2023 International Annual Conference on Complex Systems and Intelligent Science (CSIS-IAC 2023)

October 20~22, 2023

Shenzhen, China

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南方科技大学
SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

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About CSIS-IAC 2023

Complex Systems and Intelligent Science research has received considerable attention in recent years. There are many interacting components in complex systems, resulting in some interesting and emerging properties that cannot be well understood from stand-along system viewpoints. Complex systems not only occur in physical sciences and engineering, but also encompass in many other fields. It has been noticed that the research methodology for Complex Systems is applicable to Intelligent Science, including data science, machine learning, and artificial intelligence. Big data research is closely associated with complex systems since simple systems will not generate data that can be considered "big". On the other hand, it is the recent trend to employ machine learning and deep learning approaches in the modeling, control and management of complex systems. This conference covers all aspects of Complex Systems and Intelligent Science. It reports cutting edge research in complex systems, complex networks, parallel control, parallel management, social computing, intelligent control, learning control, machine learning, robotic systems, and intelligent medicine. As a highly interdisciplinary field, Complex Systems and Intelligent Science requires collaboration among researchers from various domains, including mathematics, physics, computer science, engineering, social sciences, humanities, and political sciences.

CSIS-IAC 2023 aims to provide a high-level international forum for scientists, researchers, educators, industrial professionals, and students worldwide to present state-of-the-art research results, address new challenges, and discuss trends in Complex Systems and Intelligent Science. CSIS-IAC 2023 invites scholars in all areas of Complex and Nonlinear Systems, System Analysis and Integration, Intelligent Science and Technology, and Intelligent Systems and Applications. In addition to regular technical sessions with oral and poster presentations, the conference program will include special sessions on topics of current interest. CSIS-IAC 2023 features plenary/keynote sessions by world leading researchers as well as awards to honor outstanding papers presented at the conference.

Venue

深圳富苑皇冠假日套房酒店
深圳市罗湖区南湖路 3018 号
Crowne Plaza Hotel & Suites Landmark Shenzhen
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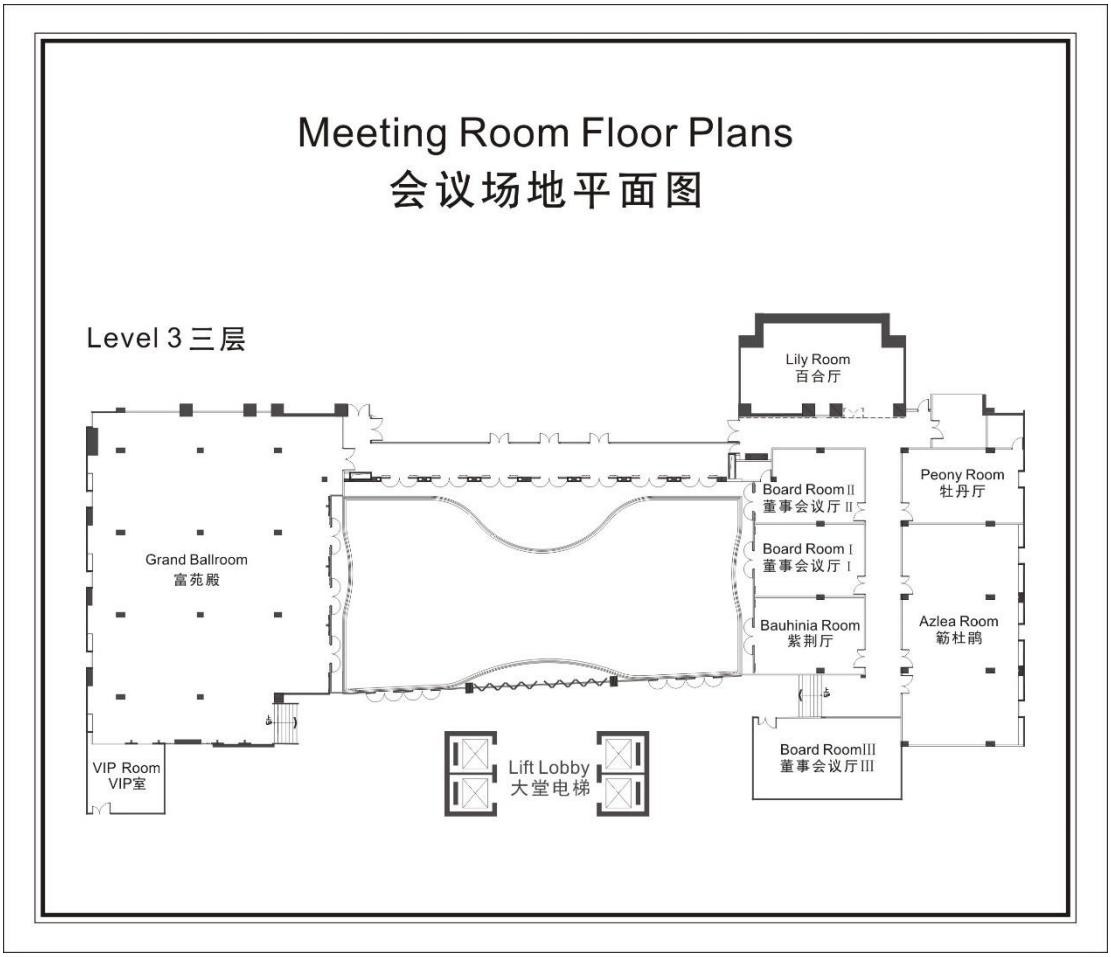

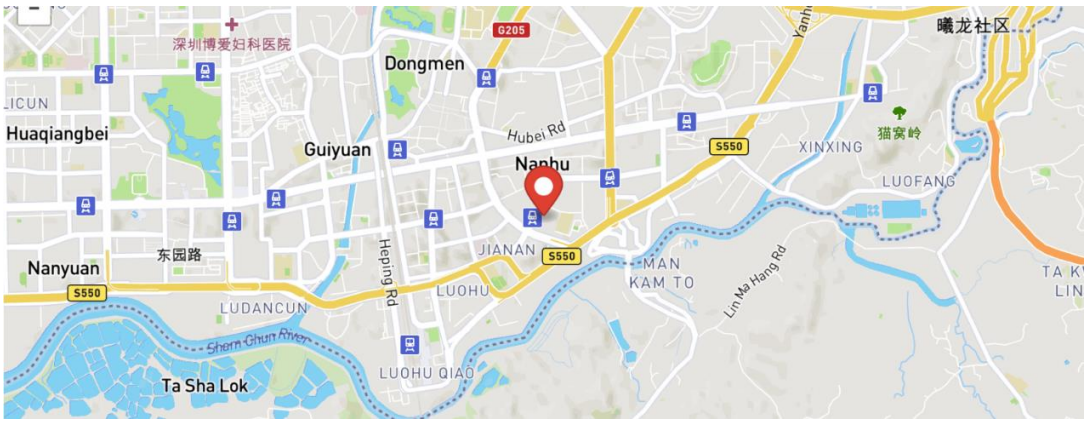

CSIS-IAC 2023 Conference Schedule at a Glance http://www.csisiac.org

Saturday, October 21, 2023

8:30–8:50	Opening ceremony (三楼富苑殿)							
8:50–9:40	Plenary 1: Dynamic Uncertain Causality Graph for Clinical Diagnosis in General Practice Applied in Real World by Qin Zhang (Chair: Derong Liu)							
9:40–10:10	Coffee break (三楼外廊)							
10:10–11:00	Plenary 2: Intelligent Optimal Control for Municipal Solid Waste Incineration Processes by Jun-Fei Qiao (Chair: Huaguang Zhang)							
11:00–11:50	Plenary 3: A New Approach for Optical Coherence Tomography Signal Processing and the Corresponding Instrument System by Shengli Xie (Chair: Chenghong Wang)							
12:00–13:20	Lunch (一楼中庭宴会厅)							
13:30–15:30	牡丹厅	簕杜鹃厅(I)	簕杜鹃厅(II)	簕杜鹃厅(III)	紫荆厅	百合厅	董事(I)	三楼外廊
	SaA01: Special Session - Intelligent Systems and Applications (1) (Chairs: Jinling Liang and He Kong)	SaA02: Special Session - Adaptive Dynamic Programming and Reinforcement Learning (ADPRL研讨会I) (Chairs: Biao Luo and Qinmin Yang)	SaA03: Artificial Systems and Complex Networks (Chairs: Lu Dong and Zunshui Cheng)	SaA04: Hybrid and Smart Systems (Chairs: Kemi Ding and Yan Jiang)	SaA05: System Modelling and Advanced Control (Chairs: Xiong Yang and Hao Shen)	SaA06: Special Session - Dynamic Neural Learning, Optimal Control and Intelligent Robots (1) (IEEE CIS Guangzhou Chapter) (Chairs: Zhijun Zhang and Dongsheng Guo)	AI重大专项内部会议	SaPoster: Poster Session (Chairs: Zhuo Wang and Ruizhuo Song)
15:30–16:00	Coffee break (三楼外廊)							
16:00–18:00	SaB01: Special Session - Intelligent Systems and Applications (2) (Chairs: Jinling Liang and He Kong)	SaB02: Special Session - Theory and Applications of nmODE (1) (Chairs: Quan Guo and Yao Zhou)	SaB03: Neural Computation and its Applications (Chairs: Liangming Chen and Lidan Wang)	SaB04: Learning, Evolution and Computation (Chairs: Tao Liu and Jinghui Zhong)	SaB05: Machine Learning and Autonomous Systems (Chairs: Shenquan Wang and Quan-Yong Fan)	SaB06: Special Session - Dynamic Neural Learning, Optimal Control and Intelligent Robots (2) (IEEE CIS Guangzhou Chapter) (Chairs: Zhijun Zhang and Dongsheng Guo)	ADPRL专委会2023年会	SaPoster: Poster Session (Chairs: Zhuo Wang and Ruizhuo Song)
18:30–19:50	Dinner and socializing time (一楼中庭宴会厅)							

