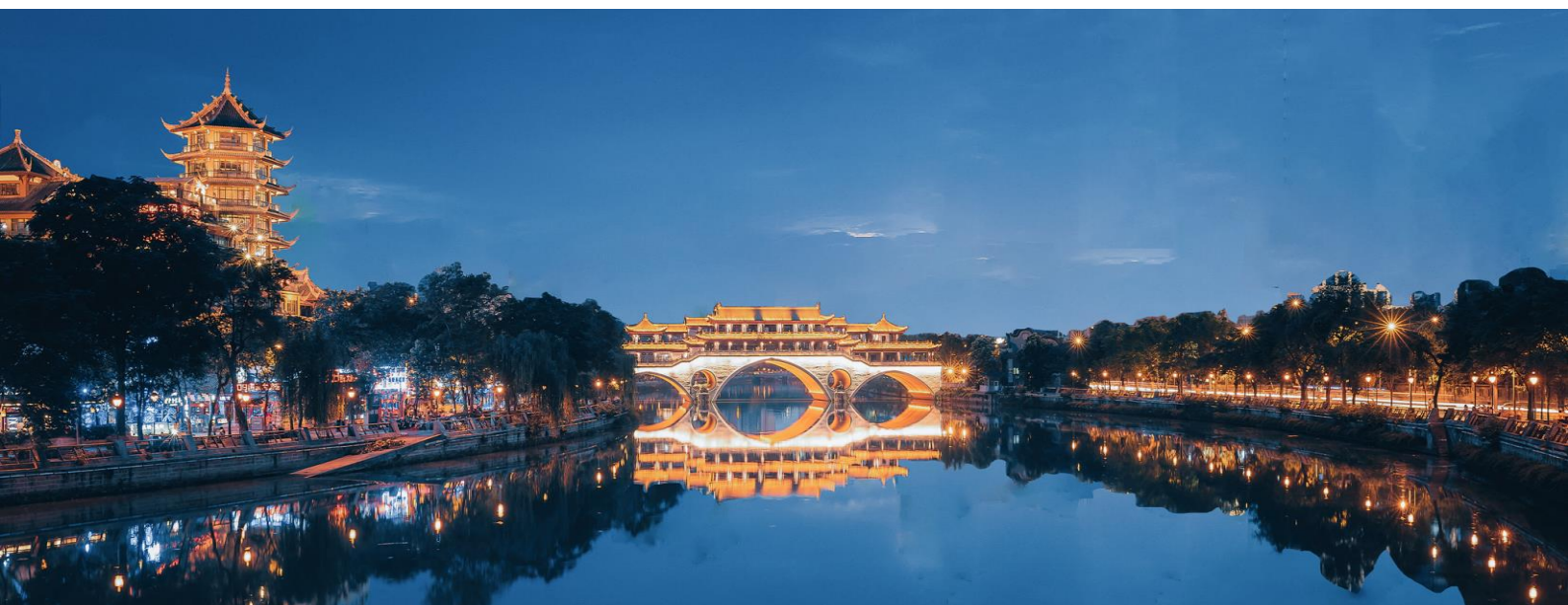# 14th International Conference on Information Science and Technology

ICIST2024 Final Program

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Welcome Messages

On behalf of the Organizing Committee, we sincerely welcome you to join us at the 14th International Conference on Information Science and Technology (ICIST 2024) being held in Chengdu, Sichuan, during December 06-09, 2024. Through this conference, we intend to enhance the sharing and inspiring of individual experience and expertise in information science and technology on both theories and practical insights. The conference features plenary speeches given by world renowned scholars and regular sessions with broad coverage and special topics.

ICIST 2024 attracted over one hundred submissions, addressing the state-of-the-art development and research covering topics related to computer networks, artificial intelligence, autonomous systems, linear and nonlinear control, robust control, learning and adaptive control, signal processing, neural signal processing, component analysis, neural engineering, biomedical signal analysis and modeling, hardware, etc. Based on the rigorous peer reviews by the Program Committee members and reviewers, 132 papers (75.71% acceptance rate) were selected to be presented in the conference and included in the conference proceedings.

The conference program is highlighted with two plenary talks. We would like to express our sincere appreciation and acknowledgement to the distinguished plenary speakers: Professor Robert Kozma (Fellow IEEE, Fellow INNS, The University of Memphis, TN, USA, and Obuda University, Budapest, Hungary) and Professor Kay Chen Tan (Fellow IEEE, The Hong Kong Polytechnic University). The plenary talks focus on Artificial Intelligence and Evolutionary Computation.

Several organizations and many volunteers made great contributions toward the success of this conference. We would like to express our sincere gratitude to the British University in Egypt for their sponsorship, City University of Hong Kong and University of Electronic Science and Technology of China for their co-sponsorship, and IEEE Systems, Man and Cybernetics Society for its technical co-sponsorship. Special thanks are extended to Program Committee Chairs and members for their thorough reviews of all the submissions, and the organizing committee and volunteers for their warm and thoughtful service to all participants. We also would like to express our high appreciation and gratitude to all of the authors and participants. Without the contributions of the authors, the conference will be impossible.

We wish you to enjoy the conference and stay in Chengdu both academically and socially!

