ICBSR

2025 International Conference on Bio-inspired System and Robotics
2025年国际仿生系统与机器人会议

Xishuangbanna, China | Dec. 26-29, 2025

FINAL PROGRAM

2025 International Conference on Bio-inspired System and Robotics

ICBSR 2025

Final Program

Xishuangbanna, China

Dec. 26-29, 2025

2025 International Conference on Bio-inspired System and Robotics

ICBSR 2025

Sponsors

International Association of Swarm and Evolutionary Intelligences

Technical Committee on Guidance, Navigation and Control (TCGNC)

Co-Sponsors

Kunming University of Science and Technology

Technical Committee on Tri-Co Robot (TCTCR)

Chinese Association of Automation (CAA)

Supporters

Hong Kong Society of Mechanical Engineers (HKSME)

Springer Nature

Organizers

Yunnan University

Sichuan University

Content

WELCOME ADDRESS

We are pleased to welcome you to the 2025 International Conference on Bio-inspired System and Robotics (ICBSR 2025), which will be held in Xishuangbanna, China, from Dec. 26-29, 2025. It is sponsored by International Association of Swarm and Evolutionary Intelligences, and Technical Committee on Guidance, Navigation and Control (TCGNC), CSAA, and co-sponsored by Kunming University of Science and Technology, Technical Committee on Tri-Co Robot (TCTCR), Chinese Association of Automation (CAA), Technical Committee on Intelligent Automation (TCIA), supported by Hong Kong Society of Mechanical Engineers (HKSME), Springer Nature, organized by Yunnan University, Sichuan University, ICBSR 2025 will spotlight cutting-edge technologies, industrial applications, and societal impacts, fostering the growth of intelligent systems in Asia and beyond.

ICBSR 2025 consists of plenary talks, oral sessions and poster sessions for academic exchanges. After a rigorous peer-review process, 109 papers and 7 abstract papers have been accepted for either oral or poster presentation at the conference in 8 oral technical sessions and 2 poster sessions, which includes 1 best paper award oral defense session and 1 best paper award poster defense session.

The conference program is highlighted by eight plenary speeches given by Professor Zengguang Hou from Institute of Automation, CAS, Professor Lianqing Liu from Shenyang Institute of Automation, CAS, Professor Zhendong Dai from Nanjing University of Aeronautics and Astronautics, Professor Aiguo Song from Southeast University, Professor Huawei Chen from Beihang University, Professor Jing Na from Kunming University of Science and Technology, Professor Huayan Pu from Chongqing University and Professor Hui Zhang from Hunan University.

Our English proceedings have been sent and will be published by Springer-Nature in Lecture Notes in Mechanical Engineering promptly. We show our special thanks to the staffs of Springer-Nature. We also wish to express our sincere appreciation to all the individuals who have contributed to ICBSR 2025 in various ways. Special thanks are extended to our colleagues in the program committee for their thorough review of all the submissions, which is vital to the success of this conference, and also to the members in the organizing committee and the volunteers who have dedicated their time and efforts in planning, promoting, organizing and helping the conference. Last but not least, our special thanks go to invited plenary speakers as well as all the authors for contributing their latest research to the conference, and to the participants and the exhibitors in making ICBSR 2025 a memorable event.

Let us cherish our gathering in the famous city - Xishuangbanna for this exciting event in this winter. We hope that your stay in Xishuangbanna will be enriching and memorable and that the technical program will send you back home motivated, enthusiastic, and full of innovative ideas.

We hope you enjoy the “warm”, fruitful and happy conference in Xishuangbanna.

ICBSR 2025 General Chairs

Ying Tan **Haibin Duan**

CONFERENCE COMMITTEE

General Chairs

Ying Tan
Peking University, China

Haibin Duan
Beihang University, China

General Co-Chairs

Zengguang Hou
Institute of Automation, CAS, China

Lianqing Liu
Shenyang Institute of Automation, CAS, China

Jiande Wu
Yunnan University, China

Jing Na
Kunming University of Science and Technology, China

International Regional Chairs

Paolo Castaldi
University of Bologna, Italy

David Henry
Université de Bordeaux, UF Sciences De l'Ingénieur, France

Jongrae Kim
University of Leeds, UK

Carlos Eduardo Pereira
Federal University of Rio Grande do Sul, Porto Alegre, Brazil

Program Committee Chairs

Zhendong Dai
Nanjing University of Aeronautics and Astronautics, China

Yuhui Shi
Southern University of Science and Technology, China

Giuseppe Carbone
University of Calabria, Italy

Yongchun Fang
Nankai University, China

Yibin Li
Shandong University, China

Zeyang Xia
Shanghai Jiao Tong University, China

Publicity Chairs

Huawei Chen
Beihang University, China

Weiwei Wan
Osaka University, Japan

Haibo Gao
Harbin Institute of Technology, China

Junwei Han
Chongqing University of Posts and Telecommunications, China

Delin Luo
Xiamen University, China

Xuguang Lan
Xi'an Jiaotong University, China

Hao Liu
Shenyang Institute of Automation, CAS, China

Jing Xu
Tsinghua University, China

Jialing Zhou
Beijing Institute of Technology, China

Hui Zhang
Hunan University, China

Special Session Chairs

Yili Fu
Harbin Institute of Technology, China

Youmin Zhang
Concordia University, Canada

Huaping Liu
Tsinghua University, China

Shugen Ma
The Hong Kong University of Science and Technology (Guangzhou), China

Organizing Committee

Xiangtao Li
Jilin University, China

Lu Leng
Nanchang Hangkong University, China

Jing Xiong
Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China

Invited Session Chairs

Boutat Driss
Institut National des Sciences Appliquées Centre Val de Loire, Bourges, France

Bin Fang
Beijing University of Posts and Telecommunications, China

Sung-Kwun Oh
Linyi University, China/The University of Suwon, Korea

Publication Chairs

Meng Yuan
Beihang University, China

Lena Du
Asia Pacific Institute of Science and Engineering (APISE), HKSAR, China

Registration Chair

Bin Li
Sichuan University, China

Financial Chair

Ling Li
Shanghai Peike Technology Co., LTD, China

Exhibition Chair

Max Chen
Shanghai Peike Technology Co., LTD, China

Technical Program Committee

Mihaela Andrei, “Dunarea de Jos” University of Galati, Romania

Wael A. Altabey, Alexandria University, Egypt

Sergey Ablameyko, Belarusian State University, Republic of Belarus

Larbi Boubchir, University of Paris 8, France

Valentina Emilia Balas, Aurel Vlaicu University of Arad, Romania

Jian Chen, Central South University, China

Jonathon Chambers, University of Leicester, UK

Marco Dorigo, Universite' Libre de Bruxelles, Belgium

Jingli Du, Xidian University, China

Boutat Driss, Institut National des Sciences Appliquées Centre Val de Loire, Bourges, France

Emin Taner ELMAS, IGDIR University, Turkey

Valerio Frascolla, Intel Deutschland GmbH, Neubiberg, Germany

Tanner G. Herbert, University of Delaware, USA

Maki K. Habib, The American University in Cairo, Egypt

Yap Hwa Jen, Universiti Malaya, Malaysia

Okba Kazar, University of Kalba, Sharjah, United Arab Emirates

Yidao Ji, University of Science and Technology Beijing, China

Hugh Hong-Tao Liu, Canada University of Toronto, Canada

Axel Lehmann, Germany University of Bundeswehr, Germany

Yuanqing Li, Xi’an University of Posts & Telecommunications, China

Xiaofeng Liu, Hohai University, China

Wei Liu, Wuhan University of Technology, China

Yingtian Li, Shenzhen Institute of Advanced Technology, CAS, China

Ning Li, Shenyang Institute of Automation, Chinese Academy of Sciences, China

Stefano Mariani, Politecnico di Milano, Italy

Shugen Ma, The Hong Kong University of Science and Technology (Guangzhou), China

Mariofanna Milanova, University of Arkansas at Little Rock, USA

Anand Nayyar, Duy Tan University, Vietnam

Andrey Polyakov, Inria Centre of the University of Lille，France

Yu Sun, Xi’an Jiaotong University, China

Doris Wong Hooi Ten, Universiti Teknologi Malaysia, Malaysia

Antonios Tsourdos, Cranfield University, UK

Weiwei Wan, Osaka University, Japan

Laihao Yang, Xi’an Jiaotong University, China

Tong Yang, Nankai University, China

Francesco Zirilli, Sapienza University of Rome, Italy

Shijie Zhao, Liaoning Technical University, China

Youmin Zhang, Concordia University, Canada

CONFERENCE INFORMATION

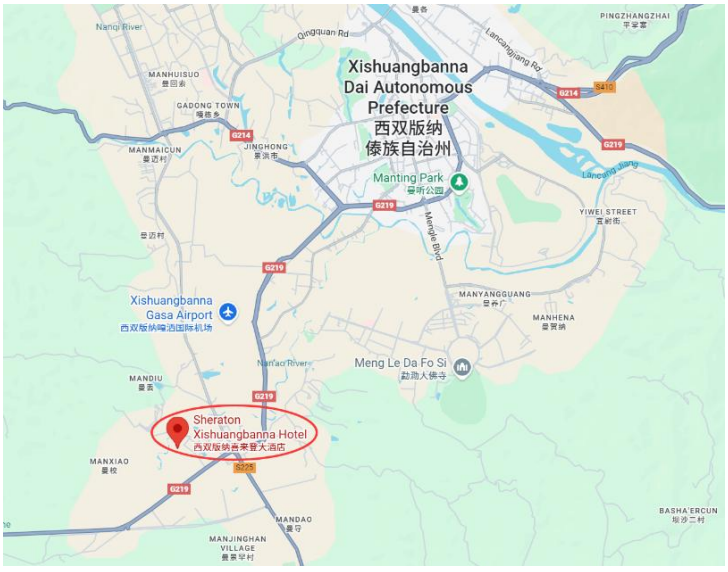
I. Venue

Hotel: Sheraton Grand Xishuangbanna Hotel（西双版纳云投喜来登大酒店）

Website: https://www.sheratonxishuangbannahotel.cn/

Address: Near Xijing Line (Mansa Zhaizi), Jinghongshi, Jinghong, Yunnan

II. Transportation



- Approximately 4.5 kilometers from Xishuangbanna Gasa International Airport
- Approximately 6.3 kilometers from Xishuangbanna High-Speed Railway Station

III. Accommodation

Double Room: 600 CNY

King Room: 600 CNY

*Register for two people's identification in the room and enjoy two breakfasts. (If you need to pay CNY 80 per person at the hotel reception during check-in or CNY 99 per person at the restaurant front desk.)

