



2023

第三届中国 自主无人系统大会

3rd International Conference on Autonomous Unmanned Systems

共享智能新成果 共促自主新发展

会议手册

CONFERENCE GUIDE

中国·南京

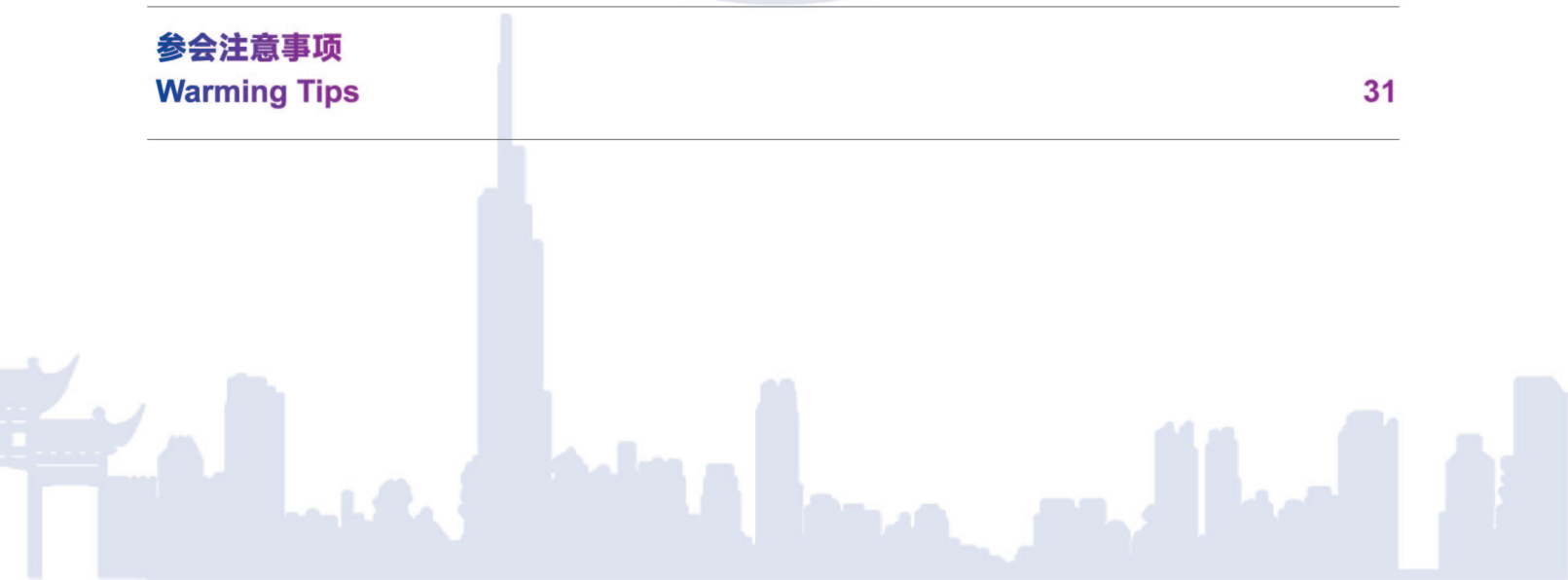
2023年9月8-11日



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<p>Sponsors</p>	<p>Nanjing University of Science and Technology China Aerospace Science and Industry Corporation Limited National University of Defense Technology Northwestern Polytechnical University China North Industries Group Corporation Limited China South Industries Group Corporation Limited</p>
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<p>Co-organizers</p>	<p>Beijing HIWING Scientific and Technological Information Institute Chinese Society of Inertial Technology The Institution of Engineering and Technology (IET) Beijing Mechanical Equipment Research Institute Shaanxi Aviation Society Systems Engineering Society of Jiangsu Hunan Provincial Key Laboratory of Unmanned Systems Technology National Key Laboratory of Science and Technology on UAV Shaanxi University Engineering Research Center of Intelligent Aircraft HIWING General Aviation Equipment Corporation Limited Springer Group Beijing Hangke Culture & Media Co., Ltd. Beijing M.I.C.E 99 International Co., Ltd.</p>



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中国航空学会无人机及微型飞行器分会

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会议日程

SCHEDULE

10th September		09:00-17:00
Opening Ceremony + Keynote Speeches		Venue: Purple Place Ballroom
Time	Activities	
09:00-09:20	Opening Ceremony	
09:20-09:40	Challenge Review & Award Ceremony & Handover Ceremony	
09:40-10:00	Group Photo & Coffee Break & Poster Communication	
10:00-10:40	Academician Zhiming QIU (Naval Research Institute of PLA) Subject: Intelligent Technology Development for Marine Unmanned Systems	
10:40-11:20	Academician Guang CHEN (Nanjing University of Science and Technology) Subject: Demand for Lightweight Heat-resistant Alloys in Aerospace Power Systems	
11:20-12:00	Academician Ruping ZOU (China North Industries Group Corporation Limited) Subject: Swarm Loitering Systems Technology	
12:00-14:00	Lunch Break	
14:00-14:30	Prof. Xin ZHENG (China Aerospace Science and Industry Corporation Limited) Subject: Development Status, Trends and Implications for Unmanned Systems of the Third-generation Inertial Guidance	
14:30-15:00	Prof. Lihua XIE (Nanyang Technological University, Singapore) Subject: Multi-modality Sensor Fusion for Perception of Unmanned Systems in Complex Environments	
15:00-15:30	Prof. Bo SU (China North Industries Group Corporation Limited) Subject: Research on Intelligent Definition of Off-road Robots	
15:30-16:00	Coffee Break & Poster Communication & Exhibition	
16:00-16:30	Prof. Long HE (China South Industries Group Corporation Limited) Subject: Application Status and Development Trends of Intelligent Unmanned Systems in Soldier Unit	
16:30-17:00	Prof. Huajie HONG (National University of Defense Technology) Subject: Utilization and Implications of Unmanned Systems in Modern Warfare	

9月10日 开幕式+主旨报告		09:00-17:00 地点：紫金会议中心一层·紫金厅
时间	内容	
09:00-09:20	开幕式&领导致辞	
09:20-09:40	<ul style="list-style-type: none"> · 播放2023“照萤杯”智能无人系统应用挑战赛回顾视频 · 颁奖典礼（优秀论文、优秀海报、优秀组织者） · 承办单位交接仪式 	
09:40-10:00	合影、茶歇、壁报展示	
10:00-10:40	报告人：邱志明 院士（海军装备研究院） 报告题目：海上无人系统智能技术发展	
10:40-11:20	报告人：陈光 院士（南京理工大学） 报告题目：空天动力系统对轻质耐热合金的需求	
11:20-12:00	报告人：邹汝平 院士（中国兵器工业集团有限公司第二〇三研究所） 报告题目：巡飞集群系统技术	
12:00-14:00	午餐、午休	
14:00-14:30	报告人：郑辛 研究员（中国航天科工集团有限公司） 报告题目：第三代惯导发展现状、趋势以及对无人系统的影响	
14:30-15:00	报告人：谢立华 教授（新加坡南洋理工大学） 报告题目：复杂环境下无人系统的感知与导航	
15:00-15:30	报告人：苏波 研究员（中国兵器工业集团有限公司） 报告题目：智能定义越野机器人研究	
15:30-16:00	茶歇、壁报展示、参观展览	
16:00-16:30	报告人：何龙 研究员（中国兵器装备集团有限公司） 报告题目：士兵分队中的智能无人系统应用现状与发展趋势	
16:30-17:00	报告人：洪华杰 研究员（国防科技大学） 报告题目：现代战争中的无人系统运用及启示	