Tieshan Li, and Jiancheng Lv, General Chairs

Yuhua Cheng, and Yunqiang Yin, Organizing Chairs

Yongming Li, Hongjing Liang, and Zhouhua Peng, Program Chairs

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University of Electronic Science and Technology of China,
Chengdu, China

Program at a Glance

December 6, 2024	
13:00-18:00	Registration (Hotel Lobby)
18:00-19:30	Welcome Dinner (Phuket Island Restaurant)
December 7, 2024	
	Plenary session (Wufu Hall)
8:30-8:40	Opening Ceremony
8:40-9:40	Keynote speech I: Professor Robert Kozma
9:40-10:00	Coffee Break
10:00-11:00	Keynote speech II: Professor Kay Chen Tan
11:00-12:00	Best Paper Finalist Presentation (Chiang Mai Hall)
12:00-13:00	Lunch Break (Phuket Island Restaurant)
	Sessions
13:00-15:00	S1a (Chiang Mai Hall); S2a (Surin Hall); S3a (Brunei Hall)
15:00-15:15	Coffee Break
15:15-17:15	S1b (Chiang Mai Hall); S2b (Surin Hall); S3b (Brunei Hall)
18:30-20:00	Banquet (Melaka Restaurant)
December 8, 2024	
	Sessions
8:00-10:00	S1c (Chiang Mai Hall); S2c (Surin Hall); S3c (Brunei Hall)
10:00-10:15	Coffee Break
10:15-12:00	S1d (Chiang Mai Hall); S2d (Surin Hall); S3d (Brunei Hall)
12:00-13:00	Lunch Break (Phuket Island Restaurant)
13:00-15:00	S1e (Chiang Mai Hall); S2e (Surin Hall); S3e (Brunei Hall)
15:00-15:15	Coffee Break
15:15-16:30	S1f (Chiang Mai Hall); S2f (Surin Hall); S3f (Brunei Hall)
December 9, 2024	
9:00-12:00	Interactive Sessions (Brunei Hall)

Keynote Speech I

Title: Sustainable Artificial Intelligence Through Neuromorphic Technologies

Professor Robert Kozma, Fellow IEEE, Fellow INNS, The University of Memphis, TN, USA, and Obuda University, Budapest, Hungary

Abstract: Cutting-edge AI, AGI, ChatGPT and other advanced computational technologies demonstrate outstanding performance in many important tasks requiring intelligent data processing under well-known conditions, supported by massive computational resources and big data. However, the performance of these systems may drastically deteriorate when the data are perturbed, or the environment dynamically changes, either due to natural effects or caused by man-made disturbances and adversarial effects, possibly due to malicious actors. A neuromorphic perspective can provide crucial support under such demanding conditions. Human brains are efficient devices using 20W power (just like a light bulb!), which is many orders of magnitudes (OOM), less than the power consumption of today's supercomputers requiring MWs of power to solve specific learning tasks in an innovative way. This means a million times less power consumption in brains then in today's supercomputer clouds. Brain's energy management is the ultimate manifestation of embodiment and situated intelligence.

Biosketch: Robert Kozma (Fellow IEEE, Fellow INNS) Ph.D. in Applied Physics (1992), Delft University of Technology, The Netherlands. He has MSc in mathematics from Eotvos University, Budapest, Hungary, and in power engineering from Moscow Energy Institute, Russia. He has held faculty positions at the University of California at Berkeley, USA; Otago University, Dunedin, New Zealand; Tohoku University, Sendai, Japan. He has been Professor of Computer Science and Mathematics at University of Memphis since 2000, where he is the founding Director of the FedEx Center for Large-Scale Intelligent Optimization & Networks. Past affiliations with US Air Force Research Laboratory; NASA Jet Propulsion Lab; Lawrence Berkeley Lab; Sarnoff Co., Princeton; U. Massachusetts, Amherst. He has 9 book volumes, around 400 papers, and 3 patents. Dr. Kozma has been the President of the International Neural Network Society (INNS), served on the Board of Governors (BOG) of the IEEE SMC Society, the AdCom of IEEE CIS, and BOG of INNS. He is EIC of IEEE Transactions on SMC: Systems. He is recipient of INNS Dennis Gabor Award.

Title: When Evolutionary Computation Meets Large Language Models

Professor Kay Chen Tan, Fellow IEEE, The Hong Kong Polytechnic University

Abstract: Large Language Models (LLMs) have revolutionized natural language processing, achieving remarkable success across various applications. This presentation explores the compelling synergy between evolutionary computation and LLMs, investigating how these advanced models can revolutionize traditional optimization and search methods. We will start by examining the development and inherent abilities of LLMs, emphasizing their potential to bolster and refine evolutionary computation. We will then discuss various methods of embedding LLMs within evolutionary computation frameworks, tackling simple and intricate optimization challenges. We will outline the distinctive benefits and potential pitfalls of utilizing LLMs in these scenarios, supported by case studies from our research in areas like automated machine learning, causal discovery, materials science, and logistics optimization. These studies aim to illustrate how LLMs can enhance the efficiency and effectiveness of evolutionary algorithms, thus offering new avenues for addressing complex optimization problems. Lastly, we will explore the broader implications of this integration, offering insights into future research directions and applications.
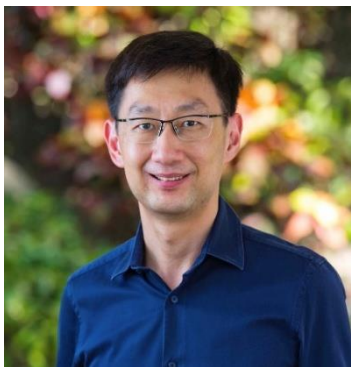
Biosketch: Kay Chen Tan is a Chair Professor (Computational Intelligence) of the Department of Data Science and Artificial Intelligence, The Hong Kong Polytechnic University. He has co-authored eight books and published over 300 peer-reviewed journal articles. Prof. Tan currently serves as the Vice-President (Publications) of the IEEE Computational Intelligence Society, USA. He was the Editor-in-Chief of IEEE Transactions on Evolutionary Computation from 2015-2020 and IEEE Computational Intelligence Magazine from 2010-2013. Prof. Tan is an IEEE Fellow and an Honorary Professor at the University of Nottingham in the UK. He is also the Chief Co-Editor of the Springer Book Series on Machine Learning: Foundations, Methodologies, and Applications.