Sunday, October 22, 2023

8:30–8:40	Short discussion before plenary (三楼富苑殿)							
8:40–9:40	Plenary 4: The Complexity Science and Parallel Intelligence for the New Generation - A Foundation Thinking for Being, Becoming, and Believing (第三轴心时代的复杂性科学与平行智能：面向必映，必明，必瞩的基础认知) by Fei-Yue Wang (Chair: Derong Liu)							
9:40–10:10	Coffee break (三楼外廊)							
10:10–11:00	Plenary 5: Cloud Predictive Control for Networked Multi-agent Systems by Guo-Ping Liu (Chair: Zhongsheng Hou)							
11:00–11:50	Plenary 6: BCI Based Intelligent Control Methods for Rehabilitation Robots by Zeng-Guang Hou (Chair: Chenghong Wang)							
12:00–13:20	Lunch (一楼中庭宴会厅)							
13:30–15:30	牡丹厅	簕杜鹃厅(I)	簕杜鹃厅(II)	簕杜鹃厅(III)	紫荆厅		董事(I)	
	SuA01: Special Session - Learning Control and Optimization for Complex Systems (Chairs: Qinglai Wei and Yisheng Lv)	SuA02: Special Session - Theory and Applications of nmODE (2) (Chairs: Quan Guo and Yao Zhou)	SuA03: Special Session - Advanced Computation and Control in Complex Systems (Chairs: Hanguang Su and Yunfei Mu)	SuA04: Adaptive Dynamic Programming and Reinforcement Learning (ADPRL研讨会2) (Chairs: Yanhong Luo and Xinglong Zhang)	SuA05: Learning and Intelligent Control (Chairs: Yonghua Wang and Fuxiao Tan)		IEEE广州分会2024年Chapter活动	
15:30–16:00	Coffee break (三楼外廊)							
16:00–18:00	SuB01: Special Session - Approximation Based Control and Optimization of Uncertain Nonlinear Systems (Chairs: Huanqing Wang and Ming Chen)	SuB02: Special Session - Theory and Applications of nmODE (3) (Chairs: Quan Guo and Yao Zhou)	SuB03: Special Session - Intelligent Learning and Control for Robotics and Autonomous Systems (Chairs: Weibing Li and Yinyan Zhang)	SuB04: Learning Control and Optimization (Chairs: Xiang Xu and Yongfeng Lv)	SuB05: Multi-agent and Unmanned Aerial Vehicles (Chairs: Jinna Li and Tenghai Qiu)		平行控制与管理专委会2023年会	
18:30–20:30	Dinner banquet and award ceremony (一楼中庭宴会厅)							

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Plenary Lectures

Qin Zhang

08:50–09:40 October 21, 2023

Dynamic Uncertain Causality Graph for Clinical Diagnosis in General Practice Applied in Real World

Qin Zhang is a member of the Standing Committee of the 13th Chinese People's Political Consultative Conference, emeritus member of China Association for Science and Technology, member of International Nuclear Energy Academy, head of the strategic advisory expert team for China National Key Project of Nuclear Power, Fellow of Chinese Association for Artificial Intelligence (CAAI), Chair of the Technical Committee for Uncertainty in AI of CAAI, Director of the Academic Advisory Committee of China Intellectual Property Society, and Professor of Institute of Nuclear and New Energy Technology and Department of Computer Science and Technology, Tsinghua University.

Abstract:

DUCG (Dynamic Uncertain Causality Graph) is a newly developed medical AI model that graphically represents domain uncertain causal knowledge and makes probabilistic reasoning with penetrative explainability and inherent invariance in different application scenarios. The "independent and identically distributed" assumption is not needed in DUCG, because DUCG is causality-driven instead of data-driven. Therefore, DUCG does not have problems such as data collecting, labeling, fitting, privacy, bias, generalization, high cost and high energy consumption, etc. This presentation will show online how DUCG works to guide general practitioners to make clinical diagnoses under more than 50 chief complaints covering more than 1,000 diseases, including how to collect clinical information and what medical checks to make, step by step according to the conditions of primary hospitals or clinics. The chief complaints include: Cough sputum, dyspnea, abdominal pain, diarrhea, hematemesis, nasal congestion, nasal bleeding, blood in the stool, nausea and vomiting, joint pain, hemoptysis, fever, chest pain, jaundice, anemia, edema, obesity, emaciation, sore throat, palpitation, fever in children, dizziness, headache, constipation, rash, difficulty swallowing, enlargement of lymph nodes, cyanosis, limb numbness, vaginal bleeding, abnormal vaginal discharge, pruritus vulvae, reduced menstruation or amenorrhea, abdominal distension, syncopation, tinnitus, deafness, earache, acid reflux, heartburn, hiccup, belching, mass, oliguria or no uria, lower urinary tract symptoms (frequent urination, urgency of urination, pain in urine, dysuria, polyuria, gross hematuria, and urine leakage), neck and low back pain (neck pain, waist pain and back pain). In total, the diagnostic precision verified by third-party hospitals for every chief complaint is more than 95%, in which the diagnostic precision for every disease (including uncommon disease) is no less than 80%, which is most needed by general practitioners. More than 650,000 cases were performed in real world in China. In which, only 17 diagnoses were determined as incorrect and the mistakes in DUCG were found and fixed afterward. Statistics in the real-world applications show that DUCG can increase the ability of general practitioners to diagnose diseases several times more than without DUCG.

Jun-Fei Qiao

10:10–11:00 October 21, 2023

Intelligent Optimal Control for Municipal Solid Waste Incineration Processes

Jun-Fei Qiao is a Professor and the Vice President of Beijing University of Technology. He is the Director of Beijing Laboratory of Smart Environmental Protection, Director of Engineering Research Center of Intelligent Perception and Autonomous Control, Ministry of Education. He also serves as a member of the discipline appraisal group of the Academic Degrees Committee of the State Council, and a member of the Teaching Steering Committee of the Ministry of Education. He is a Distinguished Professor of the "Changjiang Scholar Award Program", and a recipient of the National Science Fund for Distinguished Young Scholars from the National Natural Science Foundation. He is also a winner of the New Century Ten Million Talents Project, and an expert enjoying the Special Government Allowance from the State Council. Prof. Qiao's research focuses on computational intelligence and intelligent optimal control, and smart environmental protection. He has published more than 200 papers on prestigious journals, and more than 100 invention patents have been authorized by U.S. and China respectively. He has won several awards, including 1 second prize of National Science and Technology Progress Award, and 1 first prize of Science and Technology Progress Award by the Ministry of Education.

Abstract:

Municipal solid waste incineration (MSWI) provides an effective and promising approach for managing municipal solid waste (MSW) due to the fact that it can reduce waste volume and recover energy. MSWI has become an important support for the ecological civilization construction and dual carbon target. The MSWI process is a complex dynamic system with multiple elements in space and time, involving various physical and chemical reactions, with strong nonlinearity, high coupling, etc. Hence, it is difficult to realize the optimal control of MSWI processes. This talk will discuss the challenges faced by realizing the optimal control, and then introduce the recent developments of real-time measurement, adaptive control, and multi-objective dynamic optimization.

Shengli Xie

11:00–11:50 October 21, 2023

A New Approach for Optical Coherence Tomography Signal Processing and the Corresponding Instrument System

Shengli Xie received the B.S. degree in mathematics from Jilin University, Changchun, China, in 1983, the M.S. degree in mathematics from Central China Normal University, Wuhan, China, in 1995, and the Ph.D. degree in control theory and applications from South China University of Technology, Guangzhou, China, in 1997. He is currently a Full Professor and the Head of the Institute of Intelligent Information Processing, Guangdong University of Technology, Guangzhou. He was awarded Highly Cited Researcher. His research interests include blind signal processing, machine learning, and Internet of Things. He was an Associate Editor for IEEE Transactions on Neural Networks and Learning Systems, and is an Associate Editor for IEEE Transactions on Systems, Man, and Cybernetics: Systems. He received the Second Prize of National Natural Science Award of China in 2009. He is a Foreign Full Member (Academician) of the Russian Academy of Engineering. He is a winner of the Science and Technology Progress Award 2022 of the Ho Leung Ho Lee Foundation.

Abstract:

Resin composite materials possess several advantages, including high strength, resistance to high temperatures, and low density. These materials find extensive applications in the construction of high-end aviation equipments. To fulfill the demands for complicate equipment loads, increased carrying capacity, extended service life, and enhanced safety, it is imperative to conduct scientific research on the mechanical properties and failure mechanisms of materials. Therefore, the development of tomographic deformation measurement techniques is crucial in accurately capturing the strength and damage evolution of composite materials, both externally and internally. Optical coherence tomography (OCT) is an advanced method that offers nanometer-level measurement sensitivity for tomographic deformation analysis, positioning it at the forefront of international research. However, resolution limitations, inadequate measurement accuracy, and low signal-to-noise ratio (SNR) of imaging pose significant challenges within this field, necessitating substantial advancements. The commonly accepted solution entails utilizing hardware techniques, such as expanding the bandwidth of the light source. Unfortunately, this strategy can increase the complexity of integrating hardware and therefore is difficult to fundamentally resolve the aforementioned bottleneck issues. As a result, it is imperative to investigate a novel approach for OCT signal processing, as well as the development of associated instrument systems. This lecture introduces novel techniques in OCT signal processing, including sparse blind separation for estimating interferometric spectra, underdetermined blind separation for unmixing interlayer phases, and spatial spectral separation for compensating phase errors. A state-of-the-art tomographic measurement instrument system has been developed. The detailed content includes:

(1) Considering the issue of restricted resolution resulting from narrow bandwidth,

we uncover the consistent occurrence of sparse interference spectrum as a crucial parameter for characterizing axial resolution. Building upon this finding, we propose the "sparse blind separation model for OCT" and the "interference spectrum sparsity optimization method for multi-layer underdetermined systems", which effectively overcomes the bottleneck of axial resolution limitations.

(2) To address the challenge of inadequate measurement accuracy resulting from spectral leakage, we establish the “underdetermined blind separation (UBS) model for OCT phase” in the wavenumber domain. Furthermore, we present the “OCT phase spectrum optimization method” to solve the UBS model and finally, the solution can enable precise reconstruction of topography and deformation measurements without the need for prior information.

(3) To solve the challenge of low SNR arising from speckle decorrelation, we investigate a phase noise localization method based on binary maps. Additionally, we present new OCT image processing techniques, specifically “spatio-temporal adaptive differential phase calculation" and "interference spatial spectrum separation phase error compensation," leading to a 137% improvement in SNR in strain imaging.

(4) Building upon the innovative techniques for processing OCT signals mentioned earlier, we develop a new OCT system that is capable of measuring surface topography and internal deformation with high precision. Notably, the system offers an axial resolution of 1 micron, a cross-sectional measurement speed of 20 frames per second, and a measurement accuracy within ±20 nanometers, showing a superior performance in comparations to current mainstream OCT systems.