Technical Sessions

Session	Chairs
Session 1 Unmanned Aircraft Systems Technologies	Chairs: Prof. Honglun WANG, Beihang University, China Assoc. Prof. Huangchao YU, National University of Defense Technology, China Co-Chairs: Prof. Guohua WU, Central South University, China Prof. Jikai LIU, Shandong University, China Assoc. Prof. Haijun XU, National University of Defense Technology, China
Session 2 Applications and Key Technologies of Unmanned Driving Systems	Chair: Assoc. Prof. Shanglu HE, Nanjing University of Science and Technology, China Co-Chairs: Lecturer Xuting DUAN, Beihang University, China Lecturer Zi YANG, Nanjing University of Science and Technology, China
Session 3 Unmanned Surface and Underwater Systems Technologies	Chair: Prof. Xingguang PENG, Northwestern Polytechnical University, China Co-Chairs: Assoc. Prof. Peng YAO, Ocean University of China, China Research Fellow Zhenkai XIONG, Anhui University of Science and Technology, China Assoc. Prof. Le LI, Northwestern Polytechnical University, China
Session 4 Robot Intelligent Perception and Planning Control Technologies	Chairs: Prof. Jian GUO, Nanjing University of Science and Technology, China Assoc. Prof. Liang SHAN, Nanjing University of Science and Technology, China Co-Chairs: Assoc. Prof. Lidong HE, Nanjing University of Science and Technology, China Assoc. Prof. Jia SONG, Beihang University, China
Session 5 Artificial Intelligence and Its Applications in Unmanned Systems	Chairs: Assoc. Prof. Honghui YANG, Northwestern Polytechnical University, China Assoc. Prof. Chang WANG, National University of Defense Technology, China Co-Chairs: Assoc. Prof. Jianwu FANG, Chang'an University, China Assoc. Prof. Changyun WEI, Hohai University, China Senior Engineer Yashen WANG, Artificial Intelligence Institute of CETC, China
Session 6 Intelligent Space Unmanned Systems Technologies	Chairs: Prof. Jifeng GUO, Harbin Institute of Technology, China Assoc. Prof. Bo ZHANG, Northwestern Polytechnical University, China Co-Chairs: Associate Researcher Zongyi GUO, Northwestern Polytechnical University, China Assoc. Prof. Wei WANG, Shanghai Jiao Tong University, China
Session 7 Autonomous Navigation, Modeling and Control Technologies of Unmanned Systems	Chairs: Prof. Yi YANG, Beijing Institute of Technology, China Assoc. Prof. Jinwen HU, Northwestern Polytechnical University, China Co-Chairs: Research Fellow Xijun ZHAO, Intelligent Innovation Research Institute of China North Industries Group Corporation, China Lecturer Fei YAN, Xi'an University of Posts & Telecommunications, China
Session 8 Cooperative Control of Multiple Unmanned Systems	Chairs: Prof. Li YANG, Nanjing University of Science and Technology, China Prof. Lifeng MA, Nanjing University of Science and Technology, China Co-Chairs: Prof. Hanqiao HUANG, Northwestern Polytechnical University, China Prof. Cheng SONG, Nanjing University of Science and Technology, China
Session 9 Collaborative Perception and Navigation of Multiple Unmanned Systems	Chairs: Associate Researcher Jianliang ZHU, Nanjing University of Science and Technology, China Assoc. Prof. Chenguang SHI, Nanjing University of Aeronautics and Astronautics, China Co-Chairs: Assoc. Prof. Yongquan ZHANG, Xidian University, China Assoc. Prof. Tianxian ZHANG, University of Electronic Science and Technology, China
Session 10 Cooperative Control of Manned/Unmanned and Cross-domain Unmanned Systems	Chairs: Prof. Yifeng NIU, National University of Defense Technology, China Prof. Hongli XU, Northeastern University, China Co-Chairs: Assist. Prof. Haoyu CHENG, Northwestern Polytechnical University, China Senior Engineer Nan XIANG, Intelligent Science & Technology Academy Limited of CASIC, China Prof. Zhigang SHANG, Harbin Engineering University, China

专题研讨		
专题方向	主席	
专题研讨一 空中自主无人系统技术	主席：王宏伦 教授 (北京航空航天大学) 喻煌超 副研究员 (国防科技大学) 副主席：伍国华 教授 (中南大学) 刘继凯 教授 (山东大学) 徐海军 副教授 (国防科技大学)	
专题研讨二 无人驾驶系统应用与关键技术	主席：何赏璐 副教授 (南京理工大学) 副主席：段续庭 讲师 (北京航空航天大学) 杨子 讲师 (南京理工大学)	
专题研讨三 水面水下自主无人系统技术	主席：彭星光 教授 (西北工业大学) 副主席：姚鹏 副教授 (中国海洋大学) 熊珍凯 研究员 (安徽理工大学) 李乐 副教授 (西北工业大学)	
专题研讨四 机器人智能感知与规划控制技术	主席：郭健 教授 (南京理工大学) 单梁 副教授 (南京理工大学) 副主席：何立栋 副教授 (南京理工大学) 宋佳 副教授 (北京航空航天大学)	
专题研讨五 人工智能及其在无人系统的应用	主席：杨宏晖 副教授 (西北工业大学) 王菘 副教授 (国防科技大学) 副主席：房建武 副教授 (长安大学) 魏长赞 副教授 (河海大学) 王亚坤 高级工程师 (中国电科智能科技研究院)	
专题研讨六 智能空间无人系统技术	主席：郭继峰 教授 (哈尔滨工业大学) 张勃 副教授 (西北工业大学) 副主席：郭宗易 副研究员 (西北工业大学) 王伟 副教授 (上海交通大学)	
专题研讨七 无人系统自主导航、建模及控制技术	主席：杨毅 教授 (北京理工大学) 胡劲文 副教授 (西北工业大学) 副主席：赵熙俊 研究员 (中兵智能创新研究院) 严飞 讲师 (西安邮电大学)	
专题研讨八 多无人系统协同控制	主席：杨力 教授 (南京理工大学) 马立丰 教授 (南京理工大学) 副主席：黄汉桥 教授 (西北工业大学) 宋程 教授 (南京理工大学)	
专题研讨九 多无人系统协同感知与导航	主席：朱建良 副研究员 (南京理工大学) 时晨光 副教授 (南京航空航天大学) 副主席：张永权 副教授 (西安电子科技大学) 张天贤 副教授 (电子科技大学)	
专题研讨十 有人/无人及跨域无人系统协同控制	主席：牛轶峰 教授 (国防科技大学) 徐红丽 教授 (东北大学) 副主席：程昊宇 助理教授 (西北工业大学) 向南 高级工程师 (航天科工集团智能科技研究院) 商志刚 教授 (哈尔滨工程大学)	



专题研讨

TECHNICAL SESSIONS

Session 1 Unmanned Aircraft Systems Technologies

Chairs: Prof. Honglun WANG, Beihang University, China
 Assoc. Prof. Huangchao YU, National University of Defense Technology, China

Co-Chairs: Prof. Guohua WU, Central South University, China
 Prof. Jikai LIU, Shandong University, China
 Assoc. Prof. Haijun XU, National University of Defense Technology, China

Time: Sept.11, 08:30-12:00

Venue: 红杉

Paper ID	Title	Authors
ICAUS2023-0045	Airworthiness Technology: The Key for the Development and Application of Civilian Unmanned Aircraft Systems	Juanxia Liu, Qing Lin*, Guoqing Liu, Donghui Liu, Juhong Liu
ICAUS2023-0054	Simulation Technology of Unmanned Surface Vehicle Cluster Based on Digital Modeling	Fengchi Xu*, Kui Zhang, Shengnan Song, Yangliu Xie
ICAUS2023-0075	UAV Target Detection Method Based on Multi-detection Head and Attention in Urban Background	Can Li, Zhen Zuo*, Bei Sun, Shudong Yuan, Zhaoyang Dang, Jianfei Di
ICAUS2023-0076	CA-LSTM: An Improved LSTM Trajectory Prediction Method Based on Infrared UAV Target Detection	Zhaoyang Dang, Bei Sun*, Can Li, Shudong Yuan, Xiaoyue Yuan, Zhen Zuo
ICAUS2023-0081	Small Object Orientated Detection Model Optimization Based on Lightweight UAV Platform	Zhonglei Zhang, Jianjun Gui*, Baosong Deng, Benyi Yang, Hao Tan
ICAUS2023-0131	An Elliptical Tangent Graph Method Based on Multi-source Information for UAV Path Planning	Bin Liu, Qirong Tang, Wentao Huang, Qingchao Jiang, Qinqin Fan*
ICAUS2023-0138	Design of A Foldable Multirotor for Rapid Deployment in Complex Environments	Shengrong Hu, Yixian Li, Teng Gao, Qiang Wang*
ICAUS2023-0168	Research on Long-range Detection and Tracking of Small UAVs Based on AI Algorithms	Mengyuan Yao, Pei Li, Hang Sheng, Xiang Li*, Xiang Wang
ICAUS2023-0228	Intelligent Morphing Decision of Hypersonic Aircraft Based on Neural Network	Linfei Hou, Honglin Liu, Ting Yang, Shuaibin An, Rui Wang
ICAUS2023-0272	Planning and Tracking of Dynamic Soaring Using Nonlinear Model Predictive Control	Danxiang Wang, Fangfang Xie*, Tingwei Ji, Yufeng Lu, Yao Zheng
ICAUS2023-0290	A Composite Terminal-guidance Method Considering No-fly Zone Avoidance and Impact Angle Constraint	Xingyu Wu, Honglun Wang, Bin Ren, Tiancai Wu, Guocheng Yan
ICAUS2023-0357	Deep Learning-based UAV-to-UAV Small Target Detection	Guobiao Zuo, Qiang Wang *, Kang Zhou
ICAUS2023-0392	Fault-tolerant Integrated Guidance and Control Design for Hypersonic Vehicle Based on ADRC	Guocheng Yan, Honglun Wang, Tiancai Wu , Xingyu Wu
ICAUS2023-0463	Research on the Development and Key Technologies of Anti-UAV Laser Weapons	Zibing Du, Shuyuan Cheng, Qiming Yang*, Yingqian Wen, Xuxia Zhang
ICAUS2023-0087	A Method for Assessing Battlefield Situation of Mission Planning Agent Based on Improved TextCNN	Jingwei Song, Nan Wang* , Jianming Lv, Kunsheng Xing