December 7, 2024

8:30-8:40   Opening Ceremony (Wufu Hall)

8:40-9:40   Keynote Speech I: Prof. Robert Kozma - Sustainable Artificial Intelligence Through Neuromorphic Technologies

9:40-10:00   Coffee Break

10:00-11:00   Keynote Speech II: Prof. Kay Chen Tan - When Evolutionary Computation Meets Large Language Models

11:00-11:20   Best paper finalist presentation I (Room: Chiang Mai Hall)

Observer-Based Finite-Time Dynamic Encirclement for Multi-ASV Systems Using Time-Varying Sliding Mode Control

Jiahui Zhang, Yue Yang, Kezhong Liu, Xiaochen Li

11:20-11:40   Best paper finalist presentation II (Room: Chiang Mai Hall)

Secure Dynamic Event-based Consensus for Networked Multi-agent Systems subject to Distributed DoS Attacks

Bohan Li, Qing Gao, Zhenqian Wang, Wei Wang, and Jinhu Lu

11:40-12:00   Best paper finalist presentation III (Room: Chiang Mai Hall)

Event-Triggered-Based Fuzzy Control for Networked Control Systems with Compensation Mechanism Against DoS Attacks

Yingnan Pan and Changhao Li

12:00-13:00   Lunch Break

S1a: Ship Engineering
Chairs: Qihe Shan and Siwen Liu
Room: Chiang Mai Hall

13:00 - 13:15   *Ship Berthing Trajectory Cluster Based on Variational Inference Improved Mean Shift*

Han Xue and Kun Qian

13:15 - 13:30   *Regional Multi-Ship Collision Risk Analysis Based on Velocity Obstacle Method：A Case Study on the Pearl River Estuary*

Qi Liu, Pengfei Chen, Junmin Mou and Linying Chen

13:30 - 13:45   *Distributed Finite-Time Prescribed Performance Security Control for Unmanned Ships Utilizing the Novel Disturbance Estimator*

                      Yuhui Song, Huanqing Wang, Siwen Liu and Tieshan Li

13:45 - 14:00   *An Improved Convolutional Layer Based on Stochastic Masked Kernel for Ship Target Detection*

                      Jiachang Zhang, Yi Zuo, Junhao Jiang and Licheng Zhao

14:00 - 14:15   *Community Detection in Shipping Network Based on AIS Data*

                      Xin Zhang, Yi Zuo, Junhao Jiang and Peng Jia

14:15 - 14:30   *Command Filter-Based Adaptive Fuzzy Tracking Control for Intelligent Ship Autopilot with Full-State Constraints*

                      Lingjia Zhao, Dewen Tong and Huanqing Wang

14:30 - 14:45   *Evolutionary Dynamics of Information Diffusion Driven by Internal Synergy and External Incentives*

                      Zhifang Li and Xiaojie Chen

S1b: Data Analysis
Chairs: Liang Cao and Lixiao Zhao
Room: Chiang Mai Hall

15:15 - 15:30   *Digital Twin-Enabled Supply Chain Management with Visibility and Traceability: A Case Study*

                      Yishu Yang, Ming Li, Yaqi Dai, Hang Wu and Ray Y Zhong

15:30 - 15:45   *Source Code Changes Just-in-Time Update via Code Semantics*

                      Lingxiao Zhao, Wen Zhao, Hui Li, Shikai Guo and Li-Ying Hao

15:45 - 16:00   *Identifying Meaningful Vulnerability Report in Common Weakness Enumeration*

                      Guanxi Li, Wen Zhao, Lingxiao Zhao, Hui Li, Shikai Guo and Liying Hao

16:00 - 16:15   *Hypergraph Representation Learning from Noisy Node Attributes*

                      Qianxi Tang and Chunyang Zhang

16:15 - 16:30   *Performance Analysis of Deep Neural Network Based on Channel Pruning*

                      Junfeng Chen, Na Li, Ziyang Weng and Jingjing Du

16:30 - 16:45   *Observer-Based Adaptive Decentralized Control for Interconnected Nonlinear Systems with Input Delay*

                      Qixia Shen, Yushan Cen and Liang Cao

16:45 - 17:00   *Cross-Modal Feature Learning for Point Cloud Classification*

Wanhua Li and Chunyang Zhang

17:00 - 17:15   *Comprehensive Detection of Known Attacks Using Integrated Datasets*

Aouiche Chaima, Bolin Chen, Abdelaziz Aouiche, Bairong Shen, Rajeev K.Singla and Sahraoui Dhelim

S2a: Attacks and Fault Detection
Chairs: Yue Long and Ximing Yang
Room: Surin Hall

13:00 - 13:15   *A Data-Driven Method for Ship Collision Risk Detection in Heavy Traffic Waters*

Haoran Lv, Junmin Mou, Liang Zhang, Mengxia Li and Pengfei Chen

13:15 - 13:30   *Model-Based Predictive Security Control for Discrete Switching Systems under Deception Attacks*

Jianghan Xu, Lili Li, Mengjie Li, Bin Lu and Xiaowei Zhao

13:30 - 13:45   *Graph Low-Rank Non-Negative Matrix Factorization with Auto-Encoders for Fault Detection*

Yabing Liu, Shanshan Yu, Wei Guo and Man-Fai Leung

13:45 - 14:00   *Attack Tolerant Fault Diagnosis Based on Unknown Input Interval Observer*

Qidong Liu, Yue Long and Tieshan Li

14:00 - 14:15   *Fault Estimation for T-S Fuzzy Systems via an L∞ Switching Observer Scheme*

Yue Wu, Kai Zhang, Yang Wang, Xiaojie Sun and Shanfeng Zhang

14:15 - 14:30   *Distributed Unknown Input Observer-Based Global Fault-Tolerant Average Consensus Control for Linear Multi-Agent Systems*

Ximing Yang, Tieshan Li, Yue Long and Hanqing Yang

14:30 - 14:45   *Asynchronous Thruster Fault Detection for Unmanned Marine Vehicles under DoS Attacks*