Fei-Yue Wang

08:40–09:40 October 22, 2023

The Complexity Science and Parallel Intelligence for the New Generation - A Foundation Thinking for Being, Becoming, and Believing

第三轴心时代的复杂性科学与平行智能：面向必映，必明，必曙的基础认知

Fei-Yue Wang received his Ph.D. degree in computer and systems engineering from the Rensselaer Polytechnic Institute, Troy, NY, USA, in 1990. He joined The University of Arizona in 1990 and became a Professor and the Director of the Robotics and Automation Laboratory and the Program in Advanced Research for Complex Systems. In 1999, he founded the Intelligent Control and Systems Engineering Center at the Institute of Automation, Chinese Academy of Sciences (CAS), Beijing, China, under the support of the Outstanding Chinese Talents Program from the State Planning Council, and in 2002, was appointed as the Director of the Key Laboratory of Complex Systems and Intelligence Science, CAS, and Vice President of Institute of Automation, CAS in 2006. He found CAS Center for Social Computing and Parallel Management in 2008, and became the State Specially Appointed Expert and the Founding Director of the State Key Laboratory for Management and Control of Complex Systems in 2011. His current research focuses on methods and applications for parallel intelligence, social computing, and knowledge automation. He is a Fellow of INCOSE, IFAC, ASME, and AAAS. In 2007, he received the National Prize in Natural Sciences of China, numerous best papers awards from IEEE Transactions, and became an Outstanding Scientist of ACM for his work in intelligent control and social computing. He received the IEEE ITS Outstanding Application and Research Awards in 2009, 2011, and 2015, respectively, the IEEE SMC Norbert Wiener Award in 2014, and became the IFAC Pavel J. Nowacki Distinguished Lecturer in 2021. Since 1997, he has been serving as the General or Program Chair of over 30 IEEE, INFORMS, IFAC, ACM, and ASME conferences. He was the President of the IEEE ITS Society from 2005 to 2007, the IEEE Council of RFID from 2019 to 2021, the Chinese Association for Science and Technology, USA, in 2005, the American Zhu Kezhen Education Foundation from 2007 to 2008, the Vice President of the ACM China Council from 2010 to 2011, the Vice President and the Secretary General of the Chinese Association of Automation from 2008 to 2018, the Vice President of IEEE Systems, Man, and Cybernetics Society from 2019 to 2021. He was the Founding Editor-in-Chief (EiC) of the International Journal of Intelligent Control and Systems from 1995 to 2000, IEEE ITS Magazine from 2006 to 2007, IEEE/CAA Journal of Automatica Sinica from 2014 to 2017, China's Journal of Command and Control from 2015 to 2021, and China's Journal of Intelligent Science and Technology from 2019 to 2021. He was the EiC of the IEEE Intelligent Systems from 2009 to 2012, IEEE Transactions on Intelligent Transportation Systems from 2009 to 2016, IEEE Transactions on Computational Social Systems from 2017 to 2020. Currently, he is the President of CAA's Supervision Council, and the EiC of IEEE Transactions on Intelligent Vehicles.

Abstract:

The lecture explores the synergistic potential of parallel intelligence, Industry 5.0 in the context of radio-frequency identification (RFID) and smart sensing technologies. As Industry 4.0 transitions to the next phase of industrial revolution, Industry 5.0 emphasizes the harmonious

coexistence between humans and machines, promoting human-centered approaches to technological advancements. Parallel intelligence, a concept leveraging Artificial systems (A), Computational experiments (C), and Parallel execution (P) to enable novel solutions and insights that address complex problems and achieve superior outcomes. By combining RFID and smart sensing technologies with decentralized autonomous organizations (DAOs) and decentralized science (DeSci), new possibilities emerge. The collective intelligence of multiple RFID systems and smart sensors can be harnessed to optimize supply chain operations, enhance asset tracking accuracy, and enable predictive maintenance. The integration of DAOs further enhances this collaborative ecosystem by facilitating decentralized decision-making and resource allocation. DeSci emphasizes open collaboration, data sharing, and reproducibility, facilitating scientific progress and innovation in a decentralized manner, and empowers collaborative frameworks for RFID and smart sensing the potential to revolutionize industries, drive efficiency, and foster innovation in a human-centered and decentralized manner, paving the way for a more sustainable and smart future.

Guo-Ping Liu

10:10–11:00 October 22, 2023

Cloud Predictive Control for Networked Multi-agent Systems

Professor Guo-Ping Liu received the BEng degree in industrial automation and MEng degree in control engineering from the Central South University of Technology, China (now Central South University) and the PhD degree in control systems from the University of Manchester in the UK. He was a professor with the Institute of Automation of the Chinese Academy of Sciences, University of South Wales, Harbin Institute of Technology, and Wuhan University. He is now a chair professor with the Southern University of Science and Technology. Prof Liu's research interests include networked control systems, multi-objective optimal control and intelligent decision, nonlinear identification and intelligent control, and industrial advanced control applications. He was named a highly cited researcher by Thomson Reuters, Clarivate Analytics, and Elsevier. He was awarded the Alexander von Humboldt research fellowship. He received the second prize of Chinese National Science and Technology Awards twice. Prof. Liu was the general chair of the 2007 IEEE International Conference on Networking, Sensing and Control, 2011 International Conference on Intelligent Control and Information Processing, and 2012 UKACC International Conference on Control. He is a member of the Academy of Europe and a fellow of IEEE, IET and CAA.

Abstract:

With the rapid development of communication network technology, cloud computing technology and control system technology, there are more and more networked multi-agent control systems via cloud computing, such as industrial internet control systems and smart grids. This talk mainly discusses the coordinated control problem of networked multi-agent systems based on cloud computing. For complex large-scale networked multi-agent systems, utilizing the advantages of cloud computing, a cloud predictive control strategy is introduced to compensate for communication constraints actively, execute control algorithms fast and achieve desired coordination performance of the systems. A multi-step learning predictor is discussed to predict the future outputs of unknown nonlinear multi-agents. The coordinated control optimization design is adopted to have the expected dynamic and static coordination performance between individual agents. The consensus and stability of networked multi-agent systems are analysed, which is controlled employing the cloud predictive control method. The simulation and experimental results demonstrate the advantages of the cloud predictive control of networked multi-agent systems.

Zeng-Guang Hou

11:00–11:50 October 22, 2023

BCI Based Intelligent Control Methods for Rehabilitation Robots

Zeng-Guang Hou is a Professor and Deputy Director of the State Key Laboratory of Management and Control for Complex Systems, Institute of Automation, Chinese Academy of Sciences (CAS). He is a VP of Chinese Association of Automation (CAA), VP of the Asia Pacific Neural Network Society (APNNS). Dr. Hou is a CAA Fellow and an IEEE Fellow. He also serves as an AE of IEEE Transactions on Cybernetics, and an Editorial Board Member of Neural Networks. Dr. Hou was a recipient of the Dennis Gabor Award of the International Neural Network Society (INNS) in 2023, the Outstanding Achievement Award of Asia Pacific Neural Network Society (APNNS) in 2017, and IEEE Transactions on Neural Networks Outstanding Paper Award in 2013, etc. His research interests include computational intelligence, robotics and intelligent systems.

Abstract:

We are facing increasingly serious issues due to aging population, such as stroke and Alzheimer's disease, which require accurate evaluation and efficient rehabilitation, but we are short of rehabilitation therapists. Rehabilitation robots are expected to provide a possible technical solution helping to solve these issues and provide more efficient rehabilitation services for patients and therapists. However, applications of rehabilitation robots also have many challenges, such as efficiency, reliability and safety for human-robot interactions. And intelligent control is an important issue hindering its development. In this talk, we will discuss the recent developments and challenges of multi-modal biological signal acquisition and processing, brain-computer interface and intelligent control methods, and prospects for the future development.

Technical Program

Saturday, Oct. 21, 2023

SaA01 13:30–15:30 牡丹厅
Special Session: Intelligent Systems and Applications (1)

Organizer: Liang, Jinling — Southeast Univ.
Organizer: Kong, He — Southern Univ. of Sci. & Tech.
Chair: Liang, Jinling — Southeast Univ.
Co-Chair: Kong, He — Southern Univ. of Sci. & Tech.

▶ SaA01-1 13:30–13:50
Privacy-Preserving Bipartite Consensus on Signed Networks
Zhang, Jing — Southeast Univ.
Lu, Jianquan — Southeast Univ.
Chen, Xiangyong — Linyi Univ.
Zhong, Jie — City Univ. of Hong Kong

▶ SaA01-2 13:50–14:10
Recursive Filtering for Nonlinear Systems with Measurement Saturation and Correlated Noises
Cai, Shipei — Southeast Univ.
Liang, Jinling — Southeast Univ.

▶ SaA01-3 14:10–14:30
Adaptive Fixed-Time Neural Tracking Control for Nonlinear Systems with Unknown Disturbances
Zhang, Na — Liaocheng Univ.
Li, Chong — Liaocheng Univ.
Yue, Huarong — Liaocheng Univ.
Liu, Xinru — Liaocheng Univ.
Xia, Jianwei — Liaocheng Univ.

▶ SaA01-4 14:30–14:50
Prescribed-Time Control for Nonlinear Systems with Sensor Faults
Gao, Yu — Liaocheng Univ.
Sun, Wei — Liaocheng Univ.

▶ SaA01-5 14:50–15:10
Event-Triggered Programming for H∞ Control of Completely Unknown Nonlinear System via Generalized Fuzzy Hyperbolic Models
Jin, Yuyue — Northeastern Univ.
Su, Hanguang — Northeastern Univ.
Liu, Fan — Northeastern Univ.
Cui, Yi — Northeastern Univ.
Zhi, Gan — Northeastern Univ.

▶ SaA01-6 15:10–15:30
Adaptive Neural Optimal Control of A Robot Manipulator with Time-Varying State Constraints
Wei, Yan — Zhejiang Univ. of Tech.
Hao, Mingshuang — Zhejiang Univ. of Tech.
Yu, Xinyi — Zhejiang Univ. of Tech.
Chen, Qiang — Zhejiang Univ. of Tech.
Ou, Linlin — Zhejiang Univ. of Tech.

SaA02 13:30–15:30 箭杜鹃厅I
Special Session: Adaptive Dynamic Programming and Reinforcement Learning (ADPRL研讨会1)

Organizer: Luo, Biao — Central South Univ.
Chair: Luo, Biao — Central South Univ.
Co-Chair: Yang, Qinmin — Zhejiang Univ.

▶ SaA02-1 13:30–13:50
Spare Parts Inventory Optimization for Wind Farms
Hu, Jingyao — Zhejiang Univ.
Li, Chao — Zhejiang Univ.
Yang, Qinmin — Zhejiang Univ.

▶ SaA02-2 13:50–14:10
Decentralized Online Adaptive Control of Unknown Large-Scale Systems via Dynamic Event-Triggered Strategy
Cui, Yi — Northeastern Univ.
Su, Hanguang — Northeastern Univ.
Hu, Xuguang — Northeastern Univ.