Session 2 Applications and Key Technologies of Unmanned Driving Systems

Chair: Assoc. Prof. Shanglu HE, Nanjing University of Science and Technology, China

Co-Chairs: Lecturer Xuting DUAN, Beihang University, China
Lecturer Zi YANG, Nanjing University of Science and Technology, China

Time: Sept.11, 08:30-11:45

Venue: 绿柳

Paper ID	Title	Authors
ICAUS2023-0055	An Adaptive Cruise Hybrid Control Method for Unmanned Driving	Yuqi Sun*, Zhexu Wu, Xuyang An, Xu Wang
ICAUS2023-0101	An Optimization-based Path Planning Method for Unmanned Systems in Multi-obstacle Environments	Fuqiang Liu*, Mengfan Wang, Bin Zhao, Siqi Zhang
ICAUS2023-0125	An Adaptability-based Terrain Costmap for Heterogeneous Vehicle Swarm Path Planning	Haoxiang Jin, Xiaoting Bu, Rongcheng Shen, Yuan Chang, Bin Di, Yunlong Wu, Yanzhen Wang*
ICAUS2023-0144	Attention Encoder-decoder Network Based Autonomous Risk Driving Identification for Connected Heavy-duty Vehicles	Tian Xu, Kun Tang*, Tangyi Guo
ICAUS2023-0179	Multi-sensing Pedestrian Detection Method Based on an Improved EPNet	Wanqian Yu, Kun Tang*, Jihan Jin, Jiyang Jiang
ICAUS2023-0181	Abrupt Lane Change Recognition Model Towards Autonomous Vehicle Based on Lane Line Inclination	Kun Tang*, Xinyu Liu, Tian Xu, Tangyi Guo
ICAUS2023-0202	Path-oriented Green Wave Speed Control Model Towards Autonomous Vehicle	Kun Tang*, Haochen Lv, Xuekun Zhong, Tian Xu, Tangyi Guo
ICAUS2023-0241	Lateral Control Method of Tracked Vehicle Based on Backstepping Method and Adaptive Neural Network	Tao Wang, Yukang Li, Wenxue Liu
ICAUS2023-0247	Research on Interaction Strategies of Autonomous Vehicles Based on Social Preference	Chungang Hu, Zhuping Zhou*, Zheng Chen, Leyi Sun, Xinyi Nian
ICAUS2023-0288	Path Planning for Intelligent Vehicles Lane Change to Avoid Collision in Emergency Based on NSGA-III	Jianping Li, Zhaobao Yu, Zhicai Dong, Xin Chen*
ICAUS2023-0449	Adaptive Spectrum Anti-jamming in UAV-enabled Air-to-ground Networks: A Bimatrix Stackelberg Game Approach	Longbo Cheng, Zixuan Xu*, Jianshan Zhou, Kaige Qu, Daxin Tian, Xuting Duan
ICAUS2023-0472	Autonomous Driving-based Traffic Carbon Emission Monitoring and Evaluation Model	Haizhe Zhang, Liu He*, Li Yang
ICAUS2023-0477	Research on Multi-sensor Fusion Traffic Environment Perception Method for Autonomous Driving	Ying Li, Liu He*, Li Yang



Session 3 Unmanned Surface and Underwater Systems Technologies

Chairs: Prof. Xingguang PENG, Northwestern Polytechnical University, China

Assoc. Prof. Peng YAO, Ocean University of China, China

Co-Chairs: Research Fellow Zhenkai XIONG, Anhui University of Science and Technology, China

Assoc. Prof. Le LI, Northwestern Polytechnical University, China

Time: Sept.11, 08:30-11:45

Venue: 木兰

Paper ID	Title	Authors
ICAUS2023-0009	Time and Energy Optimal Path Planning of USV under Time-varying Ocean Currents	Yuxin Fan*
ICAUS2023-0051	Comparative Study on Wave Disturbance Prediction Methods for the Modeling of Maneuvering Motion	Huawei Xie, Yazhen Du*, Chenggang Hou, Guangming Shao, Chunyan Hou
ICAUS2023-0059	An Improved YOLOv5 Approach for Multi-object Detection of Unmanned Surface Vehicles	Ying Yang, Changyun Wei*, Qi Liu, Shouqian Li
ICAUS2023-0086	Adaptive Line Enhancer Based on Maximum Correntropy Criterion and Frequency-domain Sparsity for Passive Sonars	Nan Zhang, Liang An*, Yun Yu, Xiaoyan Wang
ICAUS2023-0105	Distributed Control of Multiple Unmanned Surface Vehicles with Collision Avoidance Based on a Modified Artificial Potential Function	Chaoyi Li, Wenzhao Yu, Fen Li*, Haixiang Xu
ICAUS2023-0154	Inter-element Time-delay Estimation of Array Signals Based on Line Spectrum Phase Joint Optimization	Xietian Shi, Chanqi Zhu, Liang An*
ICAUS2023-0189	Underwater Three-dimensional Reconstruction Based on Sub-regional Processing of Forward-looking Sonar Images	Jingwei Guo, Jian Gao*, Yufeng Li, Sijia Su, Weixuan Wang
ICAUS2023-0211	Comprehensive Improved Cooperative Particle Swarm Optimizer for USVs Task Allocation for Detection Missions	Yuqi Lu, Ying Yang, Changyun Wei*
ICAUS2023-0274	A Rolling Horizon-based Constraint Programming Method for Continuous Berth Allocation Problem	Qiang Liu, Tongtong Xu*, Huashi Liu, Wen Song
ICAUS2023-0378	An Improved Small Infrared Target Detection Algorithm Based on YOLOv5	Xiaotian Wang, Ziyuan Yang, Yuxin Sun, Chen Qian, Yifa Zhao
ICAUS2023-0427	Autonomous Underwater Vehicle Navigation Based on iWOA-UFastSLAM	Shang Le, Qingjun Zeng*
ICAUS2023-0431	Fault-tolerant Control for ROV Path Tracking Based on Thrust Distribution Strategy	Zihao Liu, Qingjun Zeng*

Session 4 Robot Intelligent Perception and Planning Control Technologies

Chairs: Prof. Jian GUO, Nanjing University of Science and Technology, China
Assoc. Prof. Liang SHAN, Nanjing University of Science and Technology, China

Co-Chairs: Assoc. Prof. Lidong HE, Nanjing University of Science and Technology, China
Assoc. Prof. Jia SONG, Beihang University, China