Fuxing Wang, Yue Long and Tieshan Li

14:45 - 15:00   *A Hybrid Approach to Network Intrusion Detection Based on Graph Neural Networks and Transformer Architectures*

Hongrun Zhang and Tengfei Cao

S2b: Robotics and Intelligent Control Technology
Chairs: Zhenlei Chen and Xinfeng Shao
Room: Surin Hall

15:15 - 15:30   *Work in Progress: Enhancing Human-Robot Interaction through a Speech*

and Command Recognition System for a Service Robot Using ROS Melodic

Luis Emiliano Rodríguez Raygoza, Juan Carlos Tudon Martínez, Jorge de Jesús Lozoya-Santos and Luis Carlos Félix Herrán

15:30 - 15:45 *Simulation Research on Time-Optimal Path Planning of UAV Utilizing the Flightmare Platform*

Yuling Xin, Xin Lu and Fusheng Li

15:45 - 16:00 *Enhanced Orientation Tracking for Redundant Manipulators via DNN-Based Double Control*

Chenrui Xu and Yuheng Qian

16:00 - 16:15 *Adaptive Intelligent Tracking Control of Flexible-Joint Manipulator with Full-State Constraints*

Xinfeng Shao and Yongming Li

16:15 - 16:30 *Modeling and Analysis of UAV Charging Scheduling in Fixed/Mobile Charging Station Systems*

Zeyu Guo, Sining Zhang, Jiahe Wang, Xinyuan Huang, Ruixu Hu and Wenying Xu

16:30 - 16:45 *State and Disturbance Estimation of Autonomous Surface Vehicles Based on Nonlinear Cascade Extended State Observers*

Shijian Jiao, Lu Liu, Yongqi Yu, Anqing Wang, Dan Wang and Zhouhua Peng

16:45 - 17:00 *A Novel Marine Ranching Cages Positioning system on Unmanned Surface Vehicles Using LiDAR and Monocular Camera Fusion*

Jiewen Li, Qiao Liu, Ronghui Li and Jiayi Lai

S3a: Reinforcement Learning
Chairs: Hanqing Yang and Weiwei Bai
Room: Brunei Hall

13:00 - 13:15 *Hybrid Centralized-Decentralized Economic Dispatch Based on a Distributed Finite-Step Consensus Algorithm with Divided Regional Incremental Costs*

Hanwen Zhang, Hanqing Yang, Tieshan Li and Yue Long

13:15 - 13:30 *Optimal Power Flow Based on Area Partitioning Method for Power Grids*

Zhiqiang Ma, Fei Liang, Qi Yang, Bing Chen, Mei Zhou and Yu Na

13:30 - 13:45 *Improved Catch Fish Optimization Algorithm with Personalized Fishing Strategy for Global Optimization*

Bowen Xue, Heming Jia, Honghua Rao, Jinrui Zhang, Yilong Du and Zekai

Ai

13:45 - 14:00   *Perovskite-Organic Hybrid Multifunctional Optoelectronic Logic Gate via Bipolar Photo-Response*

Dan Zhao

14:00 - 14:15   *A Novel Second-Order Neurodynamic System to Fixed-Time Nash Equilibrium Seeking*

Song Yao, Xingxing Ju and Chaoli Yao

14:15 - 14:30   *A One-Layer Neural Network for Robust Mean-Variance Portfolio Selection Problem*

Keying Zhou and Jin Hu

14:30 - 14:45   *Event-Triggered Optimal Tracking Control for Uncertain Nonlinear System Based on Reinforcement Learning*

Yuanhao Wang and Weiwei Bai

14:45 - 15:00   *Research on an Improved RTMPose Model for Evaluating Dance Standardization Scores*

Di Cao, Qixuan Sun and Tong Cui

S3b: Intelligent Control and Networked Systems
Chairs: Hongru Ren and Liying Hao
Room: Brunei Hall

15:15 - 15:30   *Design and Implementation of Telemedicine System Using Light Fidelity and PIC16F877A Microcontroller*

Ezilarasan M R, Man-Fai Leung and Xiangguang Dai

15:30 - 15:45   *Safety-Critical Obstacle Avoidance Control of Autonomous Surface Vehicles with Uncertainties and Disturbances*

Gege Dong and Li-Ying Hao

15:45 - 16:00   *SD-YOLO: An Attention Mechanism Guided YOLO Network for Ship Detection*

Yunze Zhang, Li-Ying Hao and Yifei Li

16:00 - 16:15   *Dynamic Service Function Chain Deployment in NFV-enabled Offshore Edge Computing Networks*

Yongchun Han, Bin Lin, Chaoyue Zhang and Qiaodan Wang

16:15 - 16:30   *Distributed Group Coordination of Random Communication Constrained Cyber-Physical Systems Using Cloud Edge Computing*

Hongru Ren, Yinren Long, Hui Ma and Hongyi Li

16:30 - 16:45   *Actuator and Sensor Fault Reconstruction for Dynamic Positioning Vessels Based on Adaptive Unknown Input Observer*

Jialiang Li, Yulong Tuo, Lingling Yu, Jingxiang Liu and Zhouhua Peng

16:45 - 17:00   *A Multi-AUVs Bio-Inspired Cooperative Hunting Algorithm for Environment with Ocean Current and Obstacles*

Qingqin Liu, Bing Sun, Chunhua Gu, Dinghua Zhang and Daqi Zhu

17:00 - 17:15   *Privacy-Preserving Event-Triggered Predefined Time Containment Control for Networked Agent Systems*

Weihao Li, Jiangfeng Yue, Mengji Shi, Boxian Lin and Kaiyu Qin

December 8, 2024

S1c: Optimization and Control
Chairs: Xing Ren and Dong Liu
Room: Chiang Mai Hall

8:00 - 8:15   *Multi-Label Feature Selection for High-Dimensional Biological Data via Global Relevance and Redundancy Optimization Based on JS Divergence*

