

ICBIR 2026

2026 International Conference on
Biomimetic Intelligence and Robotics

Zhongwei, Ningxia, China
August 8-11, 2026

2026 International Conference on Biomimetic Intelligence and Robotics (ICBIR 2026)

August 8–11, 2026

Zhongwei, Ningxia, China

Sponsored by

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Shenzhen Key Laboratory of Robotics and Artificial Intelligence



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Welcome

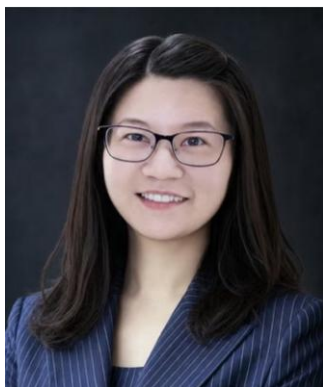
On behalf of the Organizing Committee, we are delighted to welcome you to Zhongwei, Ningxia, China for the 2026 International Conference on Biomimetic Intelligence and Robotics (ICBIR 2026), taking place from August 8 to 11, 2026.

ICBIR 2026 brings together researchers and practitioners working across artificial intelligence, robotics, biomimetics and their real-world applications. We are honoured to welcome our plenary and keynote speakers, Prof. LINGHU Enqiang, Prof. SHI Peng, Prof. XU Chao, Prof. LUO Chengwen, Prof. GUO Xiaoyu and Prof. MA Yuexin, whose contributions will enrich the conference programme.

We sincerely thank all members of the Organizing Committee, the Programme Committee, reviewers, speakers, authors and supporting colleagues for their dedication to this conference. Their efforts have made it possible to assemble a programme of scholarly exchange, discussion and collaboration.

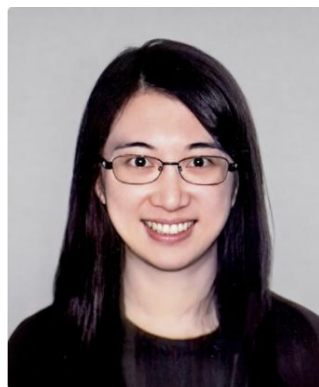
We encourage you to make the most of the conference, reconnect with colleagues, form new partnerships and enjoy your stay in Zhongwei.

We wish you a productive and memorable ICBIR 2026 experience!



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General Chair



JIA Xiao

Program Chair



MIN Zhe

Program Chair

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General Information

Conference Venue

Hampton by Hilton Zhongwei Shapotou

Building 1, Ziyunxindu Plaza, East Gulou Street, Zhongwei, 755000, China

中卫沙坡头希尔顿欢朋酒店

中国宁夏中卫市沙坡头区鼓楼东街紫云新都时尚商业广场 1 号楼

Tel: **+86 955 859 9999**

Web: <https://www.hilton.com.cn/zh-cn/hotels/zhyzghx-hampton-by-hilton-zhongwei-shapotou>

Conference Dates & Location

August 8–11, 2026; Zhongwei, Ningxia, China

Conference Secretariat

Contact E-mail: icbir2026@163.com

Conference Website: <https://www.icbir.org/>

Language

The conference programme, sessions and conference materials are conducted in **English**.

Conference Registration

Venue: Hotel lobby, Hampton by Hilton Zhongwei Shapotou

Time: Sunday, August 9, 2026, 09:00–18:00

Please look for the conference registration desk in the hotel lobby. Participants are encouraged to collect their conference materials before the opening programme.

Banquet

Date and Time: Monday, August 10, 2026, 18:00–20:30

Venue: To be announced by the Organizing Committee.

Zhongwei Travel Guide

Zhongwei is located in Ningxia, northwestern China, where the Yellow River meets the edge of the Tengger Desert. The city offers a distinctive combination of river scenery, desert landscapes and local cultural heritage. Participants are encouraged to allow additional time before or after the conference to explore the region responsibly and to check opening hours and entry requirements before travel.

Shapotou Scenic Area (沙坡头景区)

Shapotou is one of Zhongwei's best-known attractions, combining Yellow River scenery with the dunes of the Tengger Desert. Located about 16–20 km west of downtown Zhongwei, Shapotou is a national 5A-rated scenic area sitting at the southeastern edge of the Tengger Desert, right where the desert meets the Yellow River. It is famous for the striking contrast between golden sand dunes and the winding river below, and is often described as combining "the grandeur of northwestern desert scenery with the gentle beauty of a southern river landscape."