Time: Sept.11, 08:30-11:45

Venue: 秀竹

Paper ID	Title	Authors
ICAUS2023-0040	Improved Factor Graph Algorithm for Adaptive Weight Function Based on Residual Adjustment	Congcong Wang, Rong Wang*, Jingxin Zhao, Zhi Xiong, Jianye Liu
ICAUS2023-0077	OC-DWA: An Improved Dynamic Window Approach for USV Online Planning Considering Ocean Currents	Weilong Zhang, Liang Shan*, Lu Chang, Zhidong Qi, Yuewei Dai
ICAUS2023-0172	LuoJia-Explorer: Unmanned Collaborative Localization and Mapping System	Weitong Wu, Chi Chen*, Bisheng Yang
ICAUS2023-0208	LiDAR-based Small-sized Obstacles Detection for Mobile Robot	Lu Chang, Liang Shan *, Weilong Zhang, Zhidong Qi, Yuewei Dai
ICAUS2023-0210	Research on UAV Location Algorithm Based on Improved ORBSLAM3 in Outdoor Environment	Qiang Ma, Liang Shan*, Qiaohui Xiong, Zhidong Qi, Wenqian Liu
ICAUS2023-0219	Research on UAV Object Detection Algorithm Based on CSPCM-YOLOv5	Qiaohui Xiong, Liang Shan*, Qiang Ma, Kerong Li, Jun Li
ICAUS2023-0220	Research on Path Planning Algorithm of Workpiece Maintenance Manipulator Based on Improved Informed-RRT*	Fengchen Wang, Liang Shan*, Weilong Zhang, Wenqian Liu, Jun Li
ICAUS2023-0240	A MI-SSVEP Hybrid Brain Computer Interface System for Online Control of a Mobile Vehicle	Luyao Zou, Hui Zhou*, Xiaoying Qian, Yu Guo, Jian Guo
ICAUS2023-0243	A Hierarchical Energy Management Strategy of UFCEV	Xuanhao Zhou, Zhidong Qi, Kaihui Chu, Liyin Bai, Xin Tong
ICAUS2023-0249	Robust Coordinated Compliant Control for Dual-arm Robots with Position Uncertainty of End-effector	Jiangbo Zhao*, Chengyuan Chen, Junzheng Wang, Tong Yan, Jianxin Zhao, Yunfeng Jiang
ICAUS2023-0333	A Leader-follower Control System Based on Dynamic Error with Nonlinear Model Predictive Control	Yaqi Wang, Xiaosu Xu*, Shuai Zhou, Cheng Chi
ICAUS2023-0335	DWDM: Dynamically Weighted Three-domain Mixing for Domain-adaptive Semantic Segmentation	Yang Chen, Lu Liu, Yi Qu*, Liang Shan
ICAUS2023-0389	A Comparative Study of Ackerman Two-axle Steering and Skid-steering Mechanisms for Unmanned Ground Vehicles	Jin Zhang, Wenlong Li*, Jianhu Yan, Liang Shan



Session 5 Artificial Intelligence and Its Applications in Unmanned Systems

Chairs: Assoc. Prof. Honghui YANG, Northwestern Polytechnical University, China
 Assoc. Prof. Chang WANG, National University of Defense Technology, China

Co-Chairs: Assoc. Prof. Jianwu FANG, Chang'an University, China
 Assoc. Prof. Changyun WEI, Hohai University, China
 Senior Engineer Yashen WANG, Artificial Intelligence Institute of CETC, China

Time: Sept.11, 08:30-11:45

Venue: 银杏

Paper ID	Title	Authors
ICAUS2023-0006	Collision-free UAV Flocking System with Leader-guided Cucker-smale Reward Based on Reinforcement Learning	Yunxiao Guo, Dan Xu, Chang Wang, Letian Tan, Shufeng Shi, Wanchao Zhang, Xiaohui Sun, Han Long*
ICAUS2023-0053	Lightweight Multimodal Fusion for Autonomous Navigation Via Deep Reinforcement Learning	Yajun Li, Changyun Wei*, Yu Xia
ICAUS2023-0115	Research on Control Method of Aerial Refueling Aircraft Based on Reinforcement Learning	Dong Zhang*, RuiChang Wang, Weijun Hu, Zhengli Cao
ICAUS2023-0170	Unsupervised Conversation Disentanglement with GCN Clustering	Wenshan Zhang, Yuanyuan Wang, Sanchuan Guo, Pengxiao Li*, Xi Zhang
ICAUS2023-0171	A Key Person Extraction Method for Chat Groups Based on Structure-aware Graph Neural Network	Yiming Zhang, Pengxiao Li, Sanchuan Guo, Ming Zhang*, Xi Zhang
ICAUS2023-0222	Few-shot Online Learning for 3D Object Detection in Autonomous Driving	Dexin Yao, Binhong Liu, Rui Yang, Zhi Yan, Tao Yang*, Wenxing Fu
ICAUS2023-0226	Self-supervised Traffic Accident Detection by Motion-conditioned Diffusive Frame Prediction	Xinyan Cui, Leilei Li, Yachuang Chai, Jianwu Fang*, Wushour Silamu
ICAUS2023-0254	An Airborne Target Recognition Model Based on SPD, PConv and LADH Detection Heads	Yiran Guo, Shouyi Zhang*, Qiang Shen, Chong Zhang, Xiaokang Wang
ICAUS2023-0263	Visual Servo Control-based UAV Autonomous Landing	Zixuan Xu, Wei Wu, Mingyang Xie, Jing Wang
ICAUS2023-0265	Traffic Accident Anticipation Via Driver Attention Auxiliary	Leilei Li, Jianwu Fang
ICAUS2023-0435	The Application of Superlet Transform in EEG-based Motor Imagery Classification of Unilateral Knee Movement	Yadong Guo, Liu Wan, Xinyu Sheng, Guohong Wang, Shuning Kang, Hui Zhou*, Xinyan Zhang
ICAUS2023-0459	Evaluation of Intelligent Level of Multi-agent Game Theory Deduction Models Based on Game Neural Networks	Hanye Sun, Jieru Fan*, Hongbo Huang, Yingqi Wang
ICAUS2023-0467	Unmanned Engineering Support Task Allocation for Amphibious Island Landing Operations	Hongxuan Wang, Yanyan Huang*, Pengyao Sun, Kui Wu

Session 6 Intelligent Space Unmanned Systems Technologies		
Chairs: Prof. Jifeng GUO, Harbin Institute of Technology, China Assoc. Prof. Bo ZHANG, Northwestern Polytechnical University, China Co-Chairs: Associate Researcher Zongyi GUO, Northwestern Polytechnical University, China Assoc. Prof. Wei WANG, Shanghai Jiao Tong University, China		
Time: Sept.11, 14:00-17:00		Venue: 红杉
Paper ID	Title	Authors
ICAUS2023-0103	Homogeneous Finite-time Pose Control for Leader-following Spacecraft Formation Based on Twistors	Yunhe Guo, Tingshu Wang, Jing Chen, Bo Zhang*, Hanqiao Huang
ICAUS2023-0145	Attitude Stabilization and Vibration Suppression of Flexible Satellite Using Orthogonal Cluster of Magnetically Reaction Sphere Actuators	Javad Tayebi, Ti Chen*
ICAUS2023-0147	Multi-objective Multidisciplinary Design Optimization for Precision Attack Munition Missile	Xuan Chen, Teng Long, Rong Chen, Renhe Shi*, Nianhui Ye
ICAUS2023-0204	Terminal Guidance Law Design for Compound Control Missile Based on Time-delay Control Theory	Hui Zhao, Cheng Xu*, Ying Hu, Yuxiao Pei
ICAUS2023-0213	Numerical Study of Hot Gas Side Jet in Supersonic Flow	Huiyong Zhao, Feng Cheng*, Yaobing Zhang, Jian Zhang, Naichun Zhou, Xinjian Wang
ICAUS2023-0269	Predictor-corrector Reentry Guidance of Hypersonic Gliding Vehicle Satisfying No-fly Zone Constraints with High Terminal State Accuracy	Zhengzhuo Liu, Shuming Zhang, Bo Zhang*, Hanqiao Huang
ICAUS2023-0305	Motion Parameter Estimation and Synchronous Approximation Scheme of Non-cooperative Target	Jingyi Yuan, Yiman Zhu, Yu Guo*
ICAUS2023-0313	Virtual Structure Method UAV Distributed Formation Control Based on Improved Super-twisting Sliding Mode	Hengmao Zhang, Yibo Ding*, Xianbin Chi, Xiaokui Yue
ICAUS2023-0353	Satellite Swarm Orbital Pursuit-evasion Game Based on Multi-agent Proximal Policy Optimization Algorithm	Ziang Cui, Yu Cheng, Gang Chen
ICAUS2023-0366	Pothole-YOLO: A Single-stage Instance Segmentation Method for Pothole Detection	Jintao Cheng, Xingming Chen, Weiwen Chen, Zhuoxu Huang, Jin Wu, Rui Fan, Xiaoyu Tang*
ICAUS2023-0420	Cooperative Transportation of a Flexible Beam Utilizing Dual Space Robot Manipulators	Mingyan Xie, Chenlu Feng, Ti Chen*
ICAUS2023-0484	Destruction Probability Analysis Based on Customised Bullet Curtain	Chichen Zhang, Jun Wang*



Session 7 Autonomous Navigation, Modeling and Control Technologies of Unmanned Systems

