Xiongjun*; Sun, Yinzhen; Ma, Liang; Li, Yuxiang; Li, Yuanlong*
52	17:00-17:10	**A Simulation Study on Denoising Auditory Brainstem Response via Adaptive Kalman Filtering** *Wang, Xin*; Wang, Yingying; Tan, Qiyun; Qu, Fei; Ji, Junyu; Aboyeji, Sunday Timothy; Zhang, Haoshi; Fang, Peng; Chen, Shixiong; Li, Guanglin*
206	17:10-17:20	**Freehand Ultrasound 3D Reconstruction and Registration of Bone Tissue** *Hu, Xiaoyang*; Chen, Runwei; Shen, Yanlong; Zhao, Chen; Zhang, Xue; Kuang, Shaolong; Zhang, Lihai*

Regular Session (FD 2-4), Room 2, August 7, 2026
Session Chair: Rui Tang, Yixuan Yuan

ID	Time	Title and Authors
58	16:00-16:10	**Domain-Aware Point Cloud Completion using Visual and Tactile Perception for Robotic Grasping** *Luan, Feng; Wang, Zhipeng; Cheng, Bin; Yue, Jiguang; Zhou, Yanmin*; He, Bin*
79	16:10-16:20	**Robotic Grasp Pose Estimation for Tubular Workpieces via Zero-Shot Segmentation and Point Cloud Registration** *Tao, Jiawang*; Chen, Chao; Jin, Ligang; Wang, Yanhong; Li, Weihua; Zhong, Ji; Gao, Meizhou; Song, Rui*
91	16:20-16:30	**Diffusion Model for Occluded Branch Depth Estimation Using RGB-D Images** *Lin, Zeqin*; Li, Yilin; Gao, Xinyi; He, Yong; Logunov, Lev; Kappassov, Zhanat; Liu, Qian; Yi, Zhengkun*
83	16:30-16:40	**Low-overlap Point Cloud Registration with Intraoperative Stereo Vision and Preoperative CT Image for Orthopedic Surgical Navigation** *Ma, Weihao*; Zhang, Zijun; Zhang, Peng; Yao, Liang; Zhao, Baoliang; Yang, Yuanyuan; Hu, Ying*
133	16:40-16:50	**FenestraNet: A Mask-Guided Dual-Branch 3D Contrastive Network for CBCT-Based Tooth Fenestration Detection** *Kong, Detian*; Liu, Keyuan; Li, Ang; Yuan, Yixuan; Yang, Yanqi; Meng, Max Q.-H.*
204	16:50-17:00	**SRA-Med: Semantic Relation Alignment for Medical Image Classification** *Jia, Xiao*; Zhao, Xuyang; Lu, Yushan; Zhang, Wenjie; Yan, Xinyue*
72	17:00-17:10	**Real-time 2D-3D Ultrasound Rigid Registration with Adaptive Cross-dimensional Linear Attention** *Zhao, Chaolu; Gao, Xuchun; Tian, Yuhan; Lei, Long; Yao, Liang; Zhao, Baoliang*; Zhang, Yue; Liu, Ping*
82	17:10-17:20	**GeoCFNet: Geometry-Aware Confidence Field Network for Robot-Assisted Endoscopic Submucosal Dissection** *Tang, Rui*; Wang, Guankun; Bai, Long; Yin, Haochen; Gao, Huxin; Lai, Jiewen; Wang, Jiazheng; Ren, Hongliang*
205	17:20-17:30	**Physics-Informed Robotic Ultrasound Simulation: CT-to-US Translation via Biomechanical Strain and Diffusion Models** *Qian, Yizhao; Luo, Jiayuan; Yuan, Yixuan; Meng, Max Q.-H.; Liu, Li**

Regular Session (FD 3-4), Room 3, August 7, 2026
Session Chair: Mingxing Yuan, Ligang Jin