The area offers a wide range of activities: sand-sliding down steep dune slopes (one of China's largest natural sand-sliding grounds), riding traditional sheepskin rafts on the Yellow River, crossing the river on the famous "Yellow River Rope Bridge," camel riding, desert off-road (dune buggy) tours, and viewing ancient waterwheels that once irrigated the surrounding farmland. Sunset and sunrise over the dunes are particularly popular photo opportunities.



Tengger Desert (腾格尔沙漠)

The Tengger Desert forms the natural backdrop of the Zhongwei area. Desert excursions should be arranged through licensed local operators. Carry water, sun protection and appropriate footwear, and follow all local guidance on access and weather conditions.



Gao Miao (高庙)

Gao Miao is a historic temple complex in central Zhongwei. It provides a convenient option for participants wishing to experience local religious architecture and urban heritage during a shorter visit.



Travel Notes

August can be warm and dry during the day, with cooler temperatures in the evening. Lightweight sun-protective clothing, a light outer layer, comfortable walking shoes and personal hydration are recommended. Please respect local customs and follow guidance at cultural and natural sites.

Transportation Information

Arriving in Zhongwei

Participants may arrive via Zhongwei Shapotou Airport (ZHY), Zhongwei South Railway Station, or Zhongwei Railway Station. Taxi and ride-hailing services are recommended for travel to the hotel. Please show the hotel name and address below to the driver when needed:

Hampton by Hilton Zhongwei Shapotou

Building 1, Ziyunxindu Plaza, East Gulou Street, Zhongwei, 755000, China

中卫沙坡头希尔顿欢朋酒店,中国宁夏中卫市沙坡头区鼓楼东街紫云新都时尚商业广场1号楼

From the Airport or Railway Station

Use the official taxi queue or a reputable ride-hailing service. For a late arrival, it is advisable to confirm the hotel address and estimated fare before departure. Participants who need a receipt for reimbursement should request it at the end of the journey.

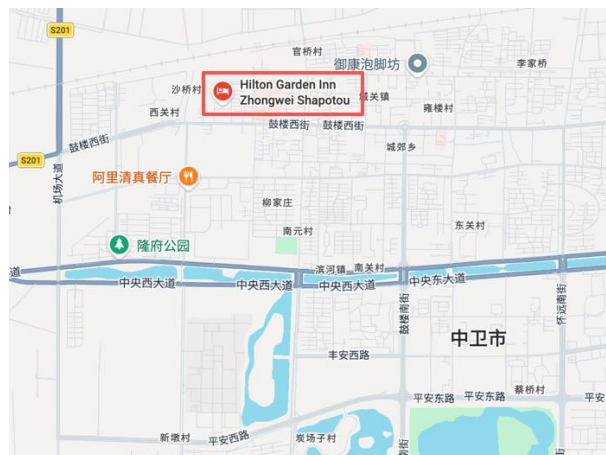
Conference Shuttle

No conference shuttle timetable has been published. Please arrange your local transport independently unless a later notice from the Organizing Committee states otherwise.

Accommodation

The conference venue is Hampton by Hilton Zhongwei Shapotou. The ICIBIR 2026 website provides a room-booking QR code.

Hotel Location Map



Program Schedule

Sunday, August 9, 2026

09:00–18:00	Registration (Look for location information in the hotel lobby)
09:00–12:00	BIROB Editorial Board Meeting, Room 3, Fifth Floor
14:00–14:10	Welcome Ceremony
14:10–14:50	Plenary Session I (Room 5002-5005)
14:50–15:30	Plenary Session II (Room 5002-5005)
15:30–16:10	Plenary Session III (Room 5002-5005)
16:10–16:20	Tea and Coffee Break
16:20–16:50	Keynote Session I (Room 5002-5005)
16:50–17:20	Keynote Session II (Room 5002-5005)
17:20–17:50	Keynote Session III (Room 5002-5005)
18:00–20:00	Dinner at Restaurant

Monday, August 10, 2026

08:00–09:45	MA 1-1 (Award); MA 2-1 (Regular)
09:45–10:00	Tea and Coffee Break
10:00–11:45	MB 1-2 (Award); MB 2-2 (Regular)
12:00–14:00	Lunch at Restaurant
14:00–15:40	MC 1-3; MC 2-3 (Regular Sessions)
18:00–20:30	Banquet