Booking: (Book with discount until Dec. 20th)

Booking Link: https://www.marriott.com.cn/event-reservations/reservation-link.mi?id=1763437699972&key=GRP&guestreslink2=true&app=resvlink&inventoryMissing=true

IV. Registration

1. Registration Fee:

Category	Authors				Attendees without Paper			
	Before Dec. 3, 2025				Before Dec. 3, 2025		On-site Registration	
	1 Paper		1 Abstract		480USD	3600CNY	500USD	3800CNY
Regular	600USD	4500CNY	580 USD	4200CNY				
Student	540USD	4000CNY	520 USD	3800CNY	450USD	3400CNY	480USD	3600CNY

Notes:
1.The paper registration fee includes paper publication, indexing, one set of conference materials, and attendance rights for one author (including meals). It does not cover transportation or accommodation expenses during the conference.
2.Overlength page fee for English papers (starting from the 11th page): 80USD (600CNY) per page. The total length of a paper must not exceed 12 pages.

2. Registration Method:

(1). Click to access the ICBSR 2025 Registration Form and fill in the participation information.

(2). Scan the QR code to access the ICBSR 2025 Registration Form for registration and payment.

V. Other

December in Xishuangbanna is the dry season, featuring sunny, mild and dry weather. The average daily temperature ranges from around 9℃ to 29℃ with a large day-night temperature difference (up to about 15℃). Sunshine is abundant and UV radiation is strong.

For clothing: Wear cool and breathable outfits like thin T-shirts, shirts or light dresses during the day. Due to the big temperature drop in the morning and evening, bring a thin jacket, cardigan or windbreaker for warmth.

Light air pollution may occur occasionally, so a thin scarf or mask is recommended. Don’t forget sunscreen products for the strong UV rays.

For updated weather, please visit: Xishuangbanna-Weather

VI. Contact

For any questions regarding ICBSR 2025, please feel free to contact us at:

Joy Mou

Email: info@icbsr.org

Phone: +86-199 8310 6382

PRESENTATION GUIDE

Oral Presentation

1. File format: MS-PowerPoint (*.ppt) or Adobe PDF (*.pdf)

2. Time: About 12 mins, including Q/A time.

3. Language: English

4. Fonts: Arial or Times New Roman

5, Dress code: Formal clothes

6. Facility: A laptop will be available in the conference room, presenters are suggested not use their own laptop. If presenters plan to use own laptop, please notify conference secretary via e-mail in advance and test the connection (It's better to bring any necessary adaptors) before session start.

7. Procedure: Copy the presentation file to conference laptop on the registration day. Contact the session chair(s) and introduce yourself to the session chair(s) before session starts. (Your paper ID, Name, Organization and Paper's title)

Poster Presentation

1. Poster Size: 0.8m*1.5m (width*height).

2. Language: English.

3. Color printing.

4. The poster should include: Paper ID, conference name's acronym, significance of the research, the methods used, the main results obtained, and conclusions drawn.

5. ICBSR 2025 Poster Template

6. Posters are required to be condensed and attractive.

7. The conference organizer won't send/keep any posters after the conference.

2025 International Conference on Bio-inspired System and Robotics

ICBSR 2025

CONFERENCE SCHEDULE

Dec. 26, 2025(Friday) **14:00-22:30 Registration** **Venue: *Sheraton Grand Xishuangbanna Hotel*(西双版纳云投喜来登大酒店)**		
Time	**Items**	**Venue**
14:00-22:30	Registration and Conference Kits Collection	*Lobby of the hotel*(酒店大堂)
18:30-20:30	Welcome Dinner	*Kunming Hall*（二楼，昆明厅）
Dec. 27, 2025(Saturday) **8:30-17:20 Plenary Speech** **Venue: *Xishuangbanna Ballroom 1, 2F* / 二楼，西双版纳宴会厅 1**		
Time	**Items**	**Venue**
8:30-8:45	Opening Ceremony	*Ballroom 1*（宴会厅 1）
8:45-9:00	Group Photo	*Outdoor Lawn*（户外草坪）
9:00-12:20	Plenary Speech	*Ballroom 1*（宴会厅 1）
12:20-14:00	**Buffet Lunch** （*Feast Restaurant, 2F* / 二楼，盛宴标帜餐厅）	
14:00-17:20	Plenary Speech	*Ballroom 1*（宴会厅 1）
18:00-20:30	**Dinner** （*Ballroom 2, 2F* / 二楼，宴会厅 2 ）	

Plenary Speech

Time	Plenary Speaker	Title	Host
8:30-8:45	**Opening Ceremony** **Haibin Duan,** *Beihang University, China* **Jing Na,** *Yunnan Association of Automation, China*		**Jiande Wu,** *General Co-Chair*
8:45-9:00	**Group Photo (Outdoor Lawn)**		
9:00-9:45	**Zengguang Hou**	Human-Machine Interaction: Methods and Challenges for Rehabilitation Robots	**Guanghui Wen** *Southeast University, China*
9:45-10:30	**Lianqing Liu**	From Biomimetics to Biosyncretics: Robots Based on Integration of Living Systems and Electromechanical Systems	
10:30-10:50	**Coffee Break**		
10:50-11:35	**Zhendong Dai**	Measuring 6D Reaction Forces in Humanoid Robot: From Human Locomotion Dynamics to the Performance of Humanoid Robot	**Hao Liu** *Shenyang Institute of Automation, CAS, China*
11:35-12:20	**Aiguo Song**	Multi-dimensional Force Sensor for Robot	
12:20-14:00	**Buffet Lunch** （*Feast Restaurant, 2F /* 二楼，盛宴标帜餐厅）		
14:00-14:45	**Huawei Chen**	Magnetically Actuated Micro-robot: Non-invasive Approach for Precision Medicine	**Bin Li** *Sichuan University, China*
14:45-15:30	**Jing Na**	High Precision Motion Control for Nonlinear Robotics with Unknown Dynamics	
15:30-15:50	**Coffee Break**		
15:50-16:35	**Huayan Pu**	Programmable Passive Continuous Mechanical Computation with Multistable Mechanisms	**Jing Xu** *Tsinghua University, China*
16:35-17:20	**Hui Zhang**	Multimodal Intelligent Perception Technology and Applications of UAVs in Complex Power Scenarios	
18:00-20:30	**Dinner** （*Ballroom 2, 2F /* 二楼，宴会厅 2 ）		

Dec. 28, 2025(Sunday)

8:15-16:30 Technical Session & Poster Session

Venue: *Ballroom 3, 2F* / 二楼，宴会厅 3
***Puer Hall, 3F* / 三楼，普洱厅**
***Diqing Hall, 3F* / 三楼，迪庆厅**

Time	Items	Venue
8:15-10:27	Technical Session 1: **New Advances in Robotics**	*Ballroom 3*（宴会厅 3）
	Technical Session 2: **Bioinspired System Control**	*Puer Hall*（普洱厅）
	Poster Session 1	*Diqing Hall*（迪庆厅）
10:27-10:50	**Coffee Break**	
10:50-12:02	Technical Session 3: **Bioinspired Unmanned Systems**	*Ballroom 3*（宴会厅 3）
	Technical Session 4: **Information Processing in Robotics**	*Puer Hall*（普洱厅）
	Poster Session 1	*Diqing Hall*（迪庆厅）
12:10-14:00	**Buffet Lunch** （*Feast Restaurant, 2F* / 二楼，盛宴标帜餐厅）	
14:00-15:00	Technical Session 5: **Bioinspired Systems Modeling and Control**	*Ballroom 3*（宴会厅 3）
	Technical Session 6: **Bioinspired Robotics Mechtronics**	*Puer Hall*（普洱厅）
	Poster Session 2	*Diqing Hall*（迪庆厅）
15:00-15:30	**Coffee Break**	
15:30-16:30	Technical Session 7: **Bioinspired System Interactions**	*Ballroom 3*（宴会厅 3）
	Technical Session 8: **Bioinspired Control Applications**	*Puer Hall*（普洱厅）
	Poster Session 2	*Diqing Hall*（迪庆厅）
18:00-21:00	**Award Ceremony & Banquet** （*Ballroom 2, 2F* / 二楼，宴会厅 2）	

Dec. 29, 2025(Monday)

Adjournment

PLENARY SPEECH

Speech Title:

Human-Machine Interaction: Methods and Challenges for Rehabilitation Robots

Prof. Zengguang Hou

Institute of Automation, CAS, China

Abstract: We are facing the increasingly serious population aging issues and the challenges of assessment, diagnosis, intervention and rehabilitation caused by the high incidence of stroke and Alzheimer's disease, as well as the shortage of equipments and therapists. Rehabilitation robots are expected to provide technical solutions and efficient therapy to patients, and affordable services to families, but the promotion and application of rehabilitation robots also face many challenges. For example, efficient, reliable and safe intelligent interaction and intelligent control are difficulties hindering the development and applications. Focusing on the acquisition and processing of multimodal biological signals, brain-computer interface, intervention control and rehabilitation, this talk explores the opportunities in related fields, as well as perspectives on the rehabilitation robots in the future.

Biography:

Zeng-Guang Hou is professor at the Institute of Automation, Chinese Academy of Sciences (CAS), Beijing. He is also a Key PI of the Center for Excellence in Brain Science and Intelligence Technology (CEBSIT) of Chinese Academy of Sciences (CAS). Dr. Hou's research interests include computational intelligence, robotics and intelligent systems.