ID	Time	Title and Authors
123	16:00-16:10	**Automatic Calibration of Dual Robotic Arms Based on Adaptive Pose Planning in Constrained Spaces** *Yuan, Shengnan*; Yuan, Mingxing; Peng, Xin; Wang, Haowen; Zhang, Xuebo*
124	16:10-16:20	**Development of a Palm-Sized Robotic Manta Ray for Multi-Modal Locomotion** *Li, Yating; Wu, Zhengxing*; Tan, Min*
70	16:20-16:30	**Trajectory Extraction for Robotic Assembly of Irregular Tubular Components via Point Cloud Skeletonization** *Zhang, Xiaoran*; Tao, Jiawang; Gao, Yuyang; Jin, Ligang; Song, Rui; Zhong, Ji*
80	16:30-16:40	**Pose Correction and Anti-Fall Control of A Rooftop PV Cleaning Robot Based on Visual Grid Angle Calculation** *Wang, Quanjiang*; Ban, Wei; Zeng, Hanwei; Wu, Jun; Meng, Hu; Wang, Xiaoyan*
142	16:40-16:50	**Decoupling Control of a Magnetic Capsule Robot for Gastric Biopsy** *Zhou, Zheng*; Zhang, Lice; Wang, Guokai; Song, Shuang*
66	16:50-17:00	**Robotic PACT Probe with Dual-Mode Illumination and Autonomous Calibration for Image-Guided Surgery** *Yang, Rui; Wu, Xingdong; Luo, Yuwei; Yu, Xianghu; Liu, Junjie; Liu, Li**
60	17:00-17:10	**Design and Control of a Tethered Capsule Robot for Gastric Examination** *Zhang, Lice*; Zhou, Zheng; Wang, Guokai; Wang, Jiaole; Song, Shuang*
224	17:10-17:20	**Fiber-Bragg-Gratings-Inspired Electronic One-Wire Sensor Matrix** *Zhu, Dekuan; Yang, Zhengbao**

ICIA 2026 Program at a Glance

Thursday, August 6, 2026			
09:00-18:00	Registration (Look for location information in the hotel lobby)		
14:00-14:10	Welcome Ceremony		
14:10-14:50	Plenary Session I Multi-Agent Systems – Issues, Design and Challenges Prof. SHI Peng, University of Adelaide, Australia		
14:50-15:30	Plenary Session II Driving the Future of Transport: Communication-Efficient and Cyber-Secure Coordination Control Prof. HAN Qing-Long, Swinburne University of Technology, Australia		
15:30-15:50	Tea and Coffee Break		
15:50-16:20	Keynote Session I Privacy-Preserving Control and Decision-Making Prof. MA Qian, Nanjing University of Science and Technology, China		
16:20-16:50	Keynote Session II Applications of Autonomous Underwater Vehicle in Submarine Hydrothermal Fields Prof. CAI Wei, Southern University of Science and Technology, China		
16:50-17:20	Keynote Session III Robotic Flexible Disassembly Technology and Applications for Retired EV Battery Packs Prof. ZHOU Xuefeng, Guangdong Academy of Sciences, China		
18:00-20:00	Dinner at Restaurant		
Friday, August 7, 2026			
Time \ Room	Room 1	Room 2	Room 3
08:00-09:30	Award Session FA 1-1	Regular Session FA 2-1	Regular Session FA 3-1
09:30-10:00	Tea and Coffee Break		
10:00-11:30	Award Session FB 1-2	Regular Session FB 2-2	Regular Session FB 3-2
12:00-14:00	Lunch at Restaurant		
Time \ Room	Room 1	Room 2	Room 3
14:00-15:30	Regular Session FC 1-3	Regular Session FC 2-3	Regular Session FC 3-3
15:30-16:00	Tea and Coffee Break		
16:00-17:30	Regular Session FD 1-4	Regular Session FD 2-4	Regular Session FD 3-4
18:00-20:30	Banquet (Grand Ballroom)		