Plenary Session I

14:10–14:50, Sunday, August 9, 2026

Professor LINGHU Enqiang



Enqiang Linghu is a Professor, Chief Physician and Doctoral Supervisor. He currently serves as Director of the Department of Gastroenterology at the First Medical Center of Chinese PLA General Hospital, Director of Beijing Key Laboratory of Digital Diagnosis and Treatment Research and Development for Super-Minimally Invasive Surgery, Chairman of the Gastroenterology Physicians Branch of Chinese Medical Doctor Association, Former Chairman of the Digestive Endoscopy Branch of Chinese Medical Association, and Chairman of the Gastroenterology Expert Committee of the National Health Commission for Capacity Building and Continuing Education. He is the recipient of the Wu Jieping Medical Innovation Award in 2019, and was honored as one of China's Top 10 Medical Experts with Outstanding Contributions in 2023. As the Chief Scientist of the National Key Research and Development Program for both the 13th and 14th Five-Year Plan periods, he has won the ACG International Award from the American College of Gastroenterology three times, along with the Second Prize of the National Science and Technology Progress Award, the First Prize of the Military Science and Technology Progress Award, and the First Prize of the Beijing Science and Technology Progress Award, among other academic honors.

The Field of Super-Minimally Invasive Surgery: A Key Development

Direction for Artificial Intelligence and Surgical Robots

Abstract: Super-minimally invasive surgery establishes diagnostic and therapeutic routes through natural body cavities, multi-compartment pathways, tunnel access and micro-access, with the aim of preserving organ structure and function while treating lesions precisely. This talk discusses how artificial intelligence can support preoperative imaging, lesion localisation and individualised surgical-path planning; how surgical robots can enhance manipulation accuracy and protection of critical structures; and how intelligent systems can contribute to postoperative risk prediction and full-cycle management. The integration of AI and surgical robotics is presented as a key direction for precision, function-preserving surgery.

Plenary Session II

14:50–15:30, Sunday, August 9, 2026

Distinguished Professor SHI Peng



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).

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.

Cyber-Physical Systems: Issues, Design and Opportunities

Abstract: Cyber-physical systems (CPS), including smart grids and intelligent transportation systems, are complex systems in which tightly integrated software and hardware components work together to accomplish well-defined tasks. While such integration enables high performance and efficiency, it also significantly increases system vulnerability by creating more opportunities for cyber-attacks, which may lead to serious economic, societal, and human consequences. Consequently, cybersecurity has emerged

as a critical challenge in the design and operation of CPS.

This talk examines CPS security from an attacker's perspective. It begins with an overview of CPS fundamentals, key security issues, and representative research on cyber-attacks. The talk then presents our recent work on the design of stealthy hybrid attacks on CPS, demonstrating how coordinated cyber-attacks can be executed to maximize system performance degradation while reducing the likelihood of detection. By exposing these attack mechanisms, the work underscores the need for more effective, efficient, and resilient defense strategies capable of detecting intrusions and ensuring that CPS operate in a secure, reliable, and desired manner.

Plenary Session III

15:30–16:10, Sunday, August 9, 2026

Professor XU Chao



Chao Xu is a Professor and doctoral supervisor at the College of Control Science and Engineering, Zhejiang University, as well as Director of Zhejiang University Huzhou Institute. He founded FAST Lab and Propulsion Innovation Lab (π Lab) at Zhejiang University. Focusing his research on Physical & Embodied Intelligence, he conducts interdisciplinary investigations centered on deep-learning control architectures and intelligent robotic control frameworks.

Dr. Xu is selected as a leading talent of Zhejiang Provincial Ten-Thousand Talents Program and received the Frontier Science Award at the 2024 International Conference on Fundamental Science. He has led the formulation of IEEE international standards for intelligent UAVs. His swarm robotics developments were exhibited in the national Forging Ahead in a New Era achievement showcase and have been permanently collected by the National Museum of China. His research outputs have been featured by mainstream media including CCTV and Science and Technology Daily. He has published a series of high-impact works in top-tier journals such as Science Robotics, Nature Machine Intelligence and Nature Communications, and has consecutively been included in Elsevier's ranking of the World's Top 2% Scientists.

He currently serves as Director of Zhejiang Provincial Concept Verification Center for Logistics Equipment AI and Embodied Intelligence, and Director of Zhejiang Provincial Engineering Research Center for Intelligent Mobile Unmanned Systems. He holds editorial appointments as Managing Editor of the SCI journal Journal of Industrial and Management Optimization, as well as the founding Executive Editor-in-Chief of the ESCI publication IET Cyber-Systems & Robotics.