He is a Fellow of IEEE and CAA. He is serving as a VP of the Asia Pacific Neural Network Society (APNNS) and Chinese Association of Automation (CAA). Dr. Hou is an associate editor of IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Cybernetics, and Neural Networks, etc. He was on the Board of Governors of International Neural Network Society (INNS). He was the Chair of Neural Network Technical Committee (NNTC) of Computational Intelligence Society (CIS), IEEE. Dr. Hou was a recipient of IEEE Transactions on Neural Networks Outstanding Paper Award in 2013, and the Outstanding Achievement Award of APNNS in 2017, the Dennis Gabor Award of INNS in 2022, and Neural Networks Best Paper Award in 2022. He has over 30 patents on medical devices. He was awarded the Gold Medal of the International Exhibition of Inventions of Geneva 2021 for rehabilitation robots.

Speech Title：

From Biomimetics to Biosyncretics: Robots Based on Integration of Living Systems and Electromechanical Systems

Prof. Lianqing Liu

Shenyang Institute of Automation, CAS, China

Abstract： Nature offers boundless inspiration for robotic research. Bionic based Robotics has achieved amazing progress. However, biological systems are immensely sophisticated. Despite significant advances in mimicking biological mechanisms, bionic based robots inherently struggle to fully replicate the intrinsic properties of living systems. Consequently, how to further enhance performance and enable artificial systems to approach, or even surpass, biological counterparts is a major research focus in science and technology.

In this talk, I will introduce the proposed concept of biosyncretic robotics. By utilizing bioactive materials, such as living cells, as core components, and fostering the integration of biological and electromechanical systems at the molecular and cellular scales, we aim to propel robotics beyond bionics towards biosyncretics. This paradigm shift allows us to directly harness the results of billions of years of natural evolution, enhancing various robotic capabilities and driving the advancement of the robotics discipline itself.

Biography:

Lianqing Liu is a Professor at Shenyang Institute of Automation, Chinese Academy of Sciences. Currently his research interests include Biosyncretic systems, Micro/Nanorobotics, Intelligent control. He has published over 100 peer reviewed international journal papers and led more than 20 funded research projects as Principal Investigator. He was awarded the Early Career Award by the IEEE Robotics and Automation Society in 2011, Outstanding Young Scientist of Chinese Academy of Sciences in 2014, Rising Star Award of 3M-Nano Society in 2015, Talent Young Scholar Funds of NSFC in 2015, National Program for support of Top-Notch Young Professionals in 2015, Xiongyoulun Outstanding Youth Award in 2018, Distinguished Young Scholar Funds of NSFC in 2019, Xplore Prize in 2024. He is the winner of Best Student/Conference paper Award for ICRA, ROBIO, ICIRA, IEEE-NEMS, IEEE-CYBER, IEEE-NANOMED and IEEE-3M-NANO, and delivered plenary/Keynote talks at ICRA, IROS, IEEE-NANO, IEEE-NANOMED, IEEE-NEMS, ICIUS, MARSS and so on. He is associate editors of Fundamental Research, Cyborg and Bionic Systems, Mechatronics, IET Cyber-Systems and Robotics, Control Theory and Applications. He has been elected as the vice president of IEEE Robotics and Automation Society for the term of 2018-2019, served as a member of long range planning committee of RAS.

Speech Title：

Measuring 6D Reaction Forces in Humanoid Robot: From Human Locomotion Dynamics to the Performance of Humanoid Robot

Prof. Zhendong Dai

Nanjing University of Aeronautics and Astronautics, China

Abstract： All motions of any object result in the force acting on the object, measuring the force acting on the object is an important way to understand the motion， to improve robot's performance. We have developed six-dimensional force sensor and integrated it into different arrays such as floor, stair and slope respectively. We measured the reaction force when human and humanoid robot walking on those substrates. The results show clearly that start point of stance phase of one feet is corresponding to the maximum driving force acted on the another feet and the end point of stance phase of one feet is corresponding to the maximum braking force of another feet, whenever the substrate is floor, step and slope. But the reaction force of humanoid robot are very much different from that of humans. We believe the behavioral and mechanical characteristics of normal human movement and compared them with those of corresponding humanoid robots to identify the reasons for the insufficient stability of humanoid robot movement and provide design inspiration for improving the stability and reliability of robot movement.

Biography:

Professor, director and founder of the Institute of Bio-inspired Structure and Surface Engineering (IBSS) at Nanjing University of Aeronautics and Astronautics (NUAA). Fellow of the International Society of Bionic Engineering and the Chinese representative, has received the Contribution Award. He obtained his bachelor's, master's, and doctoral degrees from the CMEE at NUAA in 1983, 1986, and 1999, respectively. He was invited as visiting scientist at the Max Planck Institute for Developmental Biology in Germany from 2000 to 2001, and visiting professor at the School of Life Sciences, University of California, Berkeley in 2019.

He won 2nd prize of Jiangsu Science and Technology Award in 2021, 2nd prize of Natural Science Award in 2018, 2nd prize of Invention Award in 2012, received the Government Special Allowance from the State Council in 2016. He has published six monographs and over 400 papers, which have been cited more than 5,000 times, with an H-index of 41. He founded Nanjing Bio-inspired Intelligent Technology Co., Ltd in 2012, dedicated to technology transfer and enterprise incubation.

Speech Title：

Multi-dimensional Force Sensor for Robot

Prof. Aiguo Song

Southeast University, China

Abstract： Multi-dimensional force sensor is a kind of important sensor for robot, it is a key element of robot force perception and force control. This report firstly outlines the functions of multi-dimensional force sensors for robots, along with their composition and underlying principles. Then we introduce the accuracy index of multi-dimensional force sensor, especially the inter-dimensional coupling error index. Next, we analyze the key technologies of multi-dimensional force sensor. Furthermore, we present our primary advancements in the research of multi-dimensional force sensors. Lastly, we discuss the typical applications of our developed multi-dimensional force sensors in various fields such as aerospace, healthcare, and automotive.

Biography:

Prof. Song received the Ph.D degree in Measurement and Control from Southeast University, China in 1996. From 1996 to 1998, he was a post-doctor and associate researcher with the Intelligent Information Processing Laboratory, Southeast University. From 1998 to 2000, He was an associate Professor with the School of Instrument Science and Engineering, Southeast University. From 2000 to 2004, he was the Director of the Robot Sensor and Control Lab, Southeast University. From 2004 to 2020, he was the Dean and Professor with the School of Instrument Science and Engineering, Southeast University. He is currently the Chief Professor of the Southeast University and the Director of Robot Sensor and Control Laboratory, Southeast University. His interests concentrate on robot force/tactile sensors, teleoperation robot, power inspection robot, medicine robot and rehabilitation robot. He has published more than 400 peer reviewed journal papers, and 300+ papers have been indexed by SCIE, and Google Scholar cited time is 15000+. He received the best paper award more than 20 times. He is a member of Chinese Instrument and Control Association, IEEE senior member, Chair of IEEE Nanjing Section Robotics and Automation Society Chapter. He has served as Chair or Co-Chair of 60+ International Conference/Symposium. He was recipient of the China National Science Fund for Distinguished Young Scholars, and recipient of the second prize of the National Scientific and Technological Progress in 2017.

Speech Title：

Magnetically Actuated Micro-robot: Non-invasive Approach for Precision Medicine

Prof. Huawei Chen

Beihang University, China

Abstract： Non-invasive drug delivery and intestinal microbiota monitoring have drawn worldwide attention. Micro-robot especially magnetically actuated type becomes most promising approach owing to its advantage in wireless controllability, miniature size. On-demand fabrication and multifunction integration with multimode motion or multi-signal sensing are still the greatest challenges. In this talk, magnetic driven printing method will be proposed for on-demand precision assembly of magnetic particle to fabricate 1D micro-thread robot, 2D membrane robot and 3D robot with complicate structure. Control principle is explored to realize the multimode motion for 1D, 2D and 3D micro-robot. Moreover, the experiments of in vivo drug delivery and wireless microbiota monitoring are conducted to validate its efficiency and usefulness. The recent progresses in micro-robot for precision medicine will also highlighted.

Biography:

Chen Huawei is currently a Professor/Deputy Dean of School of Mechanical Engineering and Automation, Beihang University. Dr. Chen's research is focused on the bio-inspired functional surface, micro/nano fabrication, micro/nano fluidics, and its applications in aerospace and precision. He is the Leading Talent of Ten Thousand Plan, Outstanding Young Scientist Foundation of National Nature Science Foundation of China, a JSPE Fellow etc. Dr. Chen has authored more than 100 journal papers in Nature, Nature Materials, Advanced Materials, Advanced Science, Small, Angew. Chemie, ACS Applied Materials & Interface etc.

Speech Title:

High Precision Motion Control for Nonlinear Robotics with Unknown Dynamics

Prof. Jing Na

Kunming University of Science and Technology, China

Abstract: Unknown nonlinear dynamics, e.g., frictions, modeling uncertainties, sensor noise and external disturbances, are inherent difficulties encountered in the robotic control system synthesis, which could deteriorate the control performance. In this talk, we will introduce two recently developed methods to handle unknown nonlinear dynamics for robotic motion control designs: adaptive control with guaranteed estimation convergence and unknown system dynamics estimator (USDE). First, a new adaptive learning framework driven by estimation error is presented, which can be incorporated into the adaptive control for robotics to remedy the use of acceleration measurement and retain the finite-time convergence of tracking error and estimation error simultaneously. Moreover, the design of USDE with simple low-pass filter operations and algebraic calculations is introduced to handle the lumped unknown dynamics in the robotic systems. Those developed ideas are also extended to flexible manipulators and bilateral teleoperations.

Biography:

Dr Jing Na is currently a Professor with the Faculty of Electrical & Mechanical Engineering at Kunming University of Science & Technology. He received the B.S. and Ph.D. degrees from the School of Automation, Beijing Institute of Technology, China, in 2004 and 2010, respectively. From January 2011 to December 2012, he was a Monaco/ITER Postdoctoral Fellow with the ITER Organization, France. From January 2015 to December 2016, he was a Marie Curie Fellow with the University of Bristol, UK. Since 2010, he has been with the Kunming University of Science & Technology, where he was promoted to be a full Professor in 2013. He has hold also visiting positions with the Universitat Politecnica de Catalunya, Spain. His current research interests include parameter estimation, adaptive control, and nonlinear control with application to vehicle systems, servo mechanisms and energy conversion plants (e.g., engine, wave energy convertors, etc.). He has authored/co-authored more than 100 peer reviewed journal and conference papers. Dr Na has been awarded the 2017 Hsue-shen Tsien Paper Award. He is currently an Associate Editor of the IEEE Transactions on Industrial Engineering, and Neurocomputing. He has also served as an international program committee Chair of ICMIC 2017 and DDCLS 2019 and IPC member of many prestigious international conferences.