▶ SaA02-3 14:10–14:30
Predictive Fault-tolerant Control with Robust Dynamic Output Feedback for Discrete Uncertain Systems with Time Delays
Wang, Shiqi — Univ. of Sci. & Tech. Liaoning
Li, Hui — Univ. of Sci. & Tech. Liaoning
Li, Hua — Univ. of Sci. & Tech. Liaoning
Shi, Huiyuan — Liaoning Petrochemical Univ.
Sun, Qiubai — Univ. of Sci. & Tech. Liaoning
Li, Ping — Liaoning Shihua Univ.

▶ SaA02-4 14:30–14:50
MO-MIX: Multi-Objective Multi-Agent Cooperative Decision-Making with Reinforcement Learning
Hu, Tianmeng — Central South Univ.
Luo, Biao — Central South Univ.
Yang, Chunhua — Central South Univ.
Huang, Tingwen — Texas A& M Univ.

▶ SaA02-5 14:50–15:10
Integrated User Behavior Model in Reinforcement Learning for Ads Allocation
Zhang, Qichao — Chinese Acad. of Sci.

▶ SaA02-6 15:10–15:30
Robust Output Feedback Switching Fault-tolerant Control for Linear Discrete Systems with Intermittent Actuator Failures
Zuo, Lanshuang — Liaoning Petrochemical Univ.
Shi, Huiyuan — Liaoning Petrochemical Univ.
Li, Jinna — Liaoning Petrochemical Univ.
Su, Chengli — Liaoning Petrochemical Univ.

SaA03 13:30–15:30 箭杜鹃厅II
Regular Session: Artificial Systems and Complex Networks

Chair: Dong, Lu — Southeast Univ.
Co-Chair: Cheng, Zunshui — Qingdao Univ. of Sci. & Tech.

▶ SaA03-1 13:30–13:50
Deep Neural Network Based Suspension Control Failure Identification of Maglev Systems
Wang, Su-Mei — The Hongkong Polytechnic Univ.

▶ SaA03-2 13:50–14:10
System of Systems Architecture Prioritization Using A Comprehensive Evaluation Framework
Li, Qiao — Tsinghua Univ.
Li, Lefei — Tsinghua Univ.
Ren, Xusheng — Tsinghua Univ.

▶ SaA03-3 14:10–14:30
Synchronization of Scale-free Networks
Jin, Xin — Qingdao Univ. of Sci. & Tech.
Cheng, Zunshui — Qingdao Univ. of Sci. & Tech.

▶ SaA03-4 14:30–14:50
Certifiably Robust Out-Of-Distribution Detection Based on Prediction Uncertainy Weighting
Liu, Yanchao — Shandong Tech. & Business Univ.
Dou, Quansheng — Shandong Tech. & Business Univ.
Tang, Huanling — Dalian Maritime Univ.
Zhou, Liyuan — Shandong Tech. & Business Univ.
Li, Xiujuan — Shandong Tech. & Business Univ.

▶ SaA03-5 14:50–15:10
Synchronization of Coupled Reaction-Diffusion Neural Networks Driven by G-Brownian Motion with Time-Varying Delay
Zhang, Zhi — Southwest Minzu Univ.
Yang, Jun — Southwest Minzu Univ.

▶ SaA03-6 15:10–15:30
A Frequency-sweeping Approach for Establishing Stability Region for Complex-valued Parameter for A Class of Linear Time-invariant Systems with Discrete or Distributed Delay
Yang, Luan — Fudan Univ.
Zhou, Shijie — Fudan Univ.

SaA04 13:30–15:30 箭杜鹃厅III
Regular Session: Hybrid and Smart Systems

Chair: Ding, Kemi Southern University of Science and Technology
Co-Chair: Jiang, Yan Southeast Univ.

▶ SaA04-1 13:30–13:50
Adaptive Fuzzy Tracking Control of Uncertain High-Order Nonlinear Systems with Asymmetric Full-State Constraints and Zero Dynamics
Yang, Zhengyu Guangxi Univ.
Jiang, Yan Southeast Univ.

▶ SaA04-2 13:50–14:10
Second-order Scalable Complex System Modeling Framework and Parallelization Dynamics Method
Gao, Geolone National Univ. of Defense Tech.
Huang, Jian National Univ. of Defense Tech.
Zhang, Lun National Univ. of Defense Tech.
Tang, Bin National Univ. of Defense Tech.
Zhang, Jiarui National Univ. of Defense Tech.

▶ SaA04-3 14:10–14:30
Dynamic Event-triggered H_∞ Control for Uncertain Stochastic Singular Markov Jump Systems with Time-varying Delays
Chang, Chunling Shenyang Jianzhu Univ.
Yang, Zihan Shenyang Jianzhu Univ.
Xing, Shuangyun Shenyang Jianzhu Univ.

▶ SaA04-4 14:30–14:50
Network Clustering-based Multi-agent Reinforcement Learning for Large-scale Traffic Signal Control
Tao, Zhicheng Zhejiang Univ.
Li, Chao Zhejiang Univ.
Yang, Qinmin Zhejiang Univ.

▶ SaA04-5 14:50–15:10
Zeroing Neural Network for Solving Hybrid Time-Dependent Linear-Nonlinear Dynamic System
Pan, Shuang Xinyang Normal Univ.
Chen, Jingjing Xinyang Normal Univ.
Sun, Jiaqi Xinyang Normal Univ.
Zhu, Xinhui Xinyang Normal Univ.
Li, Jian Xinyang Normal Univ.

▶ SaA04-6 15:10–15:30
Robust Iterative Learning Predictive Fault-tolerant Switching Control for Batch Processes: An Lyapunov-Razumikhin Approach
Li, Hui Univ. of Sci. & Tech. Liaoning
Wang, Shiqi Univ. of Sci. & Tech. Liaoning
Shi, Huiyuan Liaoning Petrochemical Univ.
Li, Ping Liaoning Shihua Univ.

SaA05 13:30–15:30 紫荆厅
Regular Session: System Modelling and Advanced Control

Chair: Yang, Xiong Tianjin Univ.
Co-Chair: Shen, Hao Anhui Univ. of Tech.

▶ SaA05-1 13:30–13:50
A Dynamic Mathematical Model for Wide-load Range Operation of Ultra-supercritical Units
Zhao, Quankai Northeastern Univ.
Yang, Dongsheng Northeastern Univ.
Zhou, Bowen Northeastern Univ.
Tan, Futian Northeastern Univ.
Wu, Mingliang Northeastern Univ.
Yuan, Fengyi Liaoning Univ. of Technologgy

▶ SaA05-2 13:50–14:10
Optimal Control of Discrete-Time Markov Jump Systems with Unknown System Dynamics: A Parallel Reinforcement Learning Scheme
Wang, Yun Anhui Univ. of Tech.
Li, Wenqian Anhui Univ. of Tech.
Wu, Jiacheng Anhui Univ. of Tech.
Wang, Jing Anhui Univ. of Tech.
Shen, Hao Anhui Univ. of Tech.

▶ SaA05-3 14:10–14:30
H∞ Output Anti-Bump Control for Switched Linear Systems
Li, Jinghan Northeastern Univ.
Liu, Yan Northeastern Univ.
Ma, Ruicheng Liaoning Univ.

▶ SaA05-4 14:30–14:50
Probability Distribution for the Backward-evolving Quantum State Concerning A Monitored Qubit
Pan, Sijin Harbin Inst. of Tech.
Miao, Zibo Harbin Inst. of Tech., Shenzhen

▶ SaA05-5 14:50–15:10
Bayesian Inference of Mechanical Property Parameters and Layup Orientation Angle in A Composite Wing
Gong, Yulian Beihang Univ.
Tang, Yuhua State Administration of Sci., Tech. & Industry for National Defence,PRC
Zhang, Jianguo Beihang Univ.

▶ SaA05-6 15:10–15:30
Optimal Impulsive Control for Continuous-Time Nonlinear Systems Based on ADP
Liang, Mingming BYD

SaA06 13:30–15:30 百合厅
Special Session: Dynamic Neural Learning, Optimal Control and Intelligent Robots (1)

Organizer: Zhang, Zhijun South China Univ. of Tech.
Organizer: Li, Weibing Sun Yat-sen Univ.
Organizer: Guo, Dongsheng Hainan Univ.
Organizer: Kang, Wenxiong South China Univ. of Tech.
Organizer: Xiao, Lin Hunan Normal Univ.
Chair: Zhang, Zhijun South China Univ. of Tech.
Co-Chair: Guo, Dongsheng Hainan Univ.

▶ SaA06-1 13:30–13:50
Large-Model and Generative-Intelligence Agricultural Robot Systems
Zhang, Zhijun South China Univ. of Tech.
Pan, An South China Univ. of Tech.
Li, Xingru South China Univ. of Tech.
Luo, Yamei South China Univ. of Tech.

▶ SaA06-2 13:50–14:10
Generative-Model-Based Autonomous Intelligent Unmanned Systems
Zhang, Zhijun South China Univ. of Tech.
Wu, Zhentao South China Univ. of Tech.
Ge, Ren South China Univ. of Tech.

▶ SaA06-3 14:10–14:30
A Fuzzy Adaptive Zeroing Neural Network with Noise Tolerance for Time-varying Stein Matrix Equation Solving
Xie, Yunrui Hunan Normal Univ.
Xiao, Lin Hunan Normal Univ.

▶ SaA06-4 14:30–14:50
Multi-level Attention Network for Cross-modal Hashing Retrieval
Cheng, Jiabei Hong Kong Polytechnic Univ.
Yan, Xueming Guangdong Univ. of Foreign Studies

▶ SaA06-5 14:50–15:10
Applying Improved Genetic Algorithm for Solving the Multi-Row Dynamic Facility Layout Problem
Liu, Jinfa Guangdong Univ. of Foreign Studies
Li, Wanhua Guangdong Univ. of Foreign Studies

▶ SaA06-6 15:10–15:30
An Adaptive-Gain Recurrent Neural Network for Solving the Joint-Angle Drift Issues of Redundant Manipulators
Zheng, Boyu Nanchang Univ.
Li, Chunquan Nanchang Univ.
Zhang, Zhijun South China Univ. of Tech.
Yu, Junzhi Peking Univ.
Liu, Xiaoping Carleton Univ.

SaB01 16:00–18:00 牡丹厅
Special Session: Intelligent Systems and Applications (2)

Organizer: Liang, Jinling Southeast Univ.
Organizer: Kong, He Southern Univ. of Sci. & Tech.
Chair: Liang, Jinling Southeast Univ.
Co-Chair: Kong, He Southern Univ. of Sci. & Tech.