Man Yang, Yibo Wang, Yadi Wang, Xiaoding Guo, Huiyu Mu and Hangjun Che

8:15 - 8:30   *HLGM: A Novel Methodology for Improving Model Accuracy Using Saliency-Guided High and Low Gradient Masking*

Ali Karkehabadi, Banafsheh Saber Latibari, Houman Homayoun and Avesta Sasan

8:30 - 8:45   *Impacts of Speed and Spacing on Resistance in Ship Formations*

Linhao Xue and Pengfei Chen

8:45 - 9:00   *Adaptive Prescribed Performance Control of Robotic Manipulators with Velocity Constraints and Arbitrary Initial Joint Positions*

Xing Ren, Qing Guo, Tieshan Li and Xinyu Li

9:00 - 9:15   *Model-Free Adaptive Control of Second-order Multi-Agent Systems via Backstepping under Mixed Attacks*

Lei Han and Dong Liu

9:15 - 9:30   *Beta Random Restart Strategy-Based Remora Optimization Algorithm for Global Optimization*

Zekai Ai, Xiaoming Shi, Heming Jia, Jie Yang, Bowen Xue and Yilong Du

9:30 - 9:45   *Lyapunov Matrix-Based Guaranteed Cost Dynamic Positioning Control for Unmanned Marine Vehicles with Time Delay*

Xin Yang, Li-Ying Hao, Tieshan Li, Yang Xiao and Guoyong Liu

S1d: Network Science and Engineering
Chairs: Yi Zuo and Lu Yang
Room: Chiang Mai Hall

10:15 - 10:30   *Frequency-Enhanced Hybrid Multimodal CNN-Transformer Network for Electrocardiogram Classification*

Yufeng Wei and Cheng Lian

10:30 - 10:45   *Application of Social Network Analysis in Transportation Network Based on Ais Data*

Pengfei Ouyang, Yi Zuo, Junhao Jiang and Peng Jia

10:45 - 11:00   *Safety Analysis of China's Strategic Material Maritime Transport Channel Based on Bayesian Network*

Xue Chen, Xin Wang, Qing Yu and Lingling Feng

11:00 – 11:15   *Extraction of Group Activation Features for Different Sleep Stages from Whole-Brain FMRI Data Using Tucker Decomposition*

Huazhe Qi, Yue Han, Binhua Zhao and Qiuhua Lin

11:15 - 11:30   *A Deep Learning-Based Automatic Data Acquisition System for Medical Monitors*

Zouyi Zhi, Han Cao, Xu Cheng and Lu Yang

S1e: Algorithm Design
Chairs: Na Qin and Tianpeng Huang
Room: Chiang Mai Hall

13:00 - 13:15   *A Data-Driven DAE-CNN-BiLSTM-Attention Prediction Model for the State of Health of Lithium-ion Batteries*

Can Zhang, Yuanjiang Hu, Deqing Huang, Jiaxin Fang and Na Qin

13:15 - 13:30   *Finite-Time Synchronization Control for Quaternion-Valued Memristive Neural Networks by Halanay Inequality*

Jing Ping and Song Zhu

13:30 - 13:45   *Research on Multi-Target Attack Scheme Based on K-Means Clustering Algorithm*

Zengzhi Chen, Xiaoyu Song and Yanling Li

13:45 - 14:00   *Path Planning of USV Based on the Improved Differential Evolution Algorithm*

Zhongming Xiao, Baoyi Hou, Jun Ning and Bin Lin

14:00 - 14:15   *A High Cross-Individual Accuracy EEG-Based Seizure Detection Algorithm Based on Multiple Source Domain Adaption*

Haiting Li, Xinyang Deng, Yushan Li and Jun Zhou

14:15 - 14:30   *Dynamic Surface Attitude Tracking Control for a Quadrotor Using Disturbance Observer*

Tianpeng Huang and Huishuang Shao

14:30 - 14:45   *Research on Chinese Named Entity Recognition Based on BERT-CNN-BiLSTM-CRF Model with Fusion Multi-Head Attention Mechanism*

Qiulong Li, Shujia Yan, Qiang Chen and Kai Zhang

14:45 - 15:00   *DiffTune-PI Based Vector Control of Doubly Fed Induction Generator for Grid-Connected Operation*

Zhiwei Li, Gaihui Wang, Dan Wang, Liyu Lu, Zhouhua Peng and Haoliang Wang

S1f: Consensus Control for Multiagent Systems
Chairs: Zongsheng Huang and Yancheng Yan
Room: Chiang Mai Hall

15:15 - 15:30   *Dynamic Target Pursuit by Multi-UAV Under Communication Coverage: ACO-MATD3 Approach*

Zhuang Cao and Di Wu

15:30 - 15:45   *Prescribed-Time Consensus of Multi-Agent Systems with Distributed Time-varying Dynamic Event-Triggered Strategy*

Meilin Li and Tieshan Li

15:45 - 16:00   *Performance-Based Human-in-the-Loop Optimal Bipartite Consensus Control for Multi-Agent Systems via Reinforcement Learning*

Zongsheng Huang, Tieshan Li, Yue Long and Hanqing Yang

16:00 - 16:15   *Formation Tracking of UAV-UGV Systems Over Event-Triggered Communications*

Yancheng Yan, Tieshan Li, Yue Long, Hanqing Yang and Hongjing Liang

16:15 - 16:30   *Multi-UAV Path Planning Based on DRL for Data Collection in UAV-Assisted IoT*

Lin Li, Lei Wang, Jiawang Hou, Junjie Ma and Yang Liu

S2c: Machine Learning
Chairs: Aimin Li and Wenjun Xiong
Room: Surin Hall

8:00 - 8:15   *Multi-Scale Patch Transformer Network for Satellite Image Time Series Classification*

Jifeng Suo and Degang Wang

8:15 - 8:30   *Multi-Granularity Feature Fusion Network for Cross-Domain Person Re-identification*