Chairs: Prof. Yi YANG, Beijing Institute of Technology, China
 Assoc. Prof. Jinwen HU, Northwestern Polytechnical University, China

Co-Chairs: Research Fellow Xijun ZHAO, Intelligent Innovation Research Institute of China North Industries Group Corporation, China
 Lecturer Fei YAN, Xi'an University of Posts & Telecommunications, China

Time: Sept.11, 14:00-16:00

Venue: 绿柳

Paper ID	Title	Authors
ICAUS2023-0046	A Frequency Domain System Identification Toolbox for Aircraft and Rotorcraft	Qing Lin*, JuanXia Liu, Song Zhang, Xingyu Zhu
ICAUS2023-0283	Real-time Trajectory Planning for Logistical Supply Transportation using GRU Neural Networks	Liqun Huang, Runqi Chai, Zhida Xing, Kaiyuan Chen*, Senchun Chai, Yuanqing Xia
ICAUS2023-0299	TBIC-RRT*: A Novel Efficient Approach For Robot Motion Planning	Jiarui Liu, Jinhai Liu*, Xiangkai Shen, Hang Xu, Zhenning Wu
ICAUS2023-0329	Controller Design of Short Take-off/ Vertical Landing Aircraft Based on L1 Adaptive Control	Shaoze Huo, Shiong Ruan, Zhe Dong, Zheng Hou, Guoqiang Wu
ICAUS2023-0371	The Multi-UAV Collaborative Localization Based on Visual and Inertial Sensors	Guoda Cheng, Deteng Zhang, Jinwen Hu*, Jiancheng Zhang, Zhao Xu, Guoliang Yang
ICAUS2023-0399	Multi-drone Multi-object Tracking with RGB Cameras Using Spatio-temporal Cues	Guanyin Chen, Bohui Fang, Wenxing Fu, Tao Yang*
ICAUS2023-0479	Task Allocation and Collaborative Planning Algorithm of the Sub-mother Unmanned Platform Under Multi-task Constraints	Jining Liu, Huachao Yu, Mingyu Hou, Wenjie Song, Caoqing Fang, Herui Li
ICAUS2023-0481	A Maximum Speed Planning and Control Method of Intelligent Vehicle	Ang Chu, Kai Yu*, Shuaicong Yang, Jiaqi Chen, Daiwei Li, Bobo Jia, Yi Yang

Session 8 Cooperative Control of Multiple Unmanned Systems		
Chairs: Prof. Li YANG, Nanjing University of Science and Technology, China Prof. Lifeng MA, Nanjing University of Science and Technology, China Co-Chairs: Prof. Hanqiao HUANG, Northwestern Polytechnical University, China Prof. Cheng SONG, Nanjing University of Science and Technology, China		
Time: Sept.11, 14:00-17:00		Venue: 木兰
Paper ID	Title	Authors
ICAUS2023-0056	A Denoising Algorithm of Star Map Based on Wavelet Transform and Double-window Combined Filtering	Huixian Lu, Yaqi Jiang, Yang Gao*
ICAUS2023-0058	Distance-constrained Multi-agent Formation Sliding Mode Control Under External Disturbances	Chuan Liu, Jijie Yang, Yang Gao*
ICAUS2023-0096	Consensus of Discrete-time Multi-agent Systems with Unknown but Bounded Measurement Noises	Jiazheng Zhang, Cheng Song*, Meiyi Luo
ICAUS2023-0133	Anti-missile Firepower Allocation Based on Multi-agent Reinforcement Learning	Yuanhao Wang, Guo Du, Yi Liu, Xiang Wu*
ICAUS2023-0200	A Path Planning Method Based on Bézier Curve and Hybrid Zebra Optimization Algorithm	Bo Du*, Tingshu Wang, Hanqiao Huang, Huan Zhou
ICAUS2023-0302	Time-varying Formation Tracking Control of Heterogeneous Unmanned System with Obstacle and Collision Avoidance	Kaili Wu, Yunwan Gao, Mingyang Xie*, Min Zhang
ICAUS2023-0309	Threat Assessment of Air Cluster Targets Based on Dynamic Bayesian Network with Cloud Model	Chentao Gong, Li Yang*, Qilong Huang
ICAUS2023-0324	Circle Formation Control for Mobile Sensor Networks with Connectivity Preservation and Collision Avoidance	Yongqin He, Jin Wu, Cheng Song*
ICAUS2023-0325	Variational Bayesian-based Robust Weighted Cubature Kalman Filter for State Estimation	Ji Shi, Lidong He*, Yuqing Ni, Yanhui Tong
ICAUS2023-0339	Fair Incentive Allocation for Secure Data Sharing in Blockchain Systems: A Shapley Value Based Mechanism	Ming Yang, Honglin Feng, Xin Wang*, Xuguo Jiao, Xiaoming Wu, Shuwei Qin
ICAUS2023-0454	Intelligent Robust Disturbance Rejection Control of UAV Based on Deep Q-Network	Tengfei Bi, Feihong Xu, Guangzi Huang, Xuanqi Liu, Zikang Wu, Qiang Shen*
ICAUS2023-0473	A Cooperative Jamming Scheme for Secure MUAS Control at Edge Using Kriging-based REM	Yichao Chen*



Session 9 Collaborative Perception and Navigation of Multiple Unmanned Systems

Chairs: Associate Researcher Jianliang ZHU, Nanjing University of Science and Technology, China

Assoc. Prof. Chenguang SHI, Nanjing University of Aeronautics and Astronautics, China

Co-Chairs: Assoc. Prof. Yongquan ZHANG, Xidian University, China

Assoc. Prof. Tianxian ZHANG, University of Electronic Science and Technology, China

Time: Sept.11, 14:00-17:00

Venue: 秀竹

Paper ID	Title	Authors
ICAUS2023-0007	Joint Trajectory Optimization and Resource Allocation Scheme for Multiple Targets Tracking with Airborne Radar Network System in a Spectrum Sharing Environment	Chenguang Shi*, Jing Dong, Sana Salous, Jianjiang Zhou, Ziwei Wang
ICAUS2023-0008	Cooperative Transmit Resource Scheduling Algorithm for Asynchronous Tracking in Heterogeneous Multiple Distributed Radar Networks with Imperfect Detection	Chenguang Shi*, Xili Dong, Zhicheng Tang, Ziwei Wang, Sana Salous
ICAUS2023-0079	Intelligent Trajectory Planning Algorithm for Unmanned Aerial Vehicles Based on Track Deception Against Radar Networks	Wenbin Lin, Chenguang Shi*, Ziwei Wang, Jianjiang Zhou
ICAUS2023-0094	Maneuvering Multi-target Tracking Based on DLSTM and Dynamic Association Gate	Yongquan Zhang*, Bingjie Zhang, Zhenyun Shi, Siwei Li, Zhenzhen Su, Hongbing Ji
ICAUS2023-0102	Efficient Multiple Extended Target Tracking Based on Minimum Spanning Tree	Zhenzhen Su*, Hongbing Ji, Yongquan Zhang, Renzhong Qiao
ICAUS2023-0141	Alleviating Local Optima and Enhancing Path Planning: a deep reinforcement learning approach for autonomous exploration	Guo Du, Yuanhao Wang, Yi Liu, Xiang Wu*, Lifeng Ma
ICAUS2023-0327	Semantic Collaboration for Multi-agent: theory, framework, and prospects	Li Peng*, Cao Jiang, Qin Qiancong
ICAUS2023-0328	A Novel Mutual Positioning Method for Multi-view Through-the-wall Imaging Radar	Xiaojian Hao, Shisheng Guo*, Chen Qiu, Jiahui Chen, Nian Li, Yu Yao, Guolong Cui
ICAUS2023-0375	A Threat-based Unmanned Vehicle Cluster Mission Planning Model	Haoyu Zhu, Liu He*, Li Yang
ICAUS2023-0418	Multi-UAV Cooperative Task Assignment Algorithm Based on Heuristic Rules	Weiheng Liu*, Sheng Cheng, Bo Jiang, Ruyi Jiang
ICAUS2023-0424	Multi-target Allocation and Decision Methods for Missile Swarm Under Communication Constraints	Xiaodong Lu, Yiming Wang*, Hongchang Li, Nina Li
ICAUS2023-0428	Multi-target Collaborative Identification and Tracking of UAV Swarm with Passive Sensors	Wenjie Sun*, XiaoDong Lu, Siman Zhang, ZeXuan Yu