Speech Title：

Programmable Passive Continuous Mechanical Computation with Multistable Mechanisms

Prof. Huayan Pu

Chongqing University, China

Abstract： With advancements in materials science and manufacturing processes, physical intelligence and mechanical intelligence have garnered increasing attention. This report elaborates on the concepts, classifications, and cutting-edge developments of mechanical intelligence.

Biography:

Huayan Pu, recipient of the National Science Foundation for Distinguished Young Scholars and the China Youth Science and Technology Award. She is a Professor and a Doctoral Supervisor at Chongqing University, serving as the Director of the Institute of Robotics, Chongqing University. She is one of the overall expert group of the National Key Special Project on Marine Environment and Sustainable Development of Islands and Reefs. Her research interest mainly focus on transmission system dynamics, vibration and noise reduction, as well as individual and swarm intelligence of intelligent unmanned systems.

Speech Title：

Multimodal Intelligent Perception Technology and Applications of UAVs in Complex Power Scenarios

Prof. Hui Zhang

Hunan University, China

Abstract： To address challenges in drone inspection tasks for complex power scenarios, including infrared thermal fault detection, line vegetation classification, and tower tilt detection, this report proposes intelligent perception technologies based on multimodal information fusion. By integrating visible light images, infrared images, point cloud data, and multispectral data, it overcomes challenges such as environmental complexity, information incompleteness, and sensor perception limitations, significantly enhancing the perception and cognition capabilities of UAV systems in complex environments. The report focuses on the following key aspects: 1) Adaptive image registration and predictive information transfer techniques are proposed to address the spatial alignment of multimodal data, enabling precise localization of power equipment and accurate temperature interpretation; 2) A tree obstacle classification method based on point cloud and multispectral data fusion is designed, leveraging the complementarity of different modalities to accurately identify tree species in power corridors, thereby improving the accuracy and efficiency of inspection tasks; 3) Multimodal information-coordinated tower tilt detection and semantic segmentation technologies are developed, enhancing the intelligence level of power facility inspection in complex environments. Through multimodal data fusion and intelligent processing, this report demonstrates how multimodal sensing technologies can improve the efficiency, accuracy, and safety of drone inspections in complex power scenarios, effectively meeting the demands of national strategic needs.

Biography:

Hui Zhang, Ph.D., is a Professor (Second Class) and doctoral supervisor. He serves as Dean of the School of Artificial Intelligence and Robotics at Hunan University, Dean of the School of Future Technology at Hunan University, and Deputy Director of the National Engineering Research Center for Visual Sensing and Control. He was selected for the national high-level talent program, is a member of the Expert Group for the “14th Five-Year Plan” Key R&D Program on Intelligent Robotics under the Ministry of Science and Technology, an Executive Director of the Chinese Association of Automation, and Deputy Secretary-General of the Supervisory Board of the China Society of Image and Graphics. His research focuses on robotic visual inspection, deep-learning–based image recognition, and technologies and applications of intelligent manufacturing robots.

In recent years, he has led more than 20 projects, including a task under the Science and Technology Innovation 2030---“New Generation Artificial Intelligence” Major Project, two Key Projects of the National Natural Science Foundation of China, a key project under the JW1XX program, as well as subprojects of the National Key R&D Program and the National Science and Technology Support Program. He has published over 70 papers in domestic and international journals such as IEEE Transactions, holds 42 granted invention patents in China and 5 computer software copyrights. He received a Second Prize of the National Technological Invention Award in 2018; as first contributor, he led teams to win the First Prize of the Hunan Provincial Science and Technology Progress Award (2022), the Second Prize of the Hunan Provincial Science and Technology Progress Award (2019),

and the First Prize of the Science and Technology Progress Award of the China General Chamber of Commerce (2019). As a principal contributor, he has received 15 provincial- and ministerial-level Science and Technology Progress Awards, the Special Prize of the 13th Hunan Provincial Teaching Achievement Awards (2022), and the Second Prize of the National Teaching Achievement Awards (Higher Education--Graduate Education, 2022).

TECHNICAL SESSION

Technical Session 1 New Advances in Robotics Session Chair: *Ying Tan*, Peking University, China *Haibin Duan*, Beihang University, China 8:15-10:27 *Ballroom 3, 2F / 二楼，宴会厅 3*		
Time	**Paper ID**	**Content**
8:15-8:27	**14**	Cooperative Path Planning of Multi-Unmanned Aerial Vehicle Based on Improved Pigeon Inspired Optimization ***Yuxuan Wang,*** Beihang University ***Zhaoyu Zhang,*** Beihang University ***Yang Yuan*,*** Beihang University ***Haibin Duan,*** Beihang University
8:27-8:39	**22**	A 3D Modeling-Assisted Teleoperation Architecture with Virtual Force-Tactile Feedback under Communication Delay ***Huiran Hu,*** Southeast University ***Bin Huang,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Bo Xu,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Aiguo Song* ,*** Southeast University ***Yuzhen Xie,*** Southeast University
8:39-8:51	**42**	A 3D Reconstruction Method for Transformers in Confined Spaces Based on SAM Model and 3D Gaussian Fusion ***Jianxu Mao,*** Hunan University ***Wei He,*** School of Electrical and Information Engineering ***Yaonan Wang,*** Hunan University ***Yang Dai*,*** Hunan University ***Sheng Hu,*** State Grid Hunan Electric Power Research Institute ***Zhenyu He,*** Hunan University ***Junlong Yu,*** Hunan University

8:51-9:03	**45**	From 2D Patterns to 3D Actuation: A Computational Design and Simulation Framework for pH-Responsive Composites ***Ya Duan,*** Shenyang Institute of Automation, Chinese Academy of Sciences ***Xiaoduo Wang*,*** Shenyang Institute of Automation, Chinese Academy of Sciences ***Jingang Wang,*** Shenyang Institute of Automation, Chinese Academy of Sciences ***Haibo Yu,*** Shenyang Institute of Automation, Chinese Academy of Sciences ***Lianqing Liu,*** Chinese Academy of Sciences (CAS)
9:03-9:15	**56**	T-SECA-Based Autonomous Decision-Making Framework for Air Confrontation ***Jinhe Wang,*** Air Force Engineering University ***Maolong Lv* ,*** Air Force Engineering University ***Fangbo Xiao,*** Air Force Engineering University ***Yukang He,*** Air Force Engineer University ***Chenbo Ding,*** The Graduate School
9:15-9:27	**91**	Enabling Efficient Endoscopic Biopsy by Robotic Autonomy with Lumen-Adapted Path Planning ***Shenglin Zhang,*** University of Chinese Academy of Sciences ***Yuhang Zhang,*** SIA ***Yazong Wang,*** Chinese Academy of Sciences ***Hanhui Wu,*** Shenyang Shuchi Medical Technology Co., Ltd. ***Zhifeng Zhao,*** The Fourth Affiliated Hospital of China Medical University ***Hao Liu*,*** Shenyang Institute of Automation, Chinese Academy of Sciences
9:27-9:39	**104**	Adaptive Tracking Control for Piezoelectric Actuators with Unknown Hysteresis Nonlinearity ***Xiangyong Huang,*** Kunming University of Science and Technology ***Faxiang Zhang*,*** Kunming University of Science and Technology ***Cheng Hou,*** Kunming University of Science and Technology ***Jing Na,*** Kunming University of Science and Technology ***Zhi-Xin Yang,*** University of Macau

9:39-9:51	**105**	GoDeform: Benchmarking Skill Learning for Goal-conditioned Deformable Object Manipulation ***Shiguang Sun,*** Xi'an Jiaotong University ***Haiming Tian,*** Chinese Flight Test Establishment ***Xingyu Chen,*** Xi'an Jiaotong University ***Xuguang Lan*,*** Xi'an Jiaotong University
9:51-10:03	**111**	Optimal Decision-Making for Rapid and Low-Fuel Constellation Reconfiguration Targeting Multiple Ground Objects Based on Hierarchical Task Clustering ***Jian Kuang,*** Sichuan University ***Xiaoyi Guan,*** The Hong Kong Polytechnic University ***Bin Li*,*** Sichuan University ***Mingming Shi,*** Sichuan University
10:03-10:15	**126**	Prescribed-Time Sliding Mode Control for Manipulator Systems Under Actuator Saturation ***Xiaohua Liu,*** Huazhong University of Science and Technology ***Hai-Tao Zhang*,*** Huazhong University of Science and Technology ***Jiayu Zou,*** Huazhong University of Science and Technology ***Yaozhong Zheng,*** Huazhong University of Science and Technology ***Xingjian Liu,*** Huazhong University of Science and Technology
10:15-10:27	**138**	Real-Time Hysteresis Model of a Miniaturized Series Elastic Actuator for Hand Exoskeleton ***Zhenjia Ding,*** Macau University of Science and Technology ***Guotao Li*,*** Institute of Automation, Chinese Academy of Science ***Zengguang Hou,*** Institute of Automation, Chinese Academy of Science ***Can Su,*** University of Mining and Technology-Beijing

Technical Session 2
Bioinspired System Control

Session Chair: *Rui Huang*, University of Electronic Science and Technology of China, China

8:15-10:27

Puer Hall, 3F / 三楼，普洱厅

Time	Paper ID	Content
8:15-8:27	**11**	Differential-Geometric Optimal Guidance with Integrated Obstacle Avoidance for UAVs: Simulations and Experimental Validation ***Jinyan Li,*** National University of Defense Technology ***Kebo Li*,*** National University of Defense Technology ***Yangang Liang,*** National University of Defense Technology ***Xuesheng Qin,*** National University of Defense Technology ***Shaoming He,*** Beijing Institute of Technology
8:27-8:39	**15**	Bounded Leader-Following Consensus for Time-Varying Multi-Agent Systems via Dynamic Encoding-Decoding ***Xiufeng Pan,*** Nanjing University of Science and Technology ***Lifeng Ma,*** Nanjing University of Science and Technology ***Jingyu Chen*,*** Nanjing University of Science and Technology
8:39-8:51	**19**	Design Trade-offs in Bio-Inspired Adhesives: AFM Evidence from Micro-Wedge and Micropillar Arrays ***Hongyue Wu,*** Beihang University ***Huihe Qiu*,*** The Hong Kong University of Science and Technology, (Guangzhou) ***Jing Cui,*** Beijing University of Technology ***Zhongyi Chu*,*** Beijing University of Technology