Shaoqi Hou, Zebang Qin, Jiajie Wang, Junqi An, Yusong Zhang, Xinzhong Wang and Zhiguo Wang

8:30 - 8:45   *Semantic Information-Enhanced Loop Closure Detection for Simultaneous Localization and Mapping*

Yushan Huang, Zhifeng Wang, Yaoyu Ding, Lu Yang and Jinliang Shao

8:45 - 9:00	*Event-Triggered Synchronous Iterative Learning Control for 2D T-S Fuzzy Systems Against Cooperative Attacks*
	Aimin Li and Wenjun Xiong
9:00 - 9:15	*Integral-Related ZE (Zhang-Equivalency) Equations and Inequations of Unequal-Parameter-Value (UPV) Situation*
	Yunong Zhang, Jiale Zhang and Peng An
9:15 - 9:30	*Multimodal Reinforcement Learning with Dynamic Graph Representations for Autonomous Driving Decision-Making*
	Ting Su and Chunyang Zhang
9:30 - 9:45	*Hyperspectral Image Classification Using Custom Spectral Convolutional Neural Networks (CSCNNs)*
	Stephanie Rouamba, Nian Zhang, Wagdy Mahmoud, Lara Thompson, Max Denis and Tolessa Deksissa

S2d: Formation Control
Chairs: Kewen Li and Kunting Yu
Room: Surin Hall

10:15 - 10:30	*Fuzzy Time-Varying Formation Control for Unmanned Surface Vehicles Considering Aerial Base Station Allocation Algorithm*
	Qihe Shan, Peiyun Ye, Fei Teng, Tieshan Li and Qi Xu
10:30 - 10:45	*Connectivity and Obstacle Avoidance Method for Formation Tracking with Uncertain Multiple Nonholonomic Mobile Robots with Unknown Faults*
	Yanbing Han, Kewen Li and Yongming Li
10:45 - 11:00	*Adaptive Formation Control for Underactuation Multi-USVs with Jointly Connected Switching Typologies*
	Kunting Yu, Yongming Li and Kewen Li
11:00 – 11:15	*Adaptive Fuzzy Fault-Tolerant Formation Control for Third-Order Heterogeneous Vehicle Platoon System with Intermittent Actuator Faults*
	Zhiting Zhou, Kewen Li and Yongming Li
11:15 - 11:30	*Self-Triggered Distributed Formation Control of Under-Actuated Unmanned Surface Vehicles in GPS-Denied Environments*
	Xintong He, Lu Liu, Haoliang Wang, Zhouhua Peng and Dan Wang
11:30 - 11:15	*Containment-Formation Control for Second-Order Nonlinear Multi-Agent Systems via Event-Triggering*
	Xinyang Lan, Yang Yu and Wei Wang

11:45 - 12:00   *Dynamic Threshold Global Performance-Guaranteed Formation Control for Wheeled Mobile Robots with Smooth Extended State Observer*

Minjing Wang, Di Wu, Di Wu and Wenlong Feng

S2e: Optimization Algorithm
Chairs: Fei Teng and Wei Wu
Room: Surin Hall

13:00 - 13:15   *Port Distributed Energy Management Considering USVs Charging and Discharging in Polymorphic Network*

Qi Qu, Fei Teng and Qi Xu

13:15 - 13:30   *Adaptive Dynamic Programming-Based Optimal Heading Control for State Constrained Unmanned Sailboat*

Shitong Zhang, Yifei Xu, Yingjie Deng and Sheng Xu

13:30 - 13:45   *H∞ State Feedback Controller Based on Dynamic Observer Design for Singular Fractional-Order Systems*

Minghui Wei, He Li and Shuo Liu

13:45 - 14:00   *Simulated Annealing-Based Optimization for the Coverage Path Planning of Multiple Unmanned Surface Vehicles in ECDIS*

Yunwei Li, Nan Gu, Jiyang Jia, Zhouhua Peng and Dan Wang

14:00 - 14:15   *An Improvement of Q-Learning Based on Attenuation Oscillation Curve for Path Planning*

Shiwen Sheng, Yi Zuo, Yuzhou Lu and Wei Wu

14:15 - 14:30   *Robot Path Planning Based on Tabu Particle Swarm Optimization Integrating Cauchy Mutation*

Lishu Qin and Zhentao Fan

14:30 - 14:45   *Robust Support Vector Machine Based on Sample Screening*

Junnan Guo, Weikai Li and Jin Hu

14:45 - 15:00   *Spatiotemporal Dynamic Graph Isomorphism Network for Satellite Image Time Series Classification*

Yuchen Jin and Degang Wang

S2f: Object Detection and Classification
Chairs: Long Ji and Zhang Dan
Room: Surin Hall

15:15 - 15:30   *Authentication of Medical Staff with Protective Gear-Wearing: Utilization of Handwritten Letter Characteristics and Machine Learning*

Kyoka Shirae and Chinthaka Premachandra

15:30 - 15:45   *Detection of Intoxicated Passengers at Stations to Prevent Accidents on Railway Platforms*

Naoki Kikitsu and Chinthaka Premachandra

15:45 - 16:00   *Unsupervised Feature Fusion Model for Marine Raft Aquaculture Sematic Segmentation Based on SAR Images*

Mengmeng Li, Xinzhe Wang and Jianchao Fan

16:00 - 16:15   *Remote Sensing Object Detection Based on Fusion of Spatial and Channel Attention*

Wenyun Sun and Long Ji

16:15 - 16:30   *A Novel Fruit Shape Classification Method: BLS-Levelset*

Zhang Dan, Tieshan Li and Yi Zuo

S3c: Classification and Data Analysis
Chairs: Bo Zhao and Wenqi Pan
Room: Brunei Hall

8:00 - 8:15   *Distributed Energy Management for Ship-Integrated Energy System Considering Economic and Environmental Benefits*