▶ SaB01-1 16:00–16:20
Distributed Economic Dispatch of Microgrids Based on Event-Triggered Mechanisms with Watermarking
Liu, Chang State Grid Shanghai Electric Power Research Inst.
Sun, Lei Univ. of Shanghai for Sci. & Tech.
Zhao, Peifeng Univ. of Shanghai for Sci. & Tech.
Ding, Derui Swinburne Univ. of Tech.

▶ SaB01-2 16:20–16:40
Multi-time Scale Optimization of Microgrids Considering Carbon Capture and User Contribution

Zhang, Baicheng Liaoning Technical Univ.
Zhang, Shuaibo Liaoning Technical Univ.
Luan, Meng Southeast Univ.

▶ SaB01-3 16:40–17:00
Gait Recognition in Different Terrains with IMUs Based on Attention Mechanism Feature Fusion Method
Yan, Mengxue Linyi Univ.
Guo, Ming Linyi Univ.
Sun, Jianqiang Linyi Univ.
Qiu, Jianlong Linyi Univ.
Chen, Xiangyong Linyi Univ.

▶ SaB01-4 17:00–17:20
Simulating A Complex Giant System: A Case Study on Yellow River Basin
Cao, Zhiwei Key Laboratory of Water Management & Water Security for Yellow River Basin of Ministry of Water Resources (Under Construction)
Zhang, Yuansheng North China Univ. of Water Resources & Electric Power
Jin, Xin Yellow River Engineering Consulting Co. Ltd
Zong, Hucheng Yellow River Engineering Consulting Co.Ltd
Wang, Dongfan Yellow River Engineering Consulting Co., Ltd
Liang, Guojie Yellow River Engineering Consulting Co. Ltd

▶ SaB01-5 17:20–17:40
Reinforcement Learning with Hierarchical Graph Structure for Flexible Job Shop Scheduling
Zhang, Linli Shanghai Jiao Tong Univ.
Li, Dewei Shanghai Jiao Tong Univ.

▶ SaB01-6 17:40–18:00
Architecture and Key Technologies of Parallel Dispatching System for Railway Technical Operation Stations
Xiong, Gang Inst. of Automation,Chinese Acad. of Sci.
Yang, Donghu Univ. of Chinese Acad. of Sci.
Xu, Wei China Acad. of Railway Sci.
Li, Runmei Beijing Jiaotong Univ.
Chen, Shichao Inst. of Automation Chinese Acad. of Sci.
Bing, Song Chinese Acad. of Sci.
Dong, Xisong Inst. of Automation, Chinese Acad. of Sci.
Zhu, Fenghua Inst. of Automation, Chinese Acad. of Sci.

SaB02 16:00–18:00 箭杜鹃厅I
Special Session: Theory and Applications of nmODE (1)
Organizer: Zhang, Lei Sichuan Univ.
Organizer: Guo, Quan Sichuan Univ.
Organizer: Zhou, Yao Sichuan Univ.
Chair: Guo, Quan Sichuan Univ.
Co-Chair: Zhou, Yao Sichuan Univ.

▶ SaB02-1 16:00–16:20
Medical Image Segmentation Using Discretized NmODE
He, Quansong Sichuan Univ.
He, Tao Sichuan Univ.
Zhang, Yi Sichuan Univ.

▶ SaB02-2 16:20–16:40
Convolutional Neural Networks with Neural Memory Ordinary Differential Equations
Liu, Yixuan Sichuan Univ.
Chen, Yuanyuan Sichuan Univ.

▶ SaB02-3 16:40–17:00
An Experimental Study of NmODE in Recognizing Endoscopic Submucosal Dissection Workflow
Huang, Kaide Sichuan Univ.
Yuan, Xianglei West China Hospital of Sichuan Univ.
Liu, Ruide West China Hospital of Sichuan Univ.
Zhou, Yao Sichuan Univ.
Bing, Hu West China Hospital of Sichuan Univ.
Zhang, Yi Sichuan Univ.

▶ SaB02-4 17:00–17:20
A Gated NmODE Network for Coronary Artery Segmentation in Computed Tomography Angiography Images
Zeng, Jianda Sichuan Univ.
Jiang, Weili Sichuan Univ.
Li, Yiming West China Hospital, Sichuan Univ.
Niu, Hao Sichuan Univ.
Huang, Xuan Capital Medical Univ.
Wang, Jianyong Sichuan Univ.

▶ SaB02-5 17:20–17:40
Robust Lesion Segmentation on Emission Computed Tomography with NmODE
Zhang, Zeao Sichuan Univ.
Guo, Quan Sichuan Univ.

▶ SaB02-6 17:40–18:00
Precise Fluence Map Prediction for Intensity-modulated Radiation Therapy by Leveraging NmODE
Tan, Xiangjie Sichuan Univ.
Niu, Hao Sichuan Univ.
Hu, Junjie Sichuan Univ.
Si, Pilei Henan Provincial People Hospital

SaB03 16:00–18:00 箭杜鹃厅II
Regular Session: Neural Computation and its Applications
Chair: Chen, Liangming Southern Univ. of Science and Technology
Co-Chair: Wang, Lidan Southwest Univ.

▶ SaB03-1 16:00–16:20
Spatio-temporal Neural Network with Contrastive Learning for Vehicle Trajectory Prediction
Li, Jiufa Southwest Univ.
Duan, Shukai Southwest Univ.
Wang, Lidan Southwest Univ.

▶ SaB03-2 16:20–16:40
Enhancing Local Descriptor Networks for Few-shot Image Classification
Dou, Quansheng Shandong Tech. & Business Univ.
Li, Xiujuan Shandong Tech. & Business Univ.
Tang, Huanling Dalian Maritime Univ.
Liu, Yanchao Shandong Tech. & Business Univ.
Zhou, Liyuan Shandong Tech. & Business Univ.

▶ SaB03-3 16:40–17:00
YOLOv5s-AAGA: An Effective Approach for Accurate Face Mask Wearing Detection in Complex Scenes
Cai, Guohui Southwest Minzu Univ.
Cai, Ying Southwest Minzu Univ.
Yang, Xiaoling Chengdu Normal Univ.
Xu, Yong Southwest Minzu Univ.
Luo, Weilin Southwest Minzu Univ.
Tan, Shengbo Southwest Minzu Univ.

▶ SaB03-4 17:00–17:20
Classification for Ultrasound Welding Joints Based on PCA and Improved Adaptive PSO-SVM
Xu, Zijun Harbin Inst. of Tech. Shenzhen
Li, Yuxiang Harbin Inst. of Tech. Shenzhen
Ye, Shuyuan Harbin Inst. of Tech. Shenzhen
Liang, Jiayang Harbin Inst. of Tech., Shenzhen
Long, Zhili Harbin Inst. of Tech. Shenzhen

▶ SaB03-5 17:20–17:40
FastSNN: A CUDA-based Programming Framework for Rapid Training SNNs
Wang, Yuchen Univ. of Electronic Sci. & Tech. of China
Xue, Lang Univ. of Electronic Sci. & Tech. of China
Lu, Chengzhuo Univ. of Electronic Sci. & Tech. of China
Yi, Bingyan Univ. of Electronic Sci. & Tech. of China
Qing, Hongyu Univ. of Electronic Sci. & Tech. of China
Qu, Hong Univ. of Electronic Sci. & Tech. of China

▶ SaB03-6 17:40–18:00
Hardware Implementation of NmODE on FPGA
Chen, Yi Univ. of Electronic Sci. & Tech. of China
Liu, Hanwen Univ. of Electronic Sci. & Tech. of China
Zhang, Enqi Univ. of Electronic Sci. & Tech. of China
Qu, Hong Univ. of Electronic Sci. & Tech. of China
Zhang, Yi Sichuan Univ.

SaB04 16:00–18:00 箭杜鹃厅III
Regular Session: Learning, Evolution and Computation
Chair: Liu, Tao Southern University of Science and Technology
Co-Chair: Zhong, Jinghui South China Univ. of Tech.

▶ SaB04-1 16:00–16:20
An Efficient GEP-based Hyper-heuristic Approach for Automatic Airport Gate Assignment Problem
Wu, Jiankai South China Univ. of Tech.
Xie, Shichang Gsi

Dong, Junlan — South China Univ. of Tech.
Zhong, Jinghui — South China Univ. of Tech.

▶ SaB04-2 16:20–16:40
Recognition of Masked Facial Expressions Based on Convolutional Neural Networks and Data Augmentation
Zhang, Xiao — Univ. of Chinese Acad. of Sci.
Liu, Yonggang — Inst. of Psychology, Chinese Acad. of Sci.; Univ. of Chinese Acad. of Sci.
Zhao, Ke — Chinese Acad. of Sci.

▶ SaB04-3 16:40–17:00
A CNN-based Automatic Detection Method for Tunnel Lining Internal Defect Using Ground Penetrating Radar
Yang, Tong — Kunming Univ. of Sci. & Tech.
Tang, Qingjingyi — Shijiazhuang Tiedao Univ.
Zhang, Guangcai — Kunming Univ. of Sci. & Tech.
Long, Sihui — Kunming Univ. of Sci. & Tech.

▶ SaB04-4 17:00–17:20
A Deep Learning-based Flight Turnaround Record System
Ran, Jielong — South China Univ. of Tech.
Wan, Hao — South China Univ. of Tech.
Wenxiao, Tang — South China Univ. of Tech.
Kang, Wenxiong — South China Univ. of Tech.

▶ SaB04-5 17:20–17:40
A Neighborhood-based Speciation Brain Storm Optimization with Evolution Strategy for Multimodal Optimization
Cheng, Shi — Shaanxi Normal Univ.

▶ SaB04-6 17:40–18:00
Recognition of Masked Facial Expressions Based on Transfer Learning and Data Augmentation
Liu, Yonggang — Inst. of Psychology, Chinese Acad. of Sci.; Univ. of Chinese Acad. of Sci.
Zhao, Ke — Chinese Acad. of Sci.

SaB05 16:00–18:00 紫荆厅
Regular Session: Machine Learning and Autonomous Systems

Chair: Wang, Shenquan — Changchun Univ. of Tech.
Co-Chair: Fan, Quan-Yong — Northwestern Polytechnical Univ.

▶ SaB05-1 16:00–16:20
Latent Space Neural Architecture Search via LambdaNDCGloss-based Listwise Ranker
Xiao, Songyi — Guangdong Univ. of Tech.
Zhao, Bo — Beijing Normal Univ.
Liu, Derong — CASIA

▶ SaB05-2 16:20–16:40
Enhancing Real-time Strategy Games via Transformer Encoder with Patch Embedding
Hu, Shaobo — Beijing Univ. of Posts & Telecommunications
Liu, Wei — Beijing Univ. of Posts & Telecommunications

▶ SaB05-3 16:40–17:00
Synchronization in Finite Time for Nabla Discrete Fractional Delayed Gene Regulatory Networks
Xu, Wanli — Chongqing Jiaotong Univ.
Yang, Xujun — Chongqing Jiaotong Univ.
Song, Qiankun — Chongqing Jiaotong Univ.
Wang, Lu — Chongqing Jiaotong Univ.
Chen, Xiaofeng — Chongqing Jiaotong Univ.