Session 10 Cooperative Control of Manned/Unmanned and Cross-domain Unmanned Systems		
Chairs: Prof. Yifeng NIU, National University of Defense Technology, China Prof. Hongli XU, Northeastern University, China		
Co-Chairs: Assist. Prof. Haoyu CHENG, Northwestern Polytechnical University, China Senior Engineer Nan XIANG, Intelligent Science & Technology Academy Limited of CASIC, China Prof. Zhigang SHANG, Harbin Engineering University, China		
Time: Sept.11, 14:00-16:45		Venue: 银杏
Paper ID	Title	Authors
ICAUS2023-0073	Variable Structure Water-air Amphibious Trans-media Vehicle Concept Design and Characteristic Analysis	Cheng Song*, Haijun Xu, Lei Zhang, Hu Chen
ICAUS2023-0111	Linear Coupled Grouping Cooperative Guidance Law with Communication Delay	Tianbo Deng, Yangwang Fang*, Hao Huang, Jie Yan, Wenxing Fu
ICAUS2023-0177	Underwater Object Detection Algorithm Based on Improved YOLOv5	Jianning Chi*, Lin Zheng, Jian Miao
ICAUS2023-0293	Design of Multi-missile Space-time Cooperative Guidance Law Based on Improved SSA and Optimal Control	Yuanjun Feng, Bo Han, Junrui Wang, Shuo Zhang, Sining Li, Haoyu Cheng
ICAUS2023-0297	Energy Optimal Concentrated Cooperative Guidance Law Design Based on Improved Whale Optimization Algorithm	Haoyu Cheng, Yuanjun Feng, YongPeng Dou, Junrui Wang, Bo Han
ICAUS2023-0336	Intelligent Optimization Method of Human-computer Interaction Interface for UAV Cluster Attack Mission	Jun Chen*, Anqi Chen, Jingbo Wang, Feng Xie
ICAUS2023-0342	Path Planning and Servo Tracking Control in Air-ground Collaborative Unmanned System	Yufan Peng, Linjie Yang, Xiangke Wang, Huangchao Yu*, Dong Yin
ICAUS2023-0417	Multi-view Detection Method for UAVs Based on Probabilistic Fusion	Huijie Zhou, Aitong Ma, Yuhao Liu, Yifeng Niu*
ICAUS2023-0469	Path Planning Algorithm for Multi-drone Collaborative Search Based on Points of Interest	Jia Liu*, Dan Zou, Nan Xiang, Xuejiao Xia, Ziyue Zhao
ICAUS2023-0471	Research on Trajectory Optimization Method of Rocket Vertical Recovery Landing Phase	Wei Feng, Xiaofeng Zhang*
ICAUS2023-0476	Prediction of Terminal Velocity in Reentry Phase for Hypersonic Aircraft Based on GRU Neural Network	Zixin Lei, Xiaofeng Zhang*



2023“照萤杯” 智能无人系统应用挑战赛成功举办

8月16-20日，2023“照萤杯”智能无人系统应用挑战赛在南京理工大学江阴校区成功举办。大赛以“无人自主 勇争先锋”为主题，旨在为智能无人系统研究领域展示更多的新进展、新成果、新应用，推动国内智能无人系统技术创新和产学研用深度融合。

大赛由南京理工大学、中国航天科工集团有限公司、国防科技大学、西北工业大学、中国兵器工业集团有限公司、中国兵器装备集团有限公司、江阴市人民政府联合主办。设置自主赛道、算法赛道、基础赛道、水面水下表演赛道4条赛道，包含快递速达、飞行避障、协同追踪、空地协同、无人车避障、F1TENTH无人车竞速赛6个科目。共吸引来自南京理工大学、国防科技大学、西北工业大学、北京理工大学、中国人民解放军海军航空大学、中国人民解放军63618部队、陕西荣玥装备研究院有限公司等来自国防重点院校、科研院所、国家重点实验室和相关领域行业的30多个单位的80余支队伍参赛，在现场展开巅峰对决，为我们带来一场无人系统领域的竞技盛宴。

最终，来自南京理工大学的“京运飞鹰队”、海军航空大学的“智鹰队”等5支队伍获特等奖；来自北京理工大学的“快乐动物园队”、西北工业大学的“峰险越飞队”等6支队伍获一等奖；来自南京航空航天大学“超能空战队”、南京理工大学的“顺天飞龙队”等7支队伍获二等奖；来自中国人民解放军63618部队的“智鹰团队”、西北工业大学的“跃马长安队”等4支队伍获三等奖。共计22个奖项。

大赛与2023第三届国际自主无人系统大会相辅相成，形成更加完善的学术交流体系，构建协同、开放、共享、融合的深度学习平台，为智能无人系统领域前沿技术创新发展提供助推力！