8:51-9:03	**21**	Automated Design of Ophthalmic Predictive Models with Discretized Crested Ibis Algorithm ***Yuefeng Xu*,*** Niigata University ***Rui Zhong,*** Hokkaido University ***Zhang Chao,*** University of Toyama ***Yu Jun,*** Niigata University
9:03-9:15	**26**	Koopman-Based Modeling and Predictive Control for Flexible Spacecraft Attitude Stabilization ***Yumeng Han,*** Harbin Institute of Technology ***Haiyu Xu,*** Shanghai Institute of Satellite Engineering ***Yuhan Liu,*** Harbin Institute of Technology ***Pengyu Wang,*** Harbin Institute of Technology ***Yanning Guo*,*** Harbin Institute of Technology
9:15-9:27	**27**	Genetic Algorithm-Optimized Temporal Convolutional Network for sEMG-based Lower Limb Multi-Joint Motion Estimation ***Yongbai Liu,*** Xi'an University of Posts and Telecommunications ***Qianqian Fan,*** Xi'an University of Posts and Telecommunications ***Gang Wang,*** Changchun University of Technology ***Zhongbo Sun,*** Changchun University of Technology ***Keping Liu* ,*** Changchun University of Technology
9:27-9:39	**31**	Tactile-Based Underwater Grasping System ***Yanfen Chen,*** South China University of Technology ***Yuebin Zheng,*** Tsientang Institute for Advanced Study ***Chuang Han,*** Songshan Lake Material Laboratory ***Yanlin Chen,*** The Chinese University of Hong Kong ***Yanjiang Huang*,*** South China University of Technology ***Kehai Liu,*** Tsientang Institute for Advanced Study

9:39-9:51	**35**	NCSNN: Image Segmentation Based on Nonlinear Coding of SNN ***Yifan Feng,*** Aerial Photogrammetry and Remote Sensing Bureau ***Xiaofeng He,*** The Second Affiliated Hospital of Air Force Medical University ***Jiaqing Sun,*** Aerial Photogrammetry and Remote Sensing Bureau ***Langlang Luan,*** Aerial Photogrammetry and Remote Sensing Bureau ***Lin Chen,*** Aerial Photogrammetry and Remote Sensing Bureau ***Tian Lan*,*** Aerial Photogrammetry and Remote Sensing Group Co., LTD
9:51-10:03	**47**	Skill Composer: Automated Segmentation and Robot Skill Composition for Scalable Data Generation ***Huailiang Ma,*** Southeast University ***Bin Huang,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Bo Xu,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Aiguo Song*,*** Southeast University ***Mutian He,*** Southeast University ***Yibing Yan,*** Southeast University
10:03-10:15	**48**	Role-Based Cooperative Multi-Robot Adversarial Search in Unknown Environments via Reinforcement Learning ***Lian Liu,*** South China University of Technology, Pengcheng Laboratory ***Zhenmin Wang,*** South China University of Technology ***Jinqiang Cui*,*** Pengcheng Laboratory
10:15-10:27	**51**	Design of Lightweight Visual Detection Algorithm for Bionic Inspection Robot in Power Grid ***Yulong Yuan,*** Southeast University ***Bin Huang,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Bo Xu,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Aiguo Song*,*** Southeast University
10:27-10:50	**Coffee Break**	

Technical Session 3
Bioinspired Unmanned Systems

Session Chair: *Chunxi Yang*, Kunming University of Science and Technology, China

10:50-12:02

Ballroom 3, 2F / 二楼，宴会厅 3

Time	Paper ID	Content
10:50-11:02	**53**	Bayesian Evolutionary Optimization with Conditional Value at Risk for Robust Inverter Voltage Control in Power Systems ***Yening Tian,*** South China University of Technology ***Fengfeng Wei*,*** South China University of Technology ***Weineng Chen,*** South China University of Technology
11:02-11:14	**58**	Proportional Integral Funnel Control-Based RISE Observer for PMSM ***Shubo Wang*,*** Kunming University of Science and Technology ***Yuchi Jiang,*** Kunming University of Science and Technology ***Xian Wang,*** Kunming University of Science and Technology ***Haoran He,*** Kunming University of Science and Technology
11:14-11:26	**61**	Multimodal Teleoperation of Centaur Robot for Substation Maintenance ***Mutian He,*** Southeast University ***Bin Huang,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Bo Xu,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Aiguo Song*,*** Southeast University ***Huailiang Ma,*** Southeast University ***Yibing Yan,*** Southeast University

11:26-11:38	**63**	A Domain-Randomized Sim-to-Real Framework for Garment Folding Using a Low-Cost Robot ***Hongjun Yang*,*** Institute of Automation Chinese Academy of Sciences ***Zeyi Li,*** Chinese Academy of Sciences ***Shiying Sun,*** Institute of Automation, Chinese Academy of Sciences ***Zengguang Hou,*** Institute of Automation, Chinese Academy of Science
11:38-11:50	**66**	Integrated EKF-Based Sensor Fusion and MPC for Trajectory Tracking in Autonomous Vehicles ***Yifan Zhang,*** Beihang University ***Zizhuang Zhang,*** Beihang University ***Qiang Ni,*** Beihang University ***Taogang Hou*,*** Beijing Jiaotong University
11:50-12:02	**69**	Personalized Comfort Costmaps for Robot Navigation in Psychiatric Rehabilitation ***Dongxuan Li,*** Shandong University ***Penggang Li,*** Shandong University ***Guoliang Liu*,*** Shandong University ***Qi Jiang,*** Shandong University

Technical Session 4
Information Processing in Robotics
Session Chair: *Xiufeng Zhang*, Kunming University of Science and Technology, China
10:50-12:02
Puer Hall, 3F / 三楼，普洱厅

Time	Paper ID	Content
10:50-11:02	**72**	Optimized ResNet with Cross Attention for Multi-modal Fusion in Object Recognition Using Visual and Tactile Features ***Peng Wu*,*** City University of Macau ***Jiashu Liu,*** Southern University of Science and Technology ***Zeqin Lin,*** Southern University of Science and Technology ***Zihan Wang,*** Chinese Academy of Science ***Chiawei CHU,*** City University of Macau ***Zhengkun Yi,*** Shenzhen Institutes of Advanced Technology
11:02-11:14	**74**	Inertial/GNSS/OD Integrated Navigation Algorithm Based on Adaptive Factor Graph Optimization ***Haolan Shu,*** Beihang University ***Chao Xu,*** BDStar Navigation Co., Ltd ***Jing Yang*,*** Beihang University
11:14-11:26	**79**	Design and Performance Analysis of Imaging Robot for Aircraft Engine Intake Blade ***Yuhao Gao* ,*** Xi'an Jiaotong University ***Yang Hui,*** AVIC Xi'an Aircraft Industry Group Company Ltd ***Hu Shi,*** Xi'an Jiaotong University ***Feng Yang,*** AVIC Xi'an Aircraft Industry Group Company Ltd ***Boyang Zhang,*** Xi'an Jiaotong University

11:26-11:38	**84**	Proactive and Efficient Crowd Navigation: A Game-Theoretic Framework with Dynamic Risk-Awareness ***Yi Ren,*** University of Electronic Science and Technology of China ***Zhinan Peng*,*** University of Electronic Science and Technology of China ***Yiqun Kuang,*** University of Electronic Science and Technology of China ***Rui Huang,*** University of Electronic Science and Technology of China ***Hong Cheng,*** University of Electronic Science and Technology of China
11:38-11:50	**86**	Three-Objective Optimal Scheduling of Integrated Energy Systems Considering Uncertainties ***Jingchun Qi,*** Shenyang Institute of Technology ***Siyuan Liu,*** Tieling Power Supply Company, State Grid Liaoning Electric Power Company ***Xinfu Pang*,*** Shenyang Institute of Engineering ***Yue Zhu,*** Shenyang Institute of Engineering ***Wei Liu,*** Northeastern University
11:50-12:02	**87**	Design of a Collaborative Navigation Algorithm Validation Platform for Cross-Domain Heterogeneous Unmanned Systems ***Haoyu Zhou,*** Nanjing University of Aeronautics and Astronautics ***Zhi Xiong*,*** Nanjing University of Aeronautics and Astronautics ***Tianxyu Wu,*** Nanjing University of Aeronautics and Astronautics ***Huiming Wang,*** Nanjing University of Aeronautics and Astronautics

Poster Session 1

Session Chair: *Delin Luo*, Xiamen University, China
Meng Yuan, Beihang University, China

8:15-12:02

Diqing Hall, 3F / 三楼，迪庆厅

Time	Paper ID	Content
8:15-12:02	**2**	Synchronous Motion Control for Pneumatic Artificial Muscle-Actuated Parallel Robots with Fractional-Order Hysteresis Compensation ***Shuzhen Diao,*** Nankai University ***Tong Yang,*** Nankai University ***Qingxiang Wu,*** Nankai University ***Ning Sun*,*** Nankai University
	3	A Multi-maneuvering Space Target Tracking Integrating ViBe and PHD ***Jinzhen Mu,*** Shanghai Aerospace Control Technology Institute
	6	Search Planning for Aerial Swarm Robots Using Topological Sequential Greedy Algorithm ***Daifeng Zhang*,*** Qilu University of Technology ***Yanqiang Li,*** Qilu University of Technology ***Yong Wang,*** Qilu University of Technology

8:15-12:02	**8**	Modified Normal Forms-Based Control for General MIMO Underactuated Mechatronic Systems with Disturbances ***Meng Zhai*,*** Nankai University ***Tong Yang,*** Nankai University ***Qingxiang Wu,*** Nankai University ***Ning Sun,*** Nankai University
	9	Mobile Robot Path Planning via Group Merging Pigeon-Inspired Optimization ***Yingran Zhao*,*** Beijing University of Civil Engineering and Architecture ***Wenju Hu,*** Beijing University of Civil Engineering and Architecture
	10	Heterogeneous UAVs-UGVs Finite-time Formation Control Based on Human-Robot Interaction with LLM ***Hao Wu,*** Beihang University ***Jinqiang Cui*,*** Pengcheng Laboratory
	16	Fuzzy Radial Basis Function Neural Network Utilizing Linear Kernel PCA for Face Recognition ***Zheng Wang,*** Linyi University