▶ SaB05-4 17:00–17:20
Financial Time Series Prediction via Neural Ordinary Differential Equations Approach
Li, Jingsui — Chongqing Univ. of Posts & Telecommunications
Zhu, Wei — Chongqing Univ. of Posts & Telecommunications
Chen, Zhang — Chongqing Univ. of Posts & Telecommunications
Pei, Chao — Chongqing Univ. of Posts & Telecommunications

▶ SaB05-5 17:20–17:40
Subspace-based Fault Detection Using Performance Metrics
Meng, Di — Changchun Univ. of Tech.
Yang, Dedong — Changchun Univ. of Tech.
Zhang, Qi — Changchun Univ. of Tech.
Wang, Shenquan — Changchun Univ. of Tech.

▶ SaB05-6 17:40–18:00
Layered Reinforcement Learning Design for Safe Flight Control of UAV in Urban Environments
Guo, Yue — Northwestern Polytechnical Univ.
Zhang, Naizong — Northwestern Polytechnical Univ.
Jiang, Hongru — Northwestern Polytechnical Univ.
Li, Jiaxuan — Northwestern Polytechnical Univ.
Fan, Quan-Yong — Northwestern Polytechnical Univ.

SaB06 16:00–18:00 百合厅
Special Session: Dynamic Neural Learning, Optimal Control and Intelligent Robots (2)

Organizer: Zhang, Zhijun — South China Univ. of Tech.
Organizer: Li, Weibing — Sun Yat-sen Univ.
Organizer: Guo, Dongsheng — Hainan Univ.
Organizer: Kang, Wenxiong — South China Univ. of Tech.
Organizer: Xiao, Lin — Hunan Normal Univ.
Chair: Zhang, Zhijun — South China Univ. of Tech.
Co-Chair: Guo, Dongsheng — Hainan Univ.

▶ SaB06-1 16:00–16:20
A Support Vector Machine Based on Neural Dynamics Approach for Bearing Fault Classification
Gan, Zirun — South China Univ. of Tech.
Zhang, Qinghua — Guangdong Univ. of Petrochemical Tech.
Zhang, Zhijun — South China Univ. of Tech.

▶ SaB06-2 16:20–16:40
Improved Zeroing Neural Network for Solving Time-Variant Linear Equation with Harmonic Noise
Zhang, Chan — Hainan Univ.
Cang, Naimeng — Hainan Univ.
Chen, Li — Hainan Univ.
Jia, Zehua — Hainan Univ.
Xue, Shan — South China Univ. of Tech.
Guo, Dongsheng — Hainan Univ.

▶ SaB06-3 16:40–17:00
Theoretics of Zhang Neurodynamics Models for Position-orientation Control of Soft Continuum Robots from Kinematic Modeling to Noise Suppression
Chen, Jiawei — Sun Yat-sen Univ.
Yang, Min — Sun Yat-Sen Univ.
Hu, Haifeng — Sun Yat-sen Univ.
Zhang, Yunong — Sun Yat-sen Univ.
Tan, Ning — Sun Yat-sen Univ.

▶ SaB06-4 17:00–17:20
Heuristic Tubular Growth with Adaptive Voxel Filtering for Coronary Artery Segmentation
Wang, Qin — The Chinese Univ. of Hong Kong, Shenzhen
Cui, Hannah — Iequalcare.org
Deng, Bingchen — Shenzhen College of International Education
Han, Yatong — Chinese Univ. of Hong Kong (Shen Zhen)

▶ SaB06-5 17:20–17:40
Mass-Spring-Damping-based Tissue Deformation Modeling for Robotic Acupuncture
Liang, Hao — Guangdong Univ. of Technology
He, Zhaoshui — Guangdong Univ. of Technology
Guo, Jing — Guangdong Univ. of Technology
Wang, Xu — Guangdong Univ. of Technology
Lin, Zhijie — Guangdong Univ. of Technology
Zhang, Liqiang — Beijing Research Inst. of Automation for Machinery Industry

▶ SaB06-6 17:40–18:00
A Highly Precise and Lightweight Detection Model for Water and Oil Leakage Detection
Wu, Weiming — South China Univ. of Tech.
Liu, Kun — South China Univ. of Tech.
Shakeel, Muhammad Saad — South China Univ. of Tech.
Liao, Xiaochuan — South China Univ. of Tech.
Zeng, Ming — South China Univ. of Tech.
Kang, Wenxiong — South China Univ. of Tech.

Poster Session SaPoster
Oct. 21, 13:30-18:00
三楼外廊

Chair: Wang, Zhuo — Beijing Univ. of Aeronautics & Astronautics
Co-Chair: Song, Ruizhuo — Univ. of Sci. & Tech. Beijing

▷ SaPoster-01
Robust Temperature Control for Water-Cooled PEM Fuel Cells
Guo, Fangda — Zhejiang Univ.

Chen, Jian Zhejiang Univ.
Sharma, Harsh Mohan Zhejiang Univ.

▷ SaPoster-02
Dedicated Bus Arterial Coordination Control Based on Particle Swarm Optimization
Shang, Chunlin LDU

▷ SaPoster-03
An Aircraft Trajectory Intelligent Prediction Scheme with Heading Change Modeling
Zhang, Yige Beihang Univ.
Zhang, Kun Beihang Univ.
Zhao, Nanbin Nanyang Technological Univ.
Luo, Shi Jie Beihang Univ.

▷ SaPoster-04
Anti-collision Warning of Offshore Wind Farm Based on Kalman Filter
Dai, Cheng Dalian Maritime Univ.
Xie, Haibo Dalian Maritime Univ.
Bai, Weiwei Dalian Maritime Univ.

▷ SaPoster-05 15:10–15:30
Abnormal Detection of Heavy Haul Train Air Whistle Based on MFCC and Lightweight Training
Wang, Zhiwei Guoneng Rolling Stock Branch of Guoneng
Du, Jiahao Southwest Jiaotong Univ.
Liu, Jiahui Southwest Jiaotong Univ.
Yang, Peican Southwest Jiaotong Univ.
Na, Qin Southwest Jiaotong Univ.
Huang, Deqing Southwest Jiaotong Univ.

▷ SaPoster-06
Image Encryption and Hiding Algorithm Based on Hyper Chaotic System and Compressed Sensing
Liu, Zhiqiang Xi'an Univ. of Tech.
Liu, Han Xi'an Univ. of Tech.

▷ SaPoster-07
Some Discussions on the Relation Between H_2/H_∞ Control and Nash Game for Infinite MJSSs
Liu, Yueying Shandong Univ. of Sci. & Tech.
Wang, Zhen Shandong Univ. of Sci. & Tech.

▷ SaPoster-08
Spectral Signal Denoising Algorithm Based on Modified Singular Spectrum Analysis
Shao, Xiangxin Changchun Univ. of Tech.
Xing, Ruifeng Changchun Univ. of Tech.
Li, Jiacheng Changchun Univ. of Tech.
Jiang, Yongxiang Changchun Univ. of Tech.
Jiang, Hong Changchun Univ. of Tech.

▷ SaPoster-09
Infrared Face Detection Based on Data Enhancement and Its Application
Zhou, Yuquan CSGES Operation Management Branch Company Guangzhou, China
He, Weijing Qingyuan Pumped Storage Power Generation Co,. Ltd
Xie, Guodong CSGES Operation Management Branch Company Guangzhou, China
Liu, Xin CSGES Operation Management Branch Company Guangzhou, China
Guo, Zhendong Tianjin Univ.

▷ SaPoster-10
Underwater Positioning Method Based on Sonar Image Matching with Pseudoinverse Learning
Liu, Pandi Zhengzhou Univ.
Liu, Binghong Zhengzhou Univ.
Wang, Hua Zhengzhou Univ.
Li, Jiaxin Zhengzhou Univ.
Wang, Ke Zhengzhou Univ.

▷ SaPoster-11
Implementation of Multi-dimensional Power Big Data Visualization Platform Based on Python
Li, Dongqi School of Electrical & Electronic Engineering

▷ SaPoster-12
Bioinspired Motion Information Guided Tracking Algorithm for Small Targets in Infrared Images
Zhang, Xun Zhongyuan Univ. of Tech.
Wang, Lei Zhongyuan Univ. of Tech.
Wang, Lubin Beijing Instinute of Basic Medical Sci.
Liang, Li Beijing Inst. of Basic Medical Sci.

▷ SaPoster-13
A Dynamic Surrogate Gradient Function for Memristive Spiking Neural Networks
Chen, Ai Southwest Univ.
Han, Fujun Southwest Univ.
Chen, Tao Southwest Univ.
Wang, Shu Southwest Univ.
Duan, Shukai Southwest Univ.
Wang, Lidan Southwest Univ.

▷ SaPoster-14
Fuzzy PID Maglev Control Based on Adaptive Genetic Algorithm
Wang, Weilin Northeastern Univ.
Yang, Dongsheng Northeastern Univ.
Li, Haoran Northeastern Univ.

▷ SaPoster-15
Fixed Time Synchronization of Competitive Neural Networks with Destabilizing Impulsive Effects
You, Jingjing Xinjiang Univ.
Abdurahman, Abdujelil Xinjiang Univ.

▷ SaPoster-16
An Iron Ore Identification Method Based on Improved Bilinear Network
Wang, Jiyang Shenyang Univ. of Tech.
Cui, Yang Shenyang Univ. of Tech.
Lv, Yiming Shenyang Univ. of Tech.

▷ SaPoster-17
Fuzzy Twin Support Vector Machine Based on Smooth Pinball Loss
Zheng, Zaihong Univ. of Sci. & Tech. Liaoning
Lu, Peng Univ. of Sci. & Tech. Liaoning
Cai, Hongbin Univ. of Sci. & Tech. Liaoning
Li, Ping Liaoning Shihua Univ.

▷ SaPoster-18
Optimized Design of An Advanced Control Scheme for Energy-Efficient Solution Dehumidification Air Conditioning Systems
Li, Zhe Beihang Univ.
Wang, Zhuo Beijing Univ. of Aeronautics & Astronautics

▷ SaPoster-19
Practical Fixed-time Tracking Control of Multi-agent Systems under Dynamic Event-triggered Mechanism
Wang, Yajie Beijing Information Sci. & Tech. Univ.
Yu, Di Beijing Information Sci. & Tech. Univ.