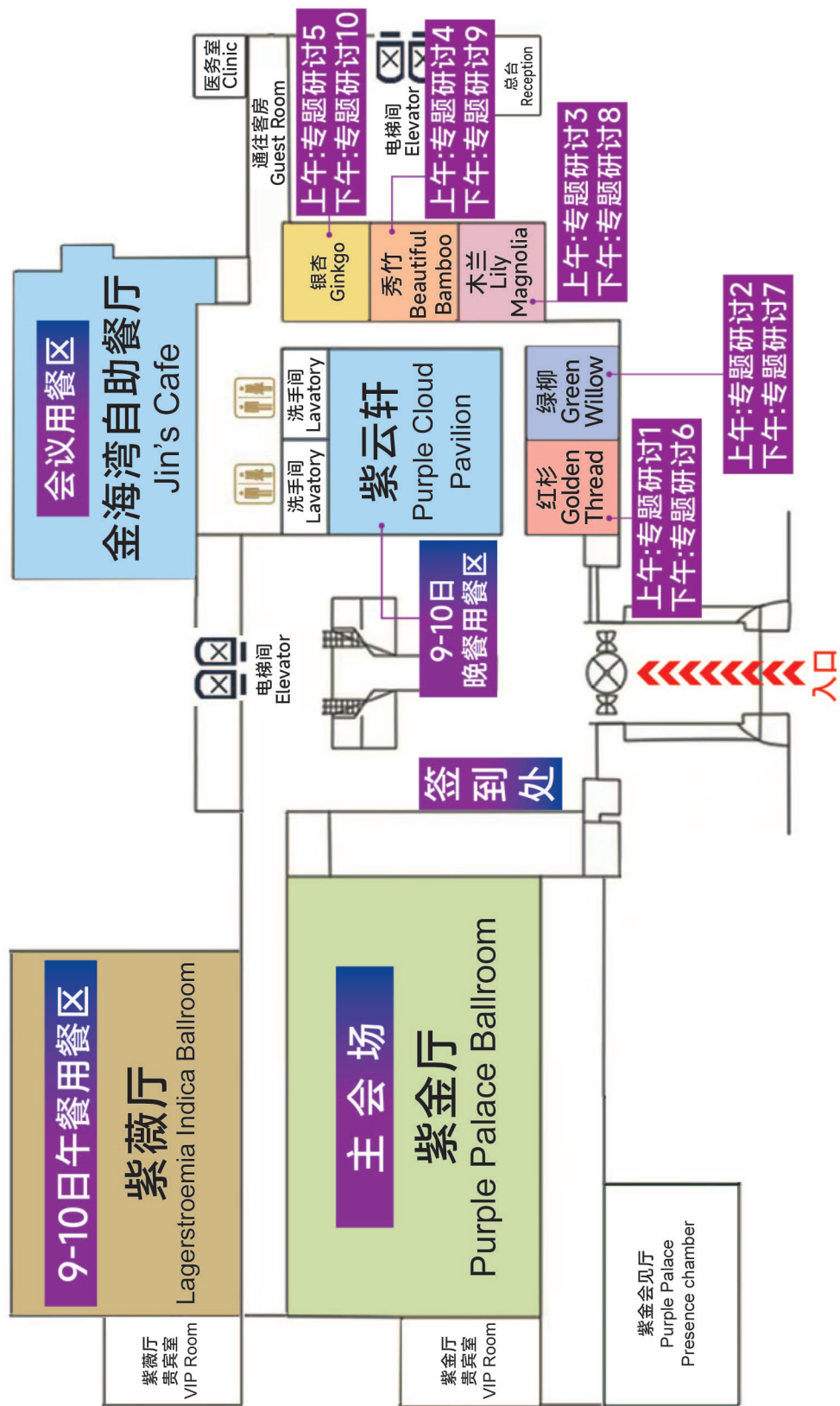
精彩瞬间



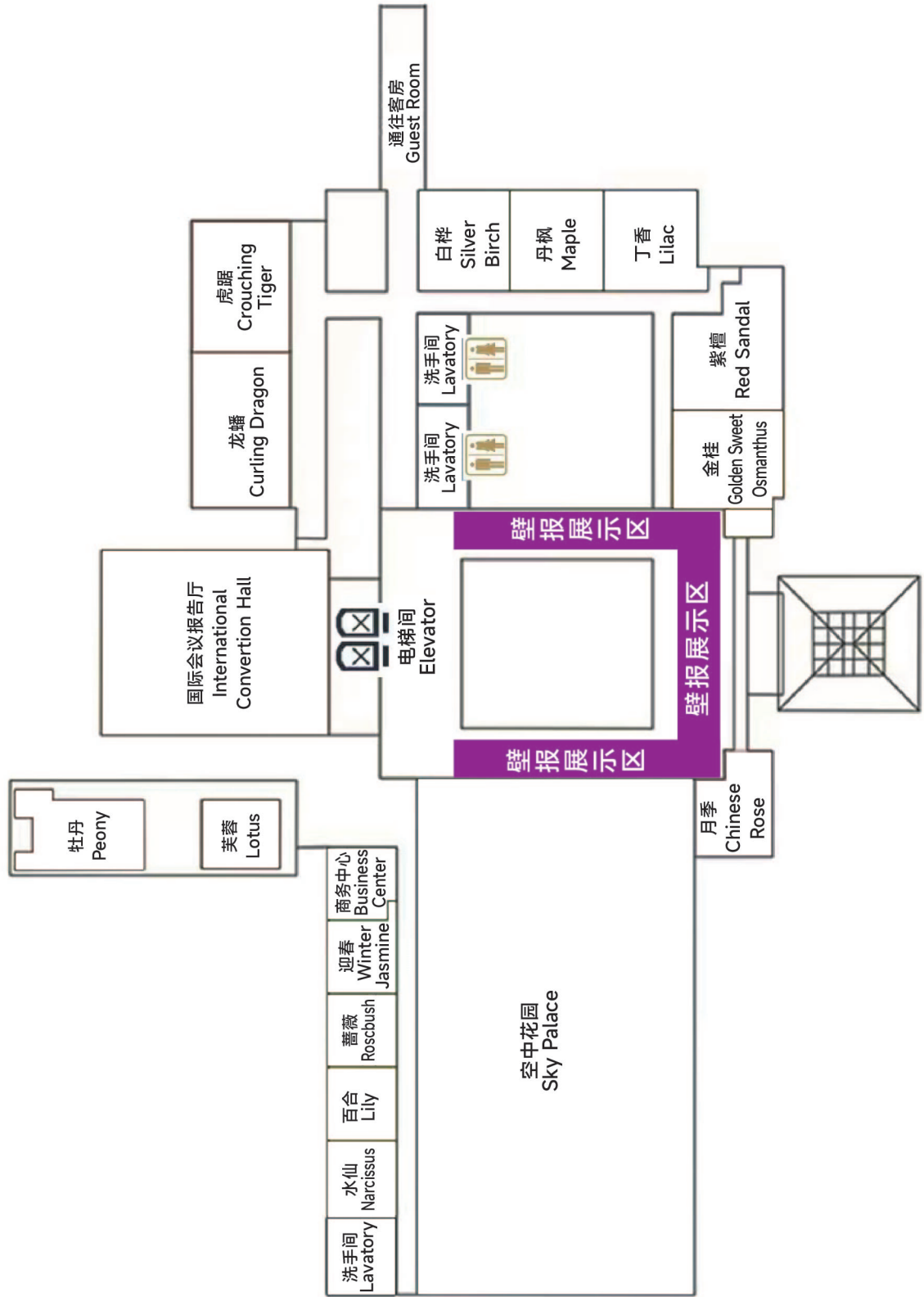
场地分布图

VENUES

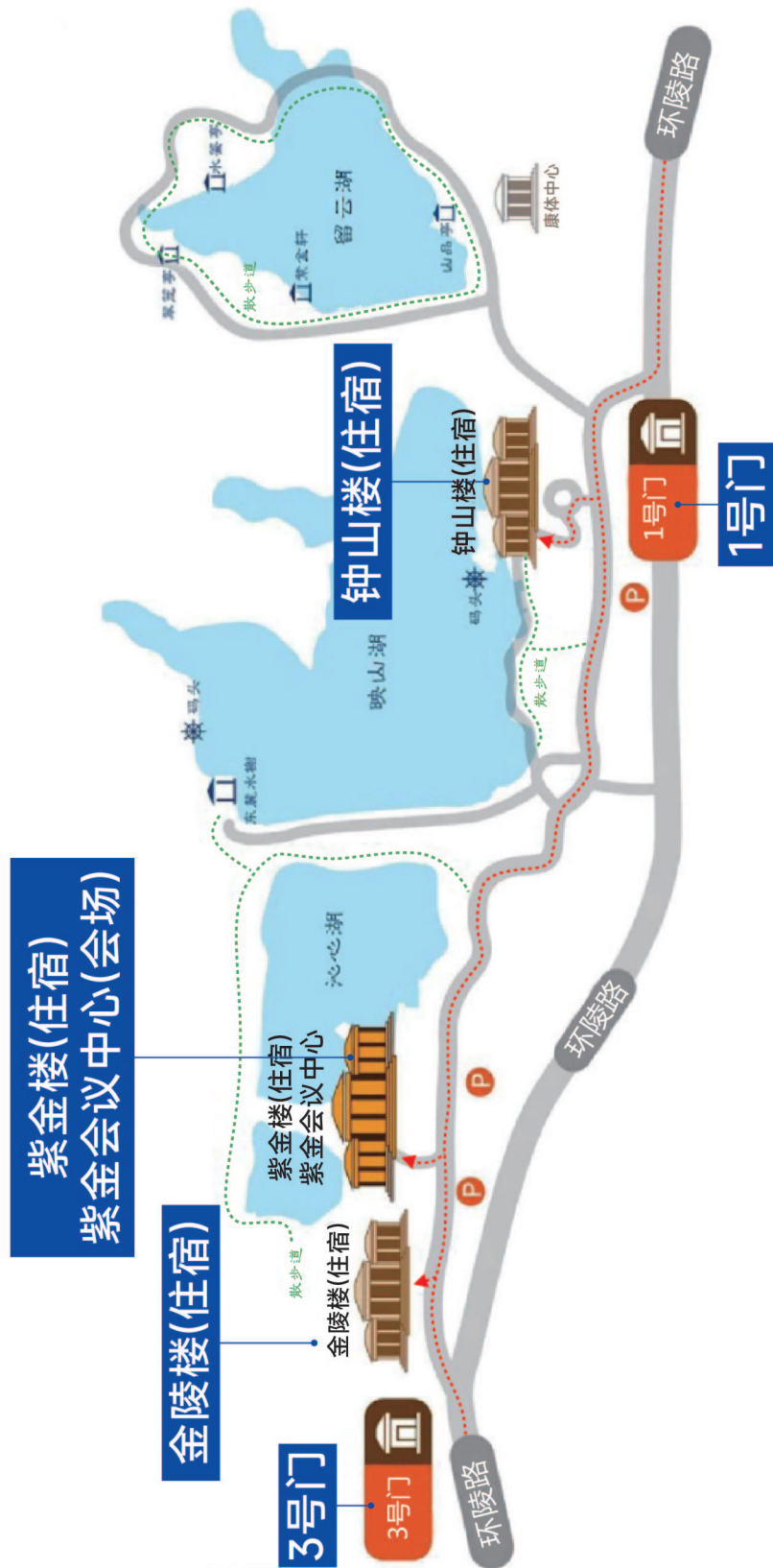
紫金会议中心 1F 平面图



紫金会议中心 2F 平面图



场地平面图



- 3号门距会场最近
- 紫金楼/金陵楼距会议中心50m
- 钟山楼距会议中心1200m

交通指引 TRAFFIC GUIDE



南京禄口国际机场→紫金会议中心

- ★乘的士：约55分钟到达酒店。
- ★乘地铁：地铁S1线→南京南站（地铁站）转地铁3号线→至鸡鸣寺站换乘地铁4号线→聚宝山站3号出口；乘的士10分钟到达紫金会议中心。