8:15-12:02	**17**	Fuzzy Clustering Ensemble Neural Network Realized with Adaboost and Gradient Boosting approaches ***Kim Eun-Hu,*** Linyi University
	18	Mamba-based Human Movement Intention Prediction Network with Multimodal Information Integration ***Jinghao Zhang,*** University of Shanghai for Science and Technology ***Zhiqiang Pei,*** University of Shanghai for Science and Technology ***Tingting Su,*** Beijing University of Technology ***Tairen Sun*,*** University of Shanghai for Science and Technology
	20	Collaborative Task Optimization for Swarm Robot Systems Based on Graph Neural Networks and Ant Colony Optimization ***Xinglong Zhang*,*** Nanjing University of Aeronautics and Astronautics ***ZiYuan Ma,*** Nanjing University of Aeronautics and Astronautics ***Huajun Gong,*** Nanjing University of Aeronautics and Astronautics ***Xinhua Wang,*** Nanjing University of Aeronautics and Astronautics
	23	Knowledge-data Fusion Based Multi-scale Fault Diagnostics and Augmented Reality Aided Maintenance ***Biao Ding*,*** Beihang University ***Yiwei Wang,*** Beihang University ***Zhendong Wei,*** Beihang University ***Jian Chen,*** Beihang University

8:15-12:02	**24**	A Novel Explosive Actuator for a Frog-Inspired Jumping Robot ***Yingbin Su,*** Harbin Institute of Technology ***Xinyang Zhao,*** Harbin Institute of Technology ***Hongjin Pang,*** Harbin Institute of Technology ***Yichun Liu,*** Harbin Institute of Technology ***Tian Xu*,*** Harbin Institute of Technology ***Ji-zhuang Fan,*** Harbin Institute of Technology ***Jie Zhao,*** Harbin Institute of Technology
	25	Hydrodynamic Optimization Design of Differential Vector Propulsion Hydrofoil Considering Airfoil Control Capability ***Shiyou Zhao,*** National University of Defense Technology ***Mengsen Zhao,*** National University of Defense Technology ***Yue Cao,*** National University of Defense Technology ***Kun Liu,*** National University of Defense Technology ***Junhao Xiao,*** National University of Defense Technology ***Kaihong Huang*,*** National University of Defense Technology ***Huimin Lu,*** National University of Defense Technology
	28	Decentralized Adaptive Tracking Control for Bionic Inchworm Modular Robot ***Bing Ma,*** Changchun University of Technology ***Jiaxv Gao,*** Changchun University of Technology ***Zebin Ji,*** Changchun University of Technology ***Yuanchun Li,*** Changchun University of Technology ***Zhenguo Zhang,*** Changchun University of Technology ***Tianjiao An,*** Changchun University of Technology ***Qiang Pan*,*** Changchun University of Technology
	30	LPlanner : A LiDAR-based End-to-end Drone Navigation Planner ***Chao Jing,*** Beijing University of Chemical Technology ***Wenjing Yang,*** Beijing University of Chemical Technology ***Chongyang Ma,*** Beijing University of Chemical Technology ***Ran Huang*,*** Beijing University of Chemical University

8:15-12:02	**32**	Generating Stall Recovery Policies Using Generalized Proximal Policy Optimization ***Junqiu Wang*,*** Chinese Aeronautical Establishment ***Tianze Liu,*** Chinese Aeronautical Establishment ***Jianmei Tan,*** Chinese Aeronautical Establishment
	34	Multi-task Trajectory Tracking Control of Quadruped Manipulators Based on NMPC with Time-varying Terminal Cost ***Chuanle Zhu*,*** Shandong University ***Hui Chai,*** Shandong University ***Xincheng Tian,*** Shandong University ***Qin Zhang,*** University of Jinan ***Song Liu,*** Qingdao University ***GuangLei Li,*** University of Jinan ***Meiyi Chen,*** Shandong University ***Minghui Wang,*** Shandong University
	37	Research on Swarm Robotics Systems Collaborative Task Allocation Based on Dynamic Graph Attention Network and Swarm Intelligence Optimization Fusion Algorithm in Complex Scenarios ***ZiYuan Ma* ,*** Nanjing University of Aeronautics and Astronautics ***Pengyu Feng,*** Nanjing University of Aeronautics and Astronautics ***Huajun Gong,*** Nanjing University of Aeronautics and Astronautics ***Xinhua Wang,*** Nanjing University of Aeronautics and Astronautics
	38	Modeling and Algorithm Optimization for Multi-Task Scheduling in Flange Workshops Facing Uncertainty ***JunQi Sun,*** Taiyuan University of Science and Technology ***Zeyu Wu,*** Taiyuan University of Science and Technology ***Linjie Wu,*** Taiyuan University of Science and Technology ***Tianhao Zhao,*** Taiyuan University of Science and Technology ***Xingjuan Cai *,*** Taiyuan University of Science and Technology ***Zhihua Cui,*** Taiyuan University of Science and Technology

8:15-12:02	**73**	A High-Torque and Low-Latency Servo used in the Coaxial Helicopter ***Zhi Chen,*** Shanghai University ***Yifei Chen *,*** Shanghai University ***Gong Jue,*** Shanghai University ***Liu Zhengjun,*** Shanghai University
	78	A Knowledge Graph-based Approach for Domino Accidents Evolution in Chemical Industrial Parks ***Hongyue He*,*** Army Engineering University of PLA ***Tingting Bai,*** Army Engineering University of PLA ***Wei Han,*** Army Engineering University of PLA ***Yefang Liu,*** Army Engineering University of PLA
	116	An Improved Pigeon-Inspired Optimization Algorithm with Quantum Evolutionary Strategy ***Zhe Wang*,*** Nanjing University of Aeronautics and Astronautics ***Yanbin Liu,*** Nanjing University of aeronautics and astronautics ***Delin Luo,*** Xiamen University ***Boyi Chen,*** Nanjing University of Aeronautics and Astronautics
	122	Multi-UAV Cooperative Encirclement Integrating Deep Reinforcement Learning and Capture Determination ***Chunyan Wang,*** Beijing Institute of Technology ***Haozhe Ding,*** Beijing Institute of Technology ***Shaopeng Yi,*** Beijing Institute of Technology ***Wei Dong*,*** Beijing Institute of Technology ***Fang Deng,*** Beijing Institute of Technology

8:15-12:02	**123**	Dual-Array FBG Sensor for Hemodynamic Monitoring via Multi-Feature Fusion ***Yushun Tao ,*** Chinese Academy of Sciences Shenzhen ***Tiandong Lu,*** SIAT ***Zeyang Xia,*** Shanghai Jiao Tong University ***Jing Xiong*,*** Chinese Academy of Sciences
	124	A Physics-Informed Neural Network Framework for Robust and Interpretable Electroencephalograph(EEG) Motor Imagery Decoding ***Wenzhuo Wang,*** Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences ***Xueyan Lyu,*** Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences ***Lin Wang*,*** Chinese Academy of Sciences
	129	Generalized Mobile Manipulation Framework for Humanoid Robots Based on Gewu Playground ***Yuting Zhang,*** Shanghai University ***Linqi Ye*,*** Tsinghua Shenzhen International Graduate School
	130	Adaptive Muscle Strength Training for Ankle Rehabilitation Based on Angle/Torque and sEMG ***Mingjie Dong,*** Beijing University of Technology ***Tingting Su,*** Beijing University of Technology

8:15-12:02	**134**	Variable-Stiffness Robotic Actuator with Dual-Motor Current Distribution ***Guangyi Wang* ,*** Northwestern Polytechnical University ***Hongjing Liang,*** University of Electronic Science and Technology of China ***Heping Chen,*** Texas State University
	139	Construction and Implementation of an Omni-directional Mobile Robot Based on Multi-modal Perception System ***Xuyang Wu,*** University of Science and Technology Beijing ***Yunzhe Shang,*** Chinese Academy of Science ***Jinhua Wang,*** Beihang University ***Yuxuan Zhao,*** Chinese Academy of Sciences ***Wei Wu,*** Institute of Automation, Chinese Academy of Sciences ***Yidao Ji*,*** University of Science and Technology Beijing
	140	RRPIO: Random Regeneration Pigeon-inspired Optimization ***Yixuan Xi*,*** Beihang University ***Shiqi Gong,*** Beihang University
	141	Population Dynamics Forecast Based on Liquid Neural Networks ***Baochuan Tian*,*** Beijing Polytechnic University ***Xiangming Kong,*** Beijing Polytechnic University ***Gang Wu,*** Zhongyuanyu Research Center of Water Environmental Sciences
12:10-14:00	**Buffet Lunch** （*Feast Restaurant, 2F /* 二楼，盛宴标帜餐厅）	

Technical Session 5
Bioinspired Systems Modeling and Control

Session Chair: *Faxiang Zhang*, Kunming University of Science and Technology, China

14:00-15:00

Ballroom 3, 2F / 二楼，宴会厅 3

Time	Paper ID	Content
14:00-14:12	**88**	Robotic Wavelet Visual Servoing for Longitudinal PAM Tumor Monitoring ***Yuwei Luo,*** Great Bay University ***Rui Yang,*** Harbin Institute of Technology, Shenzhen ***Xianghu Yu,*** Great Bay University ***Haohong Mo,*** Great Bay University ***Li Liu*,*** Great Bay University
14:12-14:24	**90**	An Improved VMD-Based Framework of Surrogate Data Generation for EEG Signals ***San Zhang*,*** Xi'an University of Posts and Telecommunications ***Qianwen Ding,*** Xi'an University of Posts and Telecommunications ***Yuhang Ma,*** Xi'an University of Posts and Telecommunications ***Manli Zhou,*** Xi'an University of Posts and Telecommunications ***Shiliang Zhou,*** Xi'an University of Posts and Telecommunications
14:24-14:36	**93**	LLM-Driven Automatic Construction and Resource Optimization for Large-Scale UAV Simulation ***Guocai Liu,*** Pengcheng Laboratory ***Jinqiang Cui*,*** Pengcheng Laboratory ***Xuchen Liu,*** The Chinese University of Hong Kong ***Baining Zhao,*** Pengcheng Laboratory ***Weihua Li,*** Beihang University