Diving into the Real-World with Robotic Systems: Optimization Computing

Challenges in Learning and Adaptation in a Real-world

Abstract: Autonomous robotic inspection in harsh environments (forests, underground spaces, nuclear plants and caves) faces tough challenges in real-time planning, robust perception and efficient optimization. This talk introduces a suite of field-verified multi-modal robotic solutions from ZJU FAST Lab that connect theoretical optimization advances to real-world deployment. We present TOP, a GPU-parallel trajectory optimization method achieving near-constant computation time for fast quadrotor

navigation in dense wild spaces. FLAP, an FOV-aware active perception planner, enables safe mapless 3D exploration by incorporating risk metrics and LiDAR viewing constraints. We further propose PIDAO, a physics-inspired PID optimizer rooted in mechanical dynamics, offering stable convergence for robot learning and large model training with open-source implementations. We also discuss LLM-driven robot pipelines for natural language command parsing and autonomous exploration. Our systems have been deployed for forest inventory, nuclear facility inspection and cave exploration. We conclude with unresolved challenges including fluid-robot coupling, multi-robot coordination and edge real-time optimization for next-generation robust inspection robots.

Keynote Session I

16:20–16:50, Sunday, August 9, 2026

Professor LUO Chengwen



Dr. Chengwen Luo is a Distinguished Professor at the School of Artificial Intelligence, Shenzhen University. He concurrently serves as the Vice Dean of the Research Institute of Science and Technology Development, Assistant Dean of the School of Artificial Intelligence, and Director of the Industrial Big Data Research Center at the National Engineering Laboratory for Big Data System Computing Technology. He received his Ph.D. from the National University of Singapore and completed his postdoctoral research fellowship at the University of New South Wales.

His primary research interests encompass multi-modal intelligent perception and human-machine collaboration. As a principal investigator, he has led numerous high-profile research initiatives, including the National Natural Science Foundation of China (NSFC) Excellent Young Scientists Fund, the NSFC Key Project of Regional Joint Funds, the National Key R&D Program of China, as well as NSFC General and Young Scientists Programs. In addition to his research, he serves on the editorial boards of prestigious international academic journals, including ACM Computing Surveys. His academic contributions have been recognized with several distinguished awards, including the First Prize of the Science and Technology Progress Award from the Chinese Association of Automation (CAA), the First Prize of the Wu Wenjun Artificial Intelligence Science and Technology Progress Award, the First Prize of the Natural Science Award from the Guangdong Artificial Intelligence Industry Association, and the ACM SIGMOBILE China Rising Star Award, etc.

Perception Generalization and Intelligent Collaboration in Complex

Environments

Abstract: This report explores the paradigms of perception generalization and intelligent collaboration within complex environments, focusing on three core dimensions. First, cross-modal and cross-domain perception aims to achieve multi-source information fusion and seamless cross-scenario generalization. Second, heterogeneous system collaborative decision-making investigates mechanisms to foster efficient, complementary collective intelligence among diverse entities, including humans, machines, and physical objects. Third, collaborative security planning centers on constructing explainable, trustworthy, and robust frameworks to safeguard the collaborative process. Ultimately, this report offers critical insights for engineering a new generation of intelligent systems characterized by high adaptability, collaborative efficiency, and robust reliability.

Keynote Session II

16:50–17:20, Sunday, August 9, 2026

Professor GUO Xiaoyu



Xiaoyu Guo is currently an Assistant Professor in the Department of Mechanical Engineering at City University of Hong Kong. He received his B.Eng. degree from Beihang University, his M.Phil. (with Distinction) from the University of Cambridge, and his Ph.D. from the University of Manchester. He is a recipient of the First Award (innovation) of China Association of Invention, Gold Award at the International Exhibition of Inventions Geneva, and the Grand Award at the Asia Exhibition of Innovations and Inventions. He has published over 50 papers in international journals including Nature Communications, IEEE Transactions on Automatic Control, and IEEE/ASME Transactions on Mechatronics, and has been granted over 30 invention patents. He currently serves as associate editor for IEEE Transactions on Industrial Informatics, IEEE Transactions on Systems, Man, and Cybernetics: Systems, and Unmanned Systems. His research interests include sustainable robotic systems and bio-inspired sensing and control.