▷ SaPoster-20
Monocular 3D Ray-aware RPN for Roadside View Object Detection
Zhang, Caiji Chinese Acad. of Sci.
Tian, Bin Chinese Acad. of Sci.
Yang, Sun Hebei Univ. of Engineering
Zhang, Rui Waytous

▷ SaPoster-21
Functional Brain Subnetwork Analysis in Alzheimer's Disease and Mild Cognitive Impairment
Huang, He Hangzhou Dianzi Univ.
Sheng, Jinhua Hangzhou Dianzi Univ.
Pu, Huang Hangzhou Dianzi Univ.
Yang, Xiaofan Hangzhou Dianzi Univ.
Wang, Jialei Hangzhou Dianzi Univ.
Ying, Ziyi Hangzhou Dianzi Univ.

▷ SaPoster-22
A Fire Detection Algorithm Based on Adaptive Region Decoupling Distillation
Song, Xin Northeastern Univ. at Qinhuangdao
Wei, Zhenning Northeastern Univ.
Zhang, Jiadong Northeastern Univ.
Gao, Erhao Northeastern Univ.

▷ SaPoster-23
Pioneer Learning: Discovering Blind Spots of Transferred Rich Visual Knowledge for Skin Lesion Recognition
Deng, Xiaodan Qingdao Univ.

▷ SaPoster-24
Multi-scale Channel Attention Inspiring Multi-Task Network via Self-supervised Learning for Violence Recognition

Song, Xin — Northeastern Univ. at Qinhuangdao
Li, Suyuan — Northeastern Univ.
Zhao, Zhongcong — Northeastern Univ.
Wang, Xiaoqi — Northeastern Univ.
Liu, Penghui — Northeastern Univ.
Xie, Zhigang — Yanshan Univ.

▷ SaPoster-25
Reinforcement Learning-Based Adaptive Control of A Pool-Type Heating Nuclear Reactor
Ren, Xin — China Inst. of Atomic Energy
Duan, Tianying — China Inst. of Atomic Energy
Jia, Yuwen — China Inst. of Atomic Energy
Zhang, Le — China Inst. of Atomic Energy
Liu, Shihang — China Inst. of Atomic Energy

▷ SaPoster-26
Sampled-data Iterative Learning Control for Linear Parabolic Distributed Parameter Systems with Event-triggered Strategy
He, Jun — Guangxi Univ. of Sci. & Tech.
Dai, Xisheng — Guangxi Univ. of Sci. & Tech.
Zhou, Rusheng — Guangxi Univ. of Sci. & Tech.

▷ SaPoster-27
A Neural Network Model of Self-Organized Learning in Hippocampus-Entorhinal Cortex Spatial Representations
Liu, Shujia — Beijing Normal Univ.
Si, Bailu — Beijing Normal Univ.

▷ SaPoster-28
Development and Test of A Cathodic Protection Testing System for Buried Pipeline
Zhu, Haibo — Shenyang Acad. of Instrumentation Sci. CO.,LTD

▷ SaPoster-29
Odor Plume Direction Estimation via Gas Sensor Array
Li, Jinsheng — Tianjin Univ. of Tech. & Education
Li, Ji-Gong — Tianjin Univ. of Tech. & Education

▷ SaPoster-30
Quantization Tracking Control Based on Disturbance Observer for the Unmanned Aerial Vehicles
Chen, Xingru — Univ. of Sci. & Tech. Beijing
He, Xiuyu — Univ. of Sci. & Tech. Beijing
Wang, Jingyuan — Univ. of Sci. & Tech. Beijing
Li, Guang — Queen Mary, Univ. of London
He, Wei — Univ. of Sci. & Tech. Beijing

▷ SaPoster-31
Modified U-Net Architecture for Diabetic Retinopathy Fundus Image Segmentation
Wang, Shubin — Sichuan Univ.
Chen, Yuanyuan — Sichuan Univ.
Zhang, Yi — Sichuan Univ.

▷ SaPoster-32
Task-oriented Sequential Pose Motion Primitives
Fu, Jian — Wuhan Univ. of Tech.
Wang, Nan — Wuhan Univ. of Tech.

Sunday, Oct. 22, 2023

SuA01 13:30–15:30 牡丹厅

Special Session: Learning Control and Optimization for Complex Systems

Organizer: Wei, Qinglai — Institue of Automation, Chinese Acad. of Sci.
Organizer: Lv, Yisheng — Institue of Automation, Chinese Acad. of Sci.
Organizer: Song, Ruizhuo — Univ. of Sci. & Tech. Beijing
Organizer: Yang, Xiong — Tianjin Univ.
Chair: Wei, Qinglai — Institue of Automation, Chinese Acad. of Sci.
Co-Chair: Lv, Yisheng — Institue of Automation, Chinese Acad. of Sci.

▶ SuA01-1 13:30–13:50
Visual Design of Artificial Pancreas Glucose Control Method
Zhou, Ying — Univ. of Sci. & Tech. Beijing
Song, Ruizhuo — Univ. of Sci. & Tech. Beijing
Xia, Lina — Univ. of Sci. & Tech. Beijing

▶ SuA01-2 13:50–14:10
Reinforcement Learning for Dynamic Event-Based Control of Interconnected Nonlinear Systems
Yang, Xiong — Tianjin Univ.
Zhao, Bo — Beijing Normal Univ.

▶ SuA01-3 14:10–14:30
A Graph-Based Scene Encoder for Vehicle Trajectory Prediction Using the Diffusion Model
Yao, Yueyang — Chinese Acad. of Sci.
Liu, Yahui — Chinese Acad. of Sci.
Dai, Xingyuan — Chinese Acad. of Sci.
Chen, Shichao — Inst. of Automation Chinese Acad. of Sci.
Lv, Yisheng — Institue of Automation, Chinese Acad. of Sci.

▶ SuA01-4 14:30–14:50
Parallel Control for Robust Optimal Tracking via Adaptive Dynamic Programming
Wei, Qinglai — Inst. of Automation
Jiao, Shanshan — Macau Univ. of Sci. & Tech.

▶ SuA01-5 14:50–15:10
A Survey on Smart Grid and Its Applications
Zhao, Yufan — Univ. of Sci. & Tech. Beijing
Song, Ruizhuo — Univ. of Sci. & Tech. Beijing
Xia, Lina — Univ. of Sci. & Tech. Beijing

▶ SuA01-6 15:10–15:30
Spatial Temporal Graph Transformers for Probabilistic Load Forecasting
Wei, Qinglai — Inst. of Automation

SuA02 13:30–15:50 箭杜鹃厅I

Special Session: Theory and Applications of nmODE (2)

Organizer: Zhang, Lei — Sichuan Univ.
Organizer: Guo, Quan — Sichuan Univ.
Organizer: Zhou, Yao — Sichuan Univ.
Chair: Guo, Quan — Sichuan Univ.
Co-Chair: Zhou, Yao — Sichuan Univ.

▶ SuA02-1 13:30–13:50
LC2R-ViT: Long-range Cross-residual Vision Transformer for Medical Image Classification
Zhang, Zhenwei — Sichuan Univ.
Zhang, Lei — Sichuan Univ.
Wang, Lituan — SIchuan Univ.
Zhong, Ke — Sichuan Univ.
Huang, Haiying — College of Computer Sci., Sichuan Univ.

▶ SuA02-2 13:50–14:10
Universal Medical Image Segmentation with Task-Specific Prompt-Guided Transformer Model
Luo, Weilin — Southwest Minzu Univ.
Niu, Hao — Sichuan Univ.
Hu, Junjie — Sichuan Univ.
Cai, Ying — Southwest Minzu Univ.
Daji, Ergu — Southwest Minzu Univ.
Lan, Haitao — Sichuan Provincial People's Hospital

▶ SuA02-3 14:10–14:30
MTCGAN: Mini CycleGAN with Tokenized MLP for Unpaired Image-to-Image Translation
Liao, Runlong — Sichuan Univ.
Wang, Yibo — Sichuan Univ.
Zhang, Wenjie — Southwest Petroleum Univ.
Cai, Mengxi — Sichuan Univ.
Zhou, Yao — Sichuan Univ.

▶ SuA02-4 14:30–14:50
SEFA: A Shared Encoder and Feature Adaptation Framework for Breast MRI Segmentation
Xue, Hong Wei — Department of Medical Imaging, Tongji Hospital , Tongji Univ. , Shanghai
Zhong, Ke — Sichuan Univ.
Wu, Xiao Fen — Department of Medical Imaging, Tongji Hospital , Tongji Univ. , Shanghai
Gao, Yan — Department of Medical Imaging, Tongji Hospital , Tongji Univ. , Shanghai
Wu, Yujiao — The Commonwealth Scientific & Industrial Research Organisation
Zhang, Lei — Sichuan Univ.
Qian, Guangwu — Sichuan Univ.
Wang, Pei Jun — Department of Medical Imaging, Tongji Hospital , Tongji Univ. , Shanghai

▶ SuA02-5 14:50–15:10
Low-dose Cone Beam CT Reconstruction by Deep Neural Network for Image-guided Radiation Therapy
Wu, Tianxiong — Sichuan Univ.
Zhou, Chuhao — Sichuan Univ.
Gao, Xinrui — West China Hospital of Sichuan Univ.
Zhong, Renming — West China Hospital
Xu, Hongyu — 363 Hospital
Song, Ying — West China Hospital

▶ SuA02-6 15:10–15:30
Enhancing Semi-Supervised Fetal Brain MRI Segmentation with Uncertainty-Guided Virtual Adversarial Training
Zhang, Zhao — China Sichuan Univ.
Huang, Wei — China Sichuan Univ.
Wei, Xiaosong — China Sichuan Univ.
She, Jiayan — Sichuan Univ.
Huang, Haiying — College of Computer Sci., Sichuan Univ.
Ning, Gang — West China Second Univ. Hospital, Sichuan Univ.
Zhang, Lei — Sichuan Univ.

▶ SuA02-7 15:30–15:50
SHU-Aug: Stochastic Hounsfield Unit Augmentation for Clinical Target Volume Segmentation of Glioma
Li, Guiyuan — Sichuan Univ.
Niu, Hao — Sichuan Univ.
Hu, Junjie — Sichuan Univ.
Wan, Meihua — West China Hospital of Sichuan Univ.

SuA03 13:30–15:30 箭杜鹃厅II

Special Session: Advanced Conputation and Control in Complex Systems

Organizer: Su, Hanguang — Northeastern Univ.
Organizer: Mu, Yunfei — Northeastern Univ.
Chair: Su, Hanguang — Northeastern Univ.
Co-Chair: Mu, Yunfei — Northeastern Univ.