南京站→紫金会议中心

- ★乘的士：约20分钟到达酒店。
- ★乘地铁：地铁3号线→鸡鸣寺站换乘地铁4号线→聚宝山站3号出口；乘的士10分钟到达紫金会议中心。

南京南站→紫金会议中心

- ★乘的士：约28分钟到达酒店。
- ★乘地铁：地铁3号线→鸡鸣寺站换乘地铁4号线→聚宝山站3号出口；乘的士10分钟到达紫金会议中心。



参会注意事项

WARMING TIPS

大会报到处

报到地点：紫金会议中心1层大堂
 报到时间：9月8-9日 09:00-22:00

会议信息



大会官网



官方公众号



图片直播

用餐

日期	用餐	用餐地点	用餐时间
9月9日	午餐	紫金会议中心一层·金海湾&紫薇厅	12:00-13:30
	晚餐	紫金会议中心一层·金海湾&紫云轩	18:00-20:00
9月10日	午餐	紫金会议中心一层·金海湾&紫薇厅	12:00-13:30
	晚餐	紫金会议中心一层·金海湾&紫云轩	18:00-20:00
9月11日	午餐	紫金会议中心一层·金海湾	12:00-13:30
	晚餐	紫金会议中心一层·金海湾	18:00-20:00

住宿

酒店信息		
紫金楼	距离紫金会议中心50m	025-84858248
金陵楼	距离紫金会议中心50m	025-84858630
钟山楼	距离紫金会议中心1200m	025-84858808

温馨提示

为了保障您在会议期间的人身、财产安全，顺利、愉快地完成会议期间的各项活动，请您认真阅读本提示。

- ★请根据会议日程安排，提前10分钟进入会场。
- ★与会人员请严格遵守会场纪律，保持良好的会场秩序，会场内请勿吸烟。
- ★大会报告期间，请勿使用手机拍照或摄像。会议开始前，请您移步至会场门口寄存手机。
- ★参会代表参会期间请佩戴胸卡，所有参会代表凭胸卡入场及用餐。
- ★会议期间有关事项需要帮助或协调，请与会务组联系。

会务联系人

会议服务	姓名	联系电话
会务总协调	尚老师	13522310258
注册&缴费	袁老师	13521593630
会议住宿	孙老师	13522631799
会议用车	庄老师	13522732481
展览&展示	曾老师	13517315716
会场协调	李老师	13521591599
	梁老师	13522567099
会议用餐	钱老师	13168816823
会议物料	刘老师	13810224275
组委会	李老师	13161006067



中兵智能创新研究院有限公司

中兵智能创新研究院有限公司（简称创新院）是国家战略科技力量的重要组成部分，是国家智能科技研究体系的骨干力量。作为中国兵器工业集团有限公司所属的智能领域基础及关键核心技术总体单位，是智能科技创新成果应用转化的桥梁纽带，是智能原创技术策源地和管理创新示范区。

群体协同与自主实验室依托创新院创建，是拥有智能网络信息及辅助决策、多域感知与信息融合、自主无人系统、有人无人协同四个主要研究方向的国家级重点实验室，以“打造国家陆域智能科技核心力量”为目标，推动集团公司智能技术发展和智能装备建设，引领兵器行业智能化转型升级，推进形成国防科技创新特区的实践区和试验示范区，力争建成国际一流、国内顶尖的陆域智能技术科研创新平台。



上海青瞳视觉科技有限公司 CHINGMU Tech Ltd.

上海青瞳视觉科技有限公司（CHINGMU Tech Ltd.）是一家集研发、生产、销售和服务为一体的专业光学动作捕捉领先企业。公司总部位于中国上海，目前在北京、深圳、成都、芜湖、青岛均设有分支机构。自2015年创立以来，一直聚焦计算机视觉领域，秉持“用科技改善生活，用财富反哺科技”的使命，专注于3D智能感知及人机交互系统的科技创新，为各种行业应用提供全栈式数字化服务。

公司自主研发并生产具有国际领先水平的红外光学运动跟踪系统，曾多次荣获设备和技术奖项及荣誉。该套系统可为市面上多种应用提供量身定制的优质解决方案，已服务并满足10000+多样化的用户需求。青瞳视觉以国际化视野立足全球，产品远销亚洲、欧洲和美洲，年均销量100000+。公司在数字娱乐、虚拟现实、科研与工业自动化和生命工程等领域已服务1000+国内外知名企业，赢得了客户的广泛信赖，收获良好的品牌声誉，成为动作捕捉领域的优先选择。

元客视界 北京元客视界科技有限公司 Beijing YUAN Mate Co., Ltd

北京元客视界科技有限公司（简称“元客视界”）是国内领先的3D数字内容智能创作设施与服务提供商，是机器视觉领域龙头企业凌云光技术股份有限公司（科创板上市）设立的全资子公司，前身为凌云光立体视觉事业部。“元客视界”源于元宇宙这一概念，寓意以构筑虚拟世界，链接真实空间为旨归，持续创新与开拓探索。

基于10多年的自主视觉图像技术积累，公司打造了运动捕捉、光场重建、虚拟拍摄系统和智能资产制作、XR 虚实融合制播等产品和解决方案，在传媒、娱乐、文旅、教育等行业，为 1000+企业与高校科研等客户提供上万套端到端的数字内容智能制作拍摄系统。从躬身入局到价值创造，元客视界着力探索虚拟现实产业应用边界，推动多元应用领域的发展与创新。

同元软控 TONGYUAN 苏州同元软控信息技术有限公司

苏州同元软控信息技术有限公司成立于2008年，是专业从事新一代信息物理系统建模仿真工业软件产品研发、工程服务以及解决方案的高科技企业。核心产品科学计算与系统建模仿真平台MWORKS面向不同行业的信息物理装备系统，支持基于模型的系统设计、计算分析、仿真验证、虚拟试验、运行维护以及复杂装备数字化协同研发。

基于国际先进、自主可控的平台产品和业内领先的数字化服务能力，同元软控为装备制造业提供关键的数字化设计、计算、仿真及分析解决方案，助力企业数字化转型。同元的产品和解决方案广泛应用于航天、航空、能源、车辆、船舶、教育等行业，为空间站、嫦娥工程、国产大飞机、核能动力、船舶动力等重大型号工程提供数字化平台与工程服务支撑。



瑞立视® REALIS 深圳市瑞立视多媒体科技有限公司

深圳市瑞立视多媒体科技有限公司是专注于光学空间定位动作捕捉，大空间VR/AR/MR/全息3D多人交互、沉浸式交互、数字孪生应用解决方案的国家高新技术企业。我们基于自主研发的红外光学相机硬件和动作捕捉算法，以复杂环境下的多人智能交互方式为核心，以沉浸式场景体验为主线，着力于为文旅体验、创意展示、教育培训、军事训练、影视拍摄等领域提供沉浸式交互应用解决方案，为游戏动画制作、运动姿态分析、工业/医疗/建筑仿真、沉浸式数字孪生等领域提供高精尖动作感知交互应用解决方案。

北京理工大学出版社

北京理工大学出版社作为“双一流”高校出版社，始终把社会效益放在首位，面向学校学科特色和世界科技前沿，以高水平的工业化、信息化图书，特别是科技类图书和期刊为品牌特色，已成为科技特色鲜明、产品门类丰富、社会效益突出、盈利能力较强、市场赞誉较高的国内一流、国际知名的大学出版社。

《Unmanned Systems》期刊是由北京理工大学、北京理工大学出版和世界科技出版公司共同打造的综合性高水平国际英文科技期刊，已被ESCI、EI Compendex、Scopus 等数据库收录，首个影响因子IF=5.3。期刊聚焦无人系统研究领域科技前沿，旨在创办无人系统研究领域的一流国际科技期刊，促进跨学科技术领域的深度融合，打造无人系统领域一流的学术交流平台。

元橡科技（北京）有限公司

元橡科技(北京)有限公司创立于2017年，国家高新技术企业，北京市“专精特新”中小企业，全球领先的智能立体视觉芯片及解决方案提供商。元橡科技专注智能立体视觉领域，将算法硬件化，成功研发双目立体视觉芯片，实现高帧率、全分辨率、高精立体匹配，自研产品可靠性和高精度得到业界广泛认可，真正为用户实现降本增效，为我国机器视觉领域添上一枚“中国芯”。合作伙伴主要为国内主流商用车企、Tier-1供应商，2021年出货量达20W套；消费机器人领域，合作伙伴已达10余家，为国内外行业领军企业。

主办单位

南京理工大学
中国航天科工集团有限公司
国防科技大学
西北工业大学
中国兵器工业集团有限公司
中国兵器装备集团有限公司



《无人系统技术》