Towards ‘Embodied Energy’: Coordinated Flight and Energy Management of Hydrogen-Hybrid UAVs

Abstract: With the global initiative towards low-altitude economy and carbon neutrality, the hydrogen-battery hybrid energy system has emerged as a promising solution for long-endurance flight with characteristics including high energy density, strong dynamic response, and zero carbon emissions. This report focuses on enabling safe and autonomous flight of hydrogen-powered UAVs in complex environments via integrated management of the flight and energy subsystems, and application of hydrogen-powered UAVs in low-altitude applications such as aerial logistics and aerial monitoring. Finally, perspectives on bio-inspired ‘embodied energy’ robotic systems, such as the ‘Polar-hydrogen 1’, the first reported hydrogen-powered aircraft to fly in Antarctica, is introduced.

Keynote Session III

17:20–17:50, Sunday, August 9, 2026

Professor MA Yuexin



Yuexin Ma is Tenured Associate Professor at ShanghaiTech University. She received her Ph.D. from the University of Hong Kong. Her research focuses on 3D vision, embodied intelligence, and autonomous driving. She has authored over 100 papers in top-tier journals and conferences of relevant fields, including more than 50 first-author and corresponding-author publications such as TPAMI, CVPR, ICCV, ICML, AAAI, etc. Her Google Scholar citations exceed 9,000. Papers supervised by her won the Best Paper Award (Single Recipient) at MICCAI 2024 and were selected as Best Paper Candidates at ACM MM 2024. Her honors include Shanghai Overseas High-Level Talent, First-Class Prize of Shanghai Excellent Teaching Achievement, Outstanding Young Researcher Award at China 3DV 2025, and inclusion in the World's Top 2% Scientists List

Embodied AI for Complex and Dynamic Scenarios

Abstract: Dynamic interactive scenarios in complex real-world settings place extremely high demands on robots' environmental adaptability, task generalization and real-time response capabilities. Focusing on three core modules—embodied perception, cognitive reasoning and behavioral execution—this talk explores key technical frameworks and implementation solutions for complex dynamic interaction scenarios. Leveraging end-to-end large model techniques, it further analyzes the paradigm transformation and future development trends of embodied intelligence.

Symbols for Technical Sessions

Symbols for Days of a Week

S = Sunday

M = Monday

Symbols for Session Time Slots

Session MA = 08:00–09:45

Session MB = 10:00–11:45

Session MC = 14:00–15:40

Oral Sessions Information

Award Session I (MA 1-1), Room 5010,

August 10, 2026

10 min presentation + 5 min Q&A

ID	Time	Title and Authors
6	08:00–08:15	Implementation of Rowing-Based Gaits in a Multi-legged Terrestrial Crawler Robot <i>Wu, Shanqi; Xian, Shuai; Gong, Zhongfu; Zhong, Yong*</i>
39	08:15–08:30	Actively Controlled Continuous-Everting Capsule Robot: Design, Fabrication, and Validation <i>Lin, Botao*; Liu, Runjie; Ren, Hongliang</i>
15	08:30–08:45	Intention Recognition and Compliant Assistance for Load-Bearing Hip Exoskeletons via Multimodal Fusion <i>Fu, Yiyang*; Li, Yipeng; Zhang, Yue; Du, Wenfu; Zhang, Yang</i>
50	08:45–09:00	Design and Force-Plate Evaluation of a Self-Developed Wearable Pressure-IMU Insole Against a Commercial Insole <i>Ke, Deng*; Chen, Xuanlin; Yao, Hanchen; Dai, Houde; Zhu, Liqi</i>
31	09:00–09:15	Dynamic Factor Graph Optimization for LiDAR SLAM via Biological Selective Attention Mechanisms <i>Wang, Ziyang; Chen, Weinan; Zhou, Haibo; Li, Mingjun*; Li, Chuanxiang; Duan, Jian</i>
38	09:15–09:30	MSAT-Net: A Multi-scale Size-Aware Transfer Network for Few-Shot PL Defect Detection <i>Zhou, Zhongjin*; Zou, Guohuang; Tan, Ning</i>
46	09:30–09:45	Contact-Aware PPO Control for Peg-in-Hole Assembly <i>Shang, Zihang*; Xu, Haotian; Jin, Ligang; Cui, Zhiwei; Song, Rui</i>