14:36-14:48	**94**	A Review of 100-kW-Class Piston-Based Hybrid Power Systems for Long-Endurance Low-Altitude Aircraft ***Rui Lu,*** Tianmushan Laboratory, Beihang University ***Yanyan Zhang*,*** Tianmushan Laboratory ***Yang Feng,*** Tianmushan laboratory ***Gan Shao,*** Tianmushan laboratory ***Maolin Zhang,*** Tianmushan Laboratory, Beihang University ***Ruquan You,*** Tianmushan Laboratory, Beihang University
14:48-15:00	**96**	Robotic Visual Servo Control Realized by Image-Data-Driven Deep Reinforcement Learning ***Pingyong Zhong,*** Kunming University of Science and Technology ***Hang Yang,*** Kunming University of Science and Technology ***Yingbo Huang*,*** Kunming University of Science and Technology

Technical Session 6
Bioinspired Robotics Mechtronics
Session Chair: *Tun Wang*, China University of Petroleum-Beijing, China
14:00-15:00
Puer Hall, 3F / 三楼，普洱厅

Time	Paper ID	Content
14:00-14:12	**98**	A Unified Evaluation Framework for Detection and Attack Payoffs of Hypersonic Formations via Gaussian Process Regression ***Chunyan Wang,*** Beijing Institute of Technology ***Xueyu Li,*** Beijing Institute of Technology ***Xin Yi*,*** Beijing Institute of Technology ***Wei Dong,*** Beijing Institute of Technology

14:12-14:24	**100**	Design and Performance Analysis of an Electrostatic-Clutch–Based Hand Force-Feedback Device ***Shaowei Xue,*** Xi'an Jiaotong University ***Hu Shi*,*** Xi'an Jiaotong University ***Longfei Jia,*** Laboratory of Aerospace Servo Actuation and Transmission, Beijing Institute of Precision
14:24-14:36	**106**	Magnetic Capsule Trajectory Planning Method Based on Improved Dueling DQN ***Zhuoyi Lu,*** Zhejiang University of Technology ***Dongrui Huo,*** Zhejiang University of Technology ***Luyang Jin,*** College of Information Engineering ***Xuanmian He,*** Zhejiang University of Technology ***Peng Chen,*** Zhejiang University of Technology ***Xiongxiong He,*** Zhejiang University of Technology ***Qiang Chen*,*** Zhejiang University of Technology
14:36-14:48	**107**	Multi-Rigid-Body Approximation of Human Hands with Application to Digital Twin **Bin Zhao,** East China University of Science and Technology **Yiwen Lu,** Tsinghua University ***Haohua Zhu,*** DexRobot Co. Ltd. ***Xiao Li,*** Changchun Veterinary Research Institute, Chinese Academy of Agricultural Sciences ***Sheng Yi*,*** DexRobot Co. Ltd.
14:48-15:00	**110**	Cooperative Spiral-Sparrow PSO for High-Dimensional Multi-Objective Problems ***Haochen Zhao,*** Taiyuan University of Science and Technology ***Saisai Wu,*** Taiyuan University of Science and Technology ***Jie Wen*,*** Taiyuan University of Science and Technology ***Wang Qian,*** Taiyuan university of science and technology ***Mingyuan Zhang,*** Taiyuan University of Science and Technology ***Yaoyao Zhang,*** Taiyuan University of Science and Technology
15:00-15:30	**Coffee Break**	

Technical Session 7
Bioinspired System Interactions
Session Chair: *Xingshuo Hai*, Beihang University, China
15:30-16:30
Ballroom 3, 2F / 二楼，宴会厅 3

Time	Paper ID	Content
15:30-15:42	**118**	Pico-Gewu: A Virtual Reality Teleoperation Simulation Platform for Embodied Intelligence Data Collection Based on Pico VR and Unity ***Zehua jiang,*** Shanghai university ***Linqi Ye*,*** Tsinghua Shenzhen International Graduate School ***Yan Peng,*** Shanghai University
15:42-15:54	**120**	Dynamic Model-Based Aircraft Intention Recognition System Design ***Ruimin Xie,*** Beijing University of Aeronautics and Astronautics ***Shangheng Li,*** Beihang University ***Hao Liu*,*** Beihang University ***Jianquan Bi,*** Army Academy of Armored Forces
15:54-16:06	**121**	Optimal Assignment and Barrier Analysis in Cross-Dimensional Multi-Agent Reach-Avoid Games ***Hao Liu*,*** Beihang University ***Shangheng Li,*** Beijing University of Aeronautics and Astronautics ***Haibin Duan,*** Beihang University ***Jianquan Bi,*** Army Academy of Armored Forces

16:06-16:18	**127**	A Trajectory Planning Method of Cabin-Cleaning Robots Based on Imitation Learning ***Qun Xiao,*** Shandong University ***Xinli Wang*,*** Shandong University ***Rui Song,*** Shandong University ***Liusong Yang,*** CITIC Heavy Industries Co., Ltd.
16:18-16:30	**128**	Design and Kinematic Modeling of a Bio-inspired Back-support Wearable Exoskeleton ***Yutong Wen,*** Kunming University of Science and Technology ***Guanbin Gao*,*** Kunming University of Science and Technology ***Cheng Hou,*** Kunming University of Science and Technology ***Jing Na,*** Kunming University of Science and Technology

Technical Session 8
Bioinspired Control Applications
Session Chair: *Fei Liu*, Kunming University of Science and Technology, China
15:30-16:30
Puer Hall, 3F / 三楼，普洱厅

Time	Paper ID	Content
15:30-15:42	**131**	A Multi-scale Feature Enhancement Algorithm to Segment Retinal Vessels in Fundus Photographs and OCTA Images ***Zhijin Wang,*** Kunming University of Science and Technology

15:42-15:54	**133**	Kinematic Parameter Identification Method Using a Line-Laser Sensor with Bayesian Regularization ***Maoxin Yao,*** Kunming University of Science and Technology ***Fei Liu*,*** Kunming University of Science and Technology ***Guanbin Gao,*** Kunming University of Science and Technology ***Hao Jiang,*** Kunming University of Science and Technology
15:54-16:06	**136**	Hemodynamics and Angiogenesis Inspired Model for Generation of Multi-scale Retinal Vasculature ***Yuan Li,*** Kunming University of Science and Technology
16:06-16:18	**137**	SJRAE: A Semantic-Geometric Joint Reasoning Autonomous Exploration Method in Weak-Textured, Large-Scale Scenarios ***Jialin Zhu,*** China Academy of Launch Vehicle Technology ***Jialin Wang*,*** China Academy of Launch Vehicle Technology ***Hu Huang,*** Nanjing University ***Benchang Zheng,*** Research and Deployment Apartment ***Ze Wang,*** China Academy of Launch Vehicle Technology
16:18-16:30	**142**	Research on Many-Dimensional Multi-Objective Production Scheduling Optimization for Flange Enterprises ***Xin Song,*** Taiyuan University of Science and Technology ***Yifu Ren,*** Taiyuan Qingzhongxin Technology Co., Ltd. ***Bin Wang,*** Taiyuan University of Science and Technology ***Jingbo Zhang,*** Taiyuan University of Science and Technology ***Xingjuan Cai *,*** Taiyuan University of Science and Technology

Poster Session 2

Session Chair: *Zhihua Cui*, Taiyuan University of Science and Technology, China

***Meng Yuan*, Beihang University, China**

14:00-16:30

***Diqing Hall, 3F* / 三楼，迪庆厅**

Time	Paper ID	Content
14:00-16:30	**40**	Mobile Robot Path Planning Using a Hybrid-Mutation Particle Swarm Optimization ***Fei Yan**,* Xi'an University of Posts and Telecommunications ***Chizhuo Che,*** Xi'an University of Posts and Telecommunications ***Kejin Li,*** Chang'an University ***Zhongxian Xu,*** Xi'an University of Posts and Telecommunications ***Jing Chu,*** Xi'an University of Posts and Telecommunications
	46	Priority-Ordered Conflict-Resolution for Multi-Agent UAV Swarms: A Strategy-Ranking Approach to Collision-Free Flight ***Yulong Cao,*** Air Force Engineering University ***Guhao Zhao,*** Air Force Engineering University ***Zhichong Zhou,*** Air Force Engineering University ***Rui Su,*** Air Force Engineering University
	49	A High-Efficiency, Low-Latency SNN for Gesture Recognition ***Sijia Wang,*** University of Shanghai for Science and Technology ***Zhaoran Peng,*** University of Shanghai for Science and Technology ***Wenqing Xia,*** University of Shanghai for Science and Technology ***Tingting Su,*** Beijing University of Technology ***Jiantao Yang**,*** University of Shanghai for Science and Technology

14:00-16:30	**50**	Distributed Node-to-Node State Consensus in Two-Layer Multi-Agent Systems with Switching Topologies ***Jiaqun Yu,*** Liaoning Technical University ***Yiming Wang,*** Liaoning Technical University ***Xiao Fang*,*** Southeast University
	52	From Semantics to Actions: A Hierarchical Framework for Robotic Power Maintenance ***Bin Huang,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Yibing Yan,*** Southeast University ***Bo Xu,*** Maintenance Branch of State Grid Jiangxi Electric Power Company ***Aiguo Song*,*** Southeast University
	55	Addressing Local Minima in Drone Path Planning with VAPF-TD3 ***Boyi Xiao,*** Air Force Engineering University ***Tianhao Cheng,*** Air Force Engineering University ***Wan Lujun*,*** Air Force Engineering University ***Qiang Li,*** Air Force Engineering University
	57	Cooperative Fault-tolerant Pursuit-evasion Game for Unmanned Helicopter Swarm under Cognitive Constraints ***Yuhang Xu,*** Nanjing University of Aeronautics and Astronautics