Yuxin Zhang, Qihe Shan, Haoran Liu and Tieshan Li

8:15 - 8:30   *Industrial Structural Change, the Urban-Rural Income Gap, and Its Regional Heterogeneity: Based on Panel Data from Thirteen Prefecture-Level Cities in Jiangsu Province, 2006-2019*

Tong Jin

8:30 - 8:45   *Churn Prediction in Gasoline Consumers under the Price Commitment Scenario*

Boyang Li, Yunzhe Qiu, Lili Chen and Xi Zhang

8:45 - 9:00   *Dynamical Analysis of Rumor Propagation Model Considering Media Refutation and Individual Refutation*

Wenqi Pan and Li-Ying Hao

9:00 - 9:15   *Ultra-Local Model Predictive Current Control of Permanent Magnet Synchronous Motor with Dual-Vector Based on Data-Driven Neural Networks*

Chendong Zhao, Dan Wang, Zhouhua Peng and Wenjie Wu

9:15 - 9:30   *Evolutionary Neural Architecture Search with Performance Predictor Based on Hybrid Encodings*

Jiamin Xiao, Kuoyong Yu, Bo Zhao and Derong Liu

9:30 - 9:45　　*The Cognition Problem of Surroundings for the Agent Based on Direction Measurement*

Yingjing Shi and Rui Li

9:45 - 10:00　　*Improved Artificial Potential-Based Formation Control of Multi-USV Systems for Collision and Obstacle Avoidance under GPS Attacks*

Sen Cheng, Yue Yang and Xiaochen Li

S3d: Multiagent Systems
Chairs: Yuanyuan Xu and Qing Guo
Room: Brunei Hall

10:15 - 10:30　　*Separate Observer-Based Estimation and Control for Unmanned Autonomous Vehicles with Disturbances and Faults under Input Saturation*

Qianqian Zhang, Jie Gao, Guojie Han and Xin Hu

10:30 - 10:45　　*Adaptive NN Consensus Control for Second-Order Nonlinear Multi-Agent Systems Against Sparse Sensor Attacks*

Xiao Tang, Yang Yu and Wei Wang

10:45 - 11:00　　*Distributed Fuzzy Fixed-Time Consensus Control for Multiple Manipulators System with Input Deadzone*

Haoran Zhan and Qing Guo

11:00 – 11:15　　*Observer-Based Bipartite Containment Control of Multi-Agent Systems with Input and Output Quantization*

Yanqing Hou, Yan Yan and Shuanghe Yu

11:15 - 11:30　　*Event-Triggered Control for Human-in-the-Loop Multi-Agent Systems under DoS Attacks*

Yuanyuan Xu, Kai Liu, Hongjing Liang, Tieshan Li, Yue Long, Qidong Liu, Ximing Yang and Zongsheng Huang

11:30 - 11:15　　*Distributed Adaptive Formation Control with Collision Avoidance and Connectivity Maintenance of Multiple Autonomous Surface Vehicles*

Quan Shi, Li Xin and Jianmin Yang

S3e: Control Algorithm Design
Chairs: Shuai Sui and Lin Zhao
Room: Brunei Hall

13:00 - 13:15　　*Fast Classification Model Based on Genetic Algorithm and XGBoost-RandomForest Stacking Model*

Yanliang Zhou, Tianhe Liu, Jiawen Wang and Jie Cheng

13:15 - 13:30 *UVMS Trajectory Tracking Based on RBFNN and Sliding Mode Control*

Huiyi Luo, Weilin Luo and Yuanjing Wang

13:30 - 13:45 *Circuit Design of a Seven-Piecewise Linear Activation Function*

Ren Cai, LeYang, Zhanhui Jiang, Zhixia Ding and Sai Li

13:45 - 14:00 *Adaptive Prescribed-Time Control of Dynamic Positioning Ships Based on Neural Networks*

Yongsheng Dou, Chenfeng Huang and Yi Zhao

14:00 - 14:15 *Super-Resolution Integrated Semantic Segmentation Method for the Corner Position of Catenary Bolt*

Yilin Chen, Minyang Wei, Junjie Ma, Na Qin and Deqing Huang

14:15 - 14:30 *MRBicopter: Modular Reconfigurable Transverse Tilt-Rotor Bicopter System*

Qianyao Pan, Xin Lu, Weijun Yuan and Fusheng Li

14:30 - 14:45 *Predefined-Time Control for Uncertain High-Order Nonlinear Systems with Quantized Input Signal*

Lin Zhao and Shuai Sui

14:45 - 15:00 *Adaptive Fuzzy Impedance Control of Human-Robot Interaction Modular Robot Manipulators Based on Human Motion Intention Estimation*

Bo Dong, Rui Sun, Tianjiao An, Chen Li and Bing Ma

S3f: Predictive Control Algorithms
Chairs: Chengwen Tang and Bohua He
Room: Brunei Hall

15:15 - 15:30 *An Adaptive Weight Model Predictive Control Algorithm to Trajectory Tracking Control of UUV*

Danjie Zhu, Hongtan Zhao, Bing Sun and Zinan Su

15:30 - 15:45 *Segmentation Reconstruction and Prediction of AIS Trajectory Based on Broad Learning System*

Baohua He, Yi Zuo, Weihong Wang, Licheng Zhao, Tieshan Li and C. L. Philip Chen

15:45 - 16:00 *Carbon Emission Factor Multi-Time Scale Prediction with Adaptive Graph Convolution Strategy*

Songyan Wang, Xiongfeng Ye, Wei Wang, Xuejun Jiang and Qinmin Yang

16:00 - 16:15   *Prediction of Typhoon Pathway Points Based on Zhang Extrapolation (ZE) Formula for Points 1 to 3*

Chengwen Tang, Litian Li, Tao Wang and Yunong Zhang

16:15 - 16:30   *Computer Simulations of FIFZN with Expected Precision Adaptively Satisfied Handling TVQP*