Regular Session (MA 2-1), Room 5007,

August 10, 2026

7 min presentation + 3 min Q&A

ID	Time	Title and Authors
26	08:00–08:10	Design and Analysis of a Four-Wing Flapping-Wing Aircraft with Pulley-Amplified Clap-and-Fling Mechanism <i>Liu, Hao*</i>
29	08:10–08:20	Multimaterial FEM-Based Mechanical Modeling of Bioinspired Soft-Rigid Hybrid Robotic Structures <i>Sun, Yilun*; Si, Yuze; He, Tao; Lueth, Tim C.; Tang, Qirong</i>
28	08:20–08:30	Workspace Reconfiguration in Tendon-Driven Continuum Robots via a Concentric Rod Mechanism <i>Sun, Yilun*; Wen, Zhen; Wen, Runting; Tang, Qirong; Lueth, Tim C.</i>
9	08:30–08:40	Research on MDOF Bending Actuator Based on SMA-SMP Hybrid-Driven <i>Yang, Meiyang*; Shi, Xiaoman; Huang, Lixiao; Niu, Kaiyue; Ren, Shuai; Wen, Qi; Hu, Qiqiang; Li, Junyang</i>
10	08:40–08:50	Development of a Magnetically Actuated Platelet-Based Microrobot with Low Fluid Resistance <i>Jia, Yuanjun; Guo, Yaoxian*; Zhang, Mengyu; Song, Liansheng; Li, Junyang</i>
3	08:50–09:00	A Cascaded Multi-Modal Framework with Anatomical Priors for Lumbar Disc Herniation Screening and Localization <i>Yue, Tongxue*; Guo, Liang; Li, Zhirui; Wang, Jiankun; Meng, Max Q.-H.</i>
49	09:00–09:10	Detection and Anticipatory Recognition of Elbow Flexion and Rest from Wearable sEMG: A Comparative Study of Four Classification Methods <i>Li, Zhuofan; Gao, Dongdong; Zhou, Fan; Li, Xiangyang; Liu, Huayue; Zhang, Huanghe*</i>
16	09:10–09:20	Heterogeneous Leader-Follower Adaptive Formation Navigation for Multi-Quadruped Robots in Constrained Environments <i>Ziming, Wang*</i>
42	09:20–09:30	Dual-Stream Reliability-Aware Depth Integration for Self-Supervised Monocular Robotic Endoscopy <i>Shuang, Li*</i>
5	09:30–09:40	An Improved Model-Free Adaptive Temperature Control Method for the Comprehensive Climate Environment Laboratory <i>Zhang, Chenglin; Liang, Dingkun*; Ren, Zhanpeng; Wu, Xiangfu; Meng, Shujun</i>

Award Session II (MB 1-2), Room 5010, August 10, 2026

10 min presentation + 5 min Q&A

ID	Time	Title and Authors
13	10:00–10:15	Magnetically Controlled Motion and In-situ Imaging of a Capsule Robot with Radial Magnetization <i>Ren, Shuai*</i> ; Zhang, Mengyu; Gao, Yuxi; Li, Yabing; Yang, Meiying; Li, Chunlong; Wen, Qi; Hu, Qiqiang; Li, Junyang
41	10:15–10:30	Scale-Gated Prior-Guided Semantic-Geometric Network for Single-View RGB-D 6-DoF Grasp Detection <i>Zhang, Ying*</i> ; Hao, Yibo; Zhang, Cui-Hua; Hua, Changchun
30	10:30–10:45	Day-and-Night Robust Human Action Recognition for Human-Quadruped Robot Interaction <i>Ruan, Xingyi*</i> ; Chai, Hui; Zhang, Qin; Chen, Meiyi; Peng, Nuodan