14:00-16:30	**59**	Robust Visual Localization Against UAV Yaw Angle Rotation via Accelerated Feature Matching ***Peng Tang,*** Beihang University ***Chenfeng Ouyang,*** Hangzhou International Innovation Institute of Beihang University ***Yanyan Zhang*,*** Tianmushan Laboratory
	60	A Multi-model Composite Adaptive Indicator Dimensionality Reduction Interval Many-Objective Evolutionary Algorithm ***Mian Zhang,*** Taiyuan University of Science and Technology ***Hang Su,*** Taiyuan University of Science and Technology ***Zhixia Zhang* ,*** Taiyuan University of Science and Technology ***Qian Guo,*** Taiyuan University of Science and Technology ***Erliang Yao,*** Taiyuan University of Science and Technology
	62	Improved Datalink-based Double Grid Relative Navigation for UAV Swarm in GNSS Challenging Environments ***Jiayu Yan,*** Harbin Engineering University ***Bowen Wu,*** Harbin Engineering University ***Haobo Pan,*** Harbin Engineering University ***Jiashuo Li ,*** Harbin Engineering University ***Yulong Huang*,*** Harbin Engineering University
	64	Small UAV Maneuver Countermeasure Decision-making Based on Deep Reinforcement Learning ***Qiang Ni,*** Beihang University ***Zizhuang Zhang,*** Beihang University ***Yifan Zhang,*** Beihang University ***Zhuoning Dong*,*** Beihang University

14:00-16:30	**67**	Design and Dynamics Analysis of Biomimetic X-shaped Robot Crawler Chassis with Inerter ***Shichang Han,*** Kunming University of Science and Technology ***Jingwen Wang*,*** Kunming University of Science and Technology ***Suo Yang,*** Kunming University of Science and Technology ***Rundong Ding,*** Kunming University of Science and Technology
	68	Research on X-Shaped Bionic Seat Isolation with an Inerter ***Jun Yang*,*** Kunming University of Science and Technology ***Shichang Han,*** Kunming University of Science and Technology ***Xi Li,*** Honghe University ***Junlang Chen,*** Kunming University of Science and Technology
	71	Research on Intelligent Exoskeleton Assistance System Based on Motion Intention Recognition ***Yuwei Jiang* ,*** China Southern Power Grid Technology Co., Ltd. ***Liqiang Zhong,*** China Southern Power Grid Technology Co., Ltd. ***Xiaoming Mai,*** China Southern Power Grid Technology Co., Ltd. ***Zexu Shen,*** Southeast University
	77	Improved YOLOv8 Switchgear State Detection Algorithm for Substation Inspection Robots ***Guangyou Qiu,*** China Oil and Gas Pipeline Network Corporation ***Yahui He*,*** China Oil and Gas Pipeline Network Corporation ***Jihui Leng,*** China Oil and Gas Pipeline Network Corporation

14:00-16:30	**80**	Design of a Drone System Based on the Integration of Machine and Vehicle ***Haoyuan Bing,*** Tianjin Sino-German University of Applied Sciences ***Zhi Hong Lan,*** Tianjin Sino-German University of Applied Sciences ***Ying Li,*** Tianjin Sino-German University of Applied Sciences ***Lushaoyang Wang,*** Tianjin Sino-German University of Applied Sciences ***Xinze Yang,*** Tianjin Sino-German University of Applied Sciences ***Yangshuo Zhao,*** Tianjin Sino-German University of Applied Sciences ***Guoli Ma*,*** Tianjin Sino-German University of Applied Sciences ***Hongmin Pen,*** Tianjin Sino-German University of Applied Sciences ***Qiuyan Lqy,*** Tianjin Coastal Polytechnic
	83	Straight-Line Path Following Control Using a Disturbance Attenuation Guidance Law for Fixed-Wing Unmanned Aerial Vehicles ***Qite Wang*,*** China Academy of Aerospace Electronics Technology ***Songsong Ji,*** Aerospace Times Feihong Technology Co., LTD., China Academy of Aerospace Electronics Technology ***Yuqing He,*** China Academy of Aerospace Electronics Technology ***Chenning Zhang,*** China Academy of Aerospace Electronics Technology ***Tizhou Qiao,*** China Academy of Aerospace Electronics Technology ***Jia Zhao,*** China Academy of Aerospace Electronics Technology ***Song Han,*** China Academy of Aerospace Electronics Technology
	85	Robust Multi-Robot Task Allocation Optimization Based on Adaptive Large Neighborhood Search ***Wei Chen,*** Army Engineering University of PLA ***Qing Sun,*** Jiangsu Normal University ***Xiaohai Ren,*** Jiangsu Normal University ***Wei Han,*** Army Engineering University of PLA ***Haiyuan Wang*,*** Army Engineering University of PLA ***Xiaolong Du,*** Army Engineering University of PLA ***Hongxu Zhu,*** Army Engineering University of PLA
	89	A Pigeon Flocking-Inspired Distributed Control Framework for Cooperative Defense of UAV Swarm ***Wanying Ruan*,*** Shijiazhuang Tiedao University ***Yarong Wang,*** Shijiazhuang Tiedao University ***Yichao Chen,*** Shijiazhuang Tiedao University ***Bin Wang,*** Shijiazhuang Tiedao University

14:00-16:30	**92**	An Improved Deep Learning Network Model for Ore Detection Under Complex Working ***Jia Liu,*** Kunming University of Science and Technology ***Long Wu,*** Kunming University of Science and Technology ***Chunxi Yang*,*** Kunming University of Science and Technology ***Xiufeng Zhang,*** Kunming University of Science and Technology ***Hongwei Sun,*** Huazhong University of Science and Technology
	95	Shape Optimization of Wave Energy Converter Based on the Improved Grey Goose Optimization Algorithm ***Qin Bai,*** Kunming University of Science and Technology ***Siyu Chen,*** Kunming University of Science and Technology ***Yingbo Huang*,*** Kunming University of Science and Technology
	97	A Bio-inspired SAW-Propelled Microrobot for Untethered Motion in Liquid Environments ***Hetao Xie,*** University of Jinan ***Zhe Wang,*** Shandong University ***Yupeng Yang,*** Macau University of Science and Technology ***Zengguang Hou,*** Institute of Automation Chinese Academy of Science ***Weijia Zhou,*** University of Jinan ***Zenan Wang* ,*** Shenzhen Institute of Advanced Technology, CAS
	101	Tactile Grasp Stability Recognition Based on Temporal-Spectral Convolutional Neural Network ***Jiashu Liu*,*** Southern University of Science and Technology ***Peng Wu,*** City University of Macau ***Senlin Fang,*** Shenzhen Institute of Advanced Technology ***Zihan Wang,*** Chinese Academy of Science ***Yilin Li,*** Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences ***Zhengkun Yi,*** Shenzhen Institutes of Advanced Technology

14:00-16:30	**103**	Path Planning for Unmanned Vehicles in Dynamic Environments Based on APF-DWA Algorithm ***Wanjing Zhang,*** Qingdao University of Technology
	108	Distributed Anti-Deception Cancer Diagnosis via Nanorobot Swarm Consensus ***Jiaxin Sun,*** Southeast University ***Xuanzheng Zhou,*** Southeastern University ***Cao Yang*,*** Southeast University ***Xin Gong ,*** Southeast University ***Tao Yu,*** Southeast University ***Ziqi Xu,*** Nanjing Normal University
	112	Deep Koopman-Based Optimal Control for Spacecraft Attitude Reorientation ***Wenhao Zhang,*** Sichuan University ***Bin Li* ,*** Sichuan University
	113	Dual-Channel Fixed-Time Fault-Tolerant Control of Multiple Fixed-Wing UAVs ***Canhui Zhou,*** Nanjing Research Institute of Electronics Engineering ***Zhewen Xing,*** Nanjing Research Institute of Electronics Engineering ***Chuan Yu,*** Nanjing University of Aeronautics and Astronautics ***Ziquan Yu*,*** Nanjing University of Aeronautics and Astronautics
	117	Based on Artificial Potential Field Method Drone Swarm Hunting Behavior Flight Control Algorithm ***Songsong Ji*,*** Aerospace Times Feihong Technology Co., LTD., China Academy of Aerospace Electronics Technology ***Qite Wang,*** China Academy of Aerospace Electronics Technology ***Chao Zhang,*** China Academy of Aerospace Electronics Technology ***Yuqing He,*** China Academy of Aerospace Electronics Technology ***Tizhou Qiao,*** China Academy of Aerospace Electronics Technology ***Jia Zhao,*** China Academy of Aerospace Electronics Technology ***Song Han,*** China Academy of Aerospace Electronics Technology

14:00-16:30	**119**	Particle Set-Membership Filtering-Based Distributed Localization ***Yute Xiao,*** National University of Defense Technology ***Xujie Qin,*** National University of Defense Technology ***Shuo Zhang,*** National University of Defense Technology ***Xiangke Wang,*** National University of Defense Technology ***Yirui Cong*,*** National University of Defense Technology
	132	Cooperative Search of Multiple Unmanned Aerial Vehicles Based on Evaluation of Multiple Dimensional Communication Quality ***Shuqi Yang,*** Dalian University of Technology ***Peng Tian,*** Dalian University of Technology ***Feiyue Wu,*** Dalian University of Technology ***Jie Lian,*** Dalian University of Technology ***Dong Wang*,*** Dalian University of Technology
	144	Improved Eagle Optimization Algorithm and Its Application Research ***Zhang Wei,*** Jilin Jianzhu University ***Xingjuan Cai,*** Taiyuan University of Science and Technology ***Tiedong Zhao,*** Jilin Provincial Transportation Comprehensive Administrative Law Enforcement Bureau ***Yi Zhang*,*** Jilin Jianzhu University
18:00-21:00	**Award Ceremony & Banquet** （*Ballroom 2, 2F* / 二楼，宴会厅 2）	

NOTE

NOTE

NOTE

NOTE

2026 INTERNATIONAL CONFERENCE ON BIO-INSPIRED SYSTEM AND ROBOTICS (ICBSR 2026)

2026.12.25-28 | XIAMEN, CHINA

Website: https://www.icbsr.org/ | Email: info@icbsr.org | Phone: +86-199 8310 6382

Xishuangbanna, China | Dec. 26-29, 2025
https://www.icbsr.org/