Sicheng Zhu, Haifeng Hu, Min Yang, Yunong Zhang and Ning Tan

S4: Interactive Session 9:00-12:00
Chairs: Lei Liu
Room: Brunei Hall

Ship Path Following Control Using Event-Triggered Lexicographic Ordering Multi-Objective Model Predictive Control

Yukun Sun, Yuchi Cao, Qihe Shan and Hanxuan Zhang

Adaptive Budgerigar Optimization-Based Obstacle Avoidance Path Planning for Unmanned Aerial Vehicle

Zhiqiang Li, Jingyu Liu, Mengji Shi, Boxian Lin, Meng Li and Kaiyu Qin

Reliability Evaluation of Virtual Power Plants Based on Bayesian Networks

Jiacheng Hu, Ning Zhang, Lingxiao Yang and Cungang Hu

Robust Optimization of Cold Chain Logistics Networks with Time Window under Uncertain Demand: A Case Study in China

Jie Liao, Yalan Li and Jiyang Liu

Semantic-Guided Diffusion Prototypical Network for Few-Shot Classification

Chuxin Zhang and Jing Li

Privacy-Preserving Average Consensus in Multiagent Systems for Node Collusion

Yaqi Wang, Jiabei Ye and Yue Lu

Fast Path Planning for Polar Surface Unmanned Vessels Based on GI-ACO-A* Algorithm

Zilong Qu, Xiaojun Mei, Huafeng Wu and Kun Zhang

Leader-following consensus of multi-agent systems with input constraints by distributed dynamic event-triggered strategy under switching topologies

Meilin Li, Tieshan Li, Yue Long

Prescribed-Time Human-in-the-Loop Optimal Consensus Control for Multi-Agent Systems with Input Dead-Zone

Zongsheng Huang, Tieshan Li, Yue Long, Hanqing Yang

Resilient Observer-based Security Control for Cyber-Physical Systems against Actuator Fault and Denial of Service Attack

Ximing Yang, Tieshan Li, Yue Long, Hanqing Yang

An adaptive neurodynamic approach based on smoothing approximation for solving non-smooth resource allocation problems

Haoze Li, Linhua Luan, Sitian Qin

Watermark-Based Replay Attack Detection for Unmanned Marine Vehicles

Guangrui Bian, Tieshan Li, Yue Long, Hanqing Yang

Event-Triggered Consensus Control of P2HH-Based Integrated Energy Systems with Two-Time Scales

Ke Zeng, Tieshan Li, Yue Long, Hanqing Yang

Intelligent Optimized DP for Marine Vessels Under Thruster Saturations via Finite-Time Disturbance Observer

Xiaoyang Gao, Tieshan Li

Distributed Fault Detection of Multiple Unmanned Marine Vehicles Based on Fuzzy Model

Yu Sun, Yue Long, Tieshan Li

Sensor Working Mode Replacement-Based Faulty Performance Self-Recovery Control Strategy for Nonlinear System with Sensor Failures

Peihao Du, Hongyi Li

Distributed Fixed-Time Control for Interconnected Systems

Qidong Liu, Yue Long, Tieshan Li

Safety-critical Receding-horizon Motion Planning and Containment Control of Autonomous Surface Vehicles via Neurodynamic Optimization

Lyu Guanghao, Zhouhua Peng, Wang Dan

Safety-Critical Path-Guided Coordinated Control of Nonlinear Strict-Feedback Multi-Agent Systems via Neurodynamic Optimization

Siming Cong, Nan Gu, lu liu, Dan Wang, Zhouhua Peng

Shared Path Following Control of Intelligent Surface Vehicles with Course Keeping and Collision Avoidance

Congyi Lyu, lu liu, Dan Wang, Zhouhua Peng

Safety-critical Anti-disturbance Control of Tugs for Collaborative Berthing

Haodong Liu

Pursuit-Evasion Game of Under-actuated ASVs via Model-based Deep Reinforcement Learning

Chao Pan, Anqing Wang, Zhouhua Peng, Dan Wang

Domain Protection Guidance of Multiple Autonomous Surface Vehicles based on Differential Game and Control Barrier Functions

Fangyuan Xu, Nan Gu, Zhouhua Peng, Dan Wang

Digital-twin modeling and ship-shore collaborative control of fully-actuated maritime autonomous surface ships

Jiaxue Xu, Nan Gu, Dan Wang, Zhouhua Peng

Model-Free Safe Adaptive Synchronization Control of Nonlinear Multi-Agent Systems

Huijuan Li, Nan Gu, Dan Wang, Zhouhua Peng

Digital Twins Modeling of Maritime Autonomous Surface Ships Based on Deep Neural Predictor

Lingfeng Li

Fully Connected Neural Network-Based Fixed-Time Adaptive Sliding Mode Control for Fuzzy Semi-Markov System

Ren fangmin, Xiaoping Wang, Yangmin Li, Zhigang Zeng

Fixed-Time Stabilization of Multi-Weighted Complex Networks via Novel Adaptive Pinning Chatter-Free Control and Its Applications

Ren fangmin, Xiaoping Wang, Yangmin Li, zhanfei chen, Chen Wei, Zhigang Zeng

Research on battery SOC estimation method by combining optimization algorithm and multi-model Kalman filtering

Zhiming Chen, Changqi Zhu, Lie Liu

Distributed Nash Equilibrium Seeking for Multi-cluster UAVs Formation

Lei Liu,Tao Hu

UAV Formation Control With External Obstruct Based On Differential Game*

Lei Liu, Zhibin Yang, Yang Chen

Adaptive Fixed-Time Formation Tracking Control of USVs with Obstacle Avoidance and Prescribed

Zifu Li, Wenzhi Liu, Yancai Hu

Hotel Guide Map

PN：The Chiang Mai Hall, Surin Hall and Brunei Hall are on the second floor of Wangjiang Club.