Regular Session (MB 2-2), Room 5007,

August 10, 2026

7 min presentation + 3 min Q&A

ID	Time	Title and Authors
37	10:00–10:10	Online Relative Friction Estimation for Legged Robots Using Proprioceptive Sensing <i>Zhao, Yundi; Du, Pengkun; Chen, Yang; Chen, Zheng*</i>
7	10:10–10:20	A Vision-Guided Grasping Method for Deformable Wire Harness Based on Oriented Object Detection and Dynamic Search Localization <i>Du, Rui; Jin, Ligang; He, Wenbin; Liu, Zhe; Ma, Zhihao; Song, Rui*</i>
4	10:20–10:30	Vision-Based Recognition and Two-Dimensional Work Path Generation for Flexible Wire Harness Wrapping <i>Ma, Zhihao; Jin, Ligang; He, Wenbin; Liu, Zhe; Du, Rui; Cui, Zhiwei; Song, Rui*</i>
40	10:30–10:40	RGB–Flow Fusion for Six-Axis Force/Torque Estimation in Vision-Based Tactile Sensing <i>Chen, Haotang; Ao, Yucheng; Li, Haolin; Wang, Wenjie; Luo, Jianwen*</i>
33	10:40–10:50	Boosting Object Detection in Robotic Grasping through Dual-Domain Co-Augmentation and Progressive Guidance Training <i>Zihua, An; Wang, Xu; Zhong, Qitian; Wang, Chao*</i>
45	10:50–11:00	Effects of Bench Testing and Limited Flight Data on Data-Efficient Power Prediction for Multirotor UAVs <i>Ma, Zhengzhi*; Lv, Fengyao; Kong, Decong; Liu, Tao; Duan, Pingfan; Zhan, Zhenfei</i>
12	11:00–11:10	Robust Photoacoustic Visual Servoing Under Streak Noise via Discrete Cosine Transform Feature Mapping <i>Guo, Xiao; Luo, Xuanlin; Liu, Li*</i>
21	11:10–11:20	An intestinal simulation platform for the standardised performance evaluation of drug-delivering microneedle robots <i>Zhao, Yusong*; Sun, Lina; Guo, Hongji; Yu, Haibo; Zhao, Tianming</i>
36	11:20–11:30	Design and Simulation of a Rigid-Flexible Coupled Knee Exoskeleton <i>Cao, Wujing; Liu, Junhang*; Luo, Mingxiang; Li, Jinke; Yin, Meng; Xu, Sheng; Wu, Xinyu</i>
44	11:30–11:40	Energy-aware Convex Model Predictive Control for Quadruped Robot Locomotion with Adaptive Gait Patterns <i>Sun, Hao; Li, Congfei; Sun, Yuxiang*</i>

Regular Session (MC 1-3), Room 5010,

August 10, 2026

7 min presentation + 3 min Q&A

ID	Time	Title and Authors
17	14:00–14:10	Design and Control of an Electro-Hydraulic Direct-Drive Active Knee-Ankle Prosthesis <i>Xiong, YuLong*</i>
14	14:10–14:20	A Vision-Adaptive Lower-Limb Exoskeleton Assistance Framework for Manual Materials Handling <i>Li, Yipeng*; Lu, Pengyu; Zhang, Xiaoting; Lai, Tianwei; Zhang, Yang</i>
2	14:20–14:30	Depth-Constrained Hybrid Pose Estimation and Robust Alignment for Vision-Guided Robotic Nut Fastening <i>Xu, Zhikun*; Zhong, Jun; Xu, Jiawei</i>
11	14:30–14:40	Monocular Visual-Inertial Obstacle Ranging for Microrobots <i>Li, Xihao*</i>
19	14:40–14:50	Magnetic Field Super-Resolution and Localization via a Residual-Corrected Transposed Convolutional Network <i>Lv, Bowen*; Cai, Tiezhu; Yang, Chujun; Lin, Haijun</i>
22	14:50–15:00	U-H2O: Unidirectional Human-to-Object Fusion for Causally Structured 3D Human-Object Interaction Generation <i>Wang, Wenwen; Tang, Xinyue; Wang, Zhengyuan; Guan, Jingru; Tian, Jinglan*</i>
24	15:00–15:10	Laparoscopic Surgical Operation Understanding Algorithm Based on Attention Mechanism <i>Kong, Weiyan*; Li, Xue; Wu, Zhaoyun; Li, Lianliang; Zhao, Jing; Li, Changsheng; Duan, Xingguang</i>
1	15:10–15:20	Improved design of weight-supporting adaptive knee-joint exoskeleton mechanism <i>Guo, Yu; Chen, Xuechan; Liu, Jianxin; Dong, Jinan; Chen, Ziming*</i>
8	15:20–15:30	CerebSpiking: A Cerebellum-Inspired Spiking Actor-Critic Architecture for High-Precision and Low-Power Musculoskeletal Control <i>Liu, Yin; Yang, Le; Zheng, Luoming; Su, Peier; Liu, Rong*</i>
27	15:30–15:40	CareFlow-ACT: Flow-Matched Imitation Learning for Stable Caregiving Manipulation <i>Wu, Xuejian*; Chu, Yaqi; Wu, Peiyuan; Luo, Yang; Zhao, Yiwen; Zhao, Xingang</i>

Regular Session (MC 2-3), Room 5007,

August 10, 2026

7 min presentation + 3 min Q&A

ID	Time	Title and Authors
18	14:00–14:10	Dual-Gate Mixture of Experts for Wheeled-Legged Multitask Locomotion <i>Wang, Yongzhi*</i>
35	14:10–14:20	Continuous-Time Lie Group Lagrangian Neural ODEs for Control-Oriented Robot Dynamics Learning <i>Xu, Chuanbin*; Li, Zhiming; Cui, Zhiwei; Sun, Fucun</i>
23	14:20–14:30	MedCAT-Seg : Medical Specific Prompt and Structure Cost Aggregation for Surgical Image Semantic Segmentation <i>Wu, Zhaoyun; Li, Xue; Kong, Weiyan; Li, Lianliang; Duan, Xingguang; Li, Changsheng*</i>
47	14:30–14:40	A Source-Level Illumination-Motion Co-Control System for Robotic Endoscopy <i>Li, Hang; NG, CHI KIT*; Zhang, Yidong; Tang, Zhiqing; Chim, Ho Yin; Gao, Huxin; Lai, Jiewen; Ren, Hongliang</i>
51	14:40–14:50	SAGA: Saliency-Aware Geometric Augmentation for Rotation-Robust Preoperative Femur Landmark Detection <i>Zheng, Kangjie*; Du, Xinzhe; Zhang, Zhengyan; Nie, Mengyang; Liu, Yi; Yin, Qingfeng; Song, Rui; Li, Yibin; Meng, Qinghu; Min, Zhe</i>
43	14:50–15:00	Biomimetic Self-Supervised Monocular Depth Estimation for Endoscopic Robotics via Foundation Prior and Diffusion Refinement <i>Shuang, Li*</i>
32	15:00–15:10	Research on a ROS2-Based Autonomous Navigation System for Mobile Robots with Multi-Sensor Fusion <i>Wang, Xinli*; Chu, Yichen; Zhang, Yangzhi; Xiao, Qun; Zhang, Xu; Song, Rui</i>
20	15:10–15:20	LUB-Nav: Latent Uncertainty-aware Belief Mapping for Zero-Shot Object Navigation <i>Dong, Yuhua*; Chen, Xiaotong; Zhu, Wenbin; Sun, Fengchi; Yuan, Jing; Gao, Haiming; Liu, Xiaobin</i>
25	15:20–15:30	Robotic PACT Simulator v1: A Unified Platform for Real-Time Closed-Loop Verification of Robotic Photoacoustic Imaging Systems <i>Yang, Rui; Yu, Xianghu; Wu, Xingdong; Luo, Yuwei; Liu, Junjie; Liu, Li*</i>

ICBIR 2026 Program at a Glance

Sunday, August 9, 2026		
09:00-18:00	Registration (Look for location information in the hotel lobby)	
09:00-12:00	BIROB Editorial Board Meeting Room 5010, Fifth Floor	
14:00-14:10	Welcome Ceremony Room 5002-5005, Fifth Floor	
14:10-14:50	Plenary Session I The Field of Super-Minimally Invasive Surgery: A Key Development Direction for Artificial Intelligence and Surgical Robots Prof. LINGHU Enqiang, Chinese PLA General Hospital, China	
14:50-15:30	Plenary Session II Cyber-Physical Systems: Issues, Design and Opportunities Prof. SHI Peng, University of Adelaide, Australia	
15:30-16:10	Plenary Session III Diving into the Real-World with Robotic Systems: Optimization Computing Challenges in Learning and Adaptation in a Real-world Prof. XU Chao, Zhejiang University, China	
16:10-16:20	Tea and Coffee Break	
16:20-16:50	Keynote Session I Perception Generalization and Intelligent Collaboration in Complex Environments Prof. LUO Chengwen, Shenzhen University, China	
16:50-17:20	Keynote Session II Towards ‘Embodied Energy’ : Coordinated Flight and Energy Management of Hydrogen-Hybrid UAVs Prof. GUO Xiaoyu, City University of Hong Kong, Hong Kong SAR	
17:20-17:50	Keynote Session III Embodied AI for Complex and Dynamic Scenarios Prof. MA Yuexin, ShanghaiTech University, China	
18:00-20:00	Dinner at restaurant	
Monday, August 10, 2026		
Time \ Room	Room 5010, Fifth Floor	Room 5007, Fifth Floor
08:00-09:45	Award Session I MA 1-1	Regular Session MA 2-1
09:45-10:00	Tea and Coffee Break	
10:00-11:45	Award Session II MB 1-2	Regular Session MB 2-2
12:00-14:00	Lunch at restaurant	
14:00-15:40	Regular Session MC 1-3	Regular Session MC 2-3
18:00-20:30	Banquet	