▶ SuA03-1 13:30–13:50
Vertical Traffic Scheduling Control Method Based on Dual Fuzzy Neural Network
Sun, Xinhao — Liaoning Univ.
An, Siqi — Liaoning Univ.
Gao, Xiaoting — Liaoning Univ.
Cui, Enchang — Liaoning Univ.

▶ SuA03-2 13:50–14:10
Optimization and Security Control of Microgrids Based on Cyber Physics System
Li, Mengwen — State Grid Shandong Integrated Energy Services Co.,Ltd
Lin, Zhu — Jiangsu Frontier Electric Tech. Co.,Ltd
Zhou, Botao — State Grid Electric Power Research Inst. Wuhan Efficiency Evaluation Company Limited
Wang, Die — Jiangsu Frontier Electric Tech. Co.,Ltd
Qian, Rong — Beijing CEC Feihua Communication Co.,Ltd

Wang, Zhongwei Jiangsu Frontier Electric Tech. Co.,Ltd
Wu, Nai Yue China Electric Power Research Inst. Co., Ltd

▶ SuA03-3 14:10–14:30
Event-triggered Decentralized Guaranteed Cost Control for Interconnected Large-scale System Using Adaptive Dynamic Programming
Shao, Zhi Shenyang Univ. of Tech.
Liang, Yuling Univ. of Tech. Shenyang
Xing, Jin Univ. of Tech. Shenyang
Su, Hanguang Northeastern Univ.

▶ SuA03-4 14:30–14:50
Event-based Adaptive Dynamic Programming for H∞ Control Problem of Input-Constrained Nonlinear Systems with Its Application to Power Systems
Liu, Fan Northeastern Univ.
Su, Hanguang Northeastern Univ.
Zong, Yi Technical Univ. of Denmark
Li, Yushuai Univ. of Oslo
Jiang, He Northeastern Univ.

▶ SuA03-5 14:50–15:10
Distributed State Estimation Design for Discrete-Time Interconnected Singular Systems: A LMI Method
Mu, Yunfei Northeastern Univ.
Su, Hanguang Northeastern Univ.
Yang, Dongsheng Northeastern Univ.
Zhang, Huaguang Northeastern Univ., China

▶ SuA03-6 15:10–15:30
Detecting Stealthy Attacks in Power Systems Based on Switching and Zonotopes
Wang, Shaodong Zhejiang Univ.
Li, Chao Zhejiang Univ.
Yang, Qinmin Zhejiang Univ.
Meng, Wenchao Zhejiang Univ.
Li, Yunpeng Zhejiang Univ.

SuA04 13:30–15:30 箭杜鹃厅III
Regular Session: Adaptive Dynamic Programming and Reinforcement Learning (ADPRL研讨会2)
Chair: Luo, Yanhong Northeastern Univ.
Co-Chair: Zhang, Xinglong National Univ. of Defense Tech.

▶ SuA04-1 13:30–13:50
Safety-Aware Optimal Control of Nonlinear Systems Using Off-Policy Reinforcement Learning
Lin, Mingduo Beijing Normal Univ.
Zhao, Bo Beijing Normal Univ.
Xia, Hongbing Beijing Normal Univ.
Liu, Derong CASIA

▶ SuA04-2 13:50–14:10
Data-driven Optimal Control for Lateral Stability of Vehicle in Straight-line Driving via Adaptive Dynamic Programming
Xu, Xirui Univ. of Electronic Sci. & Tech. of China
Gao, Xiaoyang Univ. of Electronic Sci. & Tech. of China
Li, Tieshan Dalian Maritime Univ.
Huang, Tianpeng Southwest Jiaotong Univ.

▶ SuA04-3 14:10–14:30
Robust H∞ Control of Unknown Discrete-Time Linear Systems with Time-Varying Uncertainties
Zhu, Liao Beijing Normal Univ.
Liu, Chunxiuzi Beijing Normal Univ.
Liu, Yu Beijing Normal Univ.
Guo, Ping Beijing Normal Univ.

▶ SuA04-4 14:30–14:50
Offline-Online Actor-Critic for Partially Observable Markov Decision Process
Wang, Xuesong China Univ. of Mining & Tech.
Hou, Diyuan Beijing Univ. of Aeronautics & Astronautics
Cheng, Yuhu China Univ. of Mining & Tech.

▶ SuA04-5 14:50–15:10
Model-free Finite-horizon Optimal Tracking Control of Discrete-time Linear Systems
Wang, Wei Zhongnan Univ. of Economics & Law
Huang, Zixin Wuhan Inst. of Tech.
Wei, Ziang Wuhan Inst. of Tech.
Lin, Mengying Wuhan Inst. of Tech.

▶ SuA04-6 15:10–15:30
Self-learning Sliding Mode Control Based on Adaptive Dynamic Programming for Nonholonomic Mobile Robots
Ma, Qingwen National Univ. of Defense Tech.
Zhang, Xinglong National Univ. of Defense Tech.
Xu, Xin National Univ. of Defence Tech.
Yang, Yueneng College of Aerospace Sci. & Engineering, National Univ. of Defense Tech.
Wu, Qi Shanghai Jiao Tong Univ.

SuA05 13:30–15:30 紫荆厅
Regular Session: Learning and Intelligent Control
Chair: Wang, Yonghua Guangdong University of Technology
Co-Chair: Tan, Fuxiao Shanghai Maritime Univ.

▶ SuA05-1 13:30–13:50
Control for Quality of the Separated Products of A Butylene-Butane Distillation Column Based on High Order Iterative Learning Control
Zhang, Xiumei Changchun Univ. of Tech.
Zhou, Kailong Changchun Univ. of Tech.
Li, Hui Changchun Univ. of Tech.
Xia, Changlei Nanjing Forestry Univ.
Zhang, Ze Changchun Univ. of Tech.
Liu, Fangda Changchun Univ. of Tech.

▶ SuA05-2 13:50–14:10
Command Filter-Based Adaptive Fault-Tolerant Controller Design for Nonstrict-Feedback Nonlinear Systems
Liu, Jianwei Chinese Acad. of Sci.
Cui, Yang Univ. of Sci. & Tech. Liaoning
Liu, Fengfeng Univ. of Sci. & Tech. Liaoning
Ao, Dongdong Univ. of Sci. & Tech. Liaoning
Guo, Zhen Liaoning Univ. of Sci. & Tech.

▶ SuA05-3 14:10–14:30
Design and Experiment of A Portable Low-cost Digital Display Instrument for Determining Meat Tenderness
Li, Yanlei Beijing Polytechnic College
Wang, Xiangwu Beijing Polytechnic College
Yang, Zihao Beijing Polytechnic College
Bai, Mengyu Beijing Polytechnic College

▶ SuA05-4 14:30–14:50
A New Control Method of SMC for Three-Phase Grid-Connected Inverter with A-LCL Type Filter
Gao, Chunxiao Shanghai Maritime Univ.
Tan, Fuxiao Shanghai Maritime Univ.

▶ SuA05-5 14:50–15:10
Design of Expert PID-based Temperature Control System for Extrusion Machine
Li, Hui Changchun Univ. of Tech.
Zhang, Ze Changchun Univ. of Tech.
Zhang, Xiumei Changchun Univ. of Tech.
Luo, Mingyue Changchun Univ. of Tech.

▶ SuA05-6 15:10–15:30
Unsupervised Domain Adaptation Methods for Causal Correlation
Zhou, Liyuan Shandong Tech. & Business Univ.
Dou, Quansheng Shandong Tech. & Business Univ.
Tang, Huanling Dalian Maritime Univ.
Li, Xiujuan Shandong Tech. & Business Univ.
Liu, Yanchao Shandong Tech. & Business Univ.

SuB01 16:00–18:20 牡丹厅
Special Session: Approximation-Based Control and Optimization of Uncertain Nonlinear Systems
Organizer: Wang, Huanqing Bohai Univ.
Organizer: Chen, Ming Univ. of Sci. & Tech. Liaoning
Chair: Wang, Huanqing Bohai Univ.
Co-Chair: Chen, Ming Univ. of Sci. & Tech. Liaoning

▶ SuB01-1 16:00–16:20
Exponential Approaching Law Based Finite-time Tracking Control of Manipulators
Li, Dan Univ. of Sci. & Tech. LiaoNing
Chen, Ming Univ. of Sci. & Tech. Liaoning
Peng, Kaixiang Univ. of Sci. & Tech. Beijing
Wu, Libing Univ. of Sci. & Tech. Liaoning

▶ SuB01-2 16:20–16:40

Adaptive Containment Controller Design for Uncertain Multi-agent Systems: A Command Filtering Backstepping Approach

Jiang, Mengyi — Univ. of Sci. & Tech. Liaoning
Yang, Yonghui — Univ. of Sci. & Tech. Liaoning
Gao, Chuang — Univ. of Sci. & Tech. Liaoning
Pogodaev, Anatolii K. — Lipetsk State Technical Univ.

▶ SuB01-3 16:40–17:00

A Backstepping-based Temperature and Humidity Nonlinear Tracking Control Scheme for A Class of Air-handling Units

Sun, Yulong — Shandong Jianzhu Univ.
Liu, Na — Shandong Jianzhu Univ. Architecture & Urban Planning Design Inst.
Liu, Cungen — Shandong Jianzhu Univ.

▶ SuB01-4 17:00–17:20

Adaptive Attitude Fault-Tolerant Control of Quadcopter Based on Fuzzy State Observer

Zou, Lingwei — Univ. of Sci. & Tech. Liaoning
Gao, Chuang — Univ. of Sci. & Tech. Liaoning

▶ SuB01-5 17:20–17:40

Finite-time Adaptive Optimal Control of Uncertain Strict-Feedback Nonlinear Systems with Event-Triggered Based on Fuzzy Observer and Reinforcement Learning

Sun, Yue — Univ. of Sci. & Tech. Liaoning
Chen, Ming — School of Electronics & Information Engineering, LiaoNing Univ. of Sci. & Tech.

▶ SuB01-6 17:40–18:00

Adapitve Fixed-Time Fault-Tolerant Tracking Control for Nonlinear Systems with Unmodeled Dynamics

Ai, Ze — Bohai Univ.
Zhang, Ren — Shenyang Agricultural Univ.
Wang, Huanqing — Bohai Univ.

▶ SuB01-7 18:00–18:20

Adaptive Fuzzy Output-Feedback Control for Switched Nonlinear Systems with Input Saturations

Yan, Yan — Univ. of Sci. & Tech. Liaoning
He, Xiqin — Univ. of Sci. & Tech. Liaoning
Wu, Libing — Univ. of Sci. & Tech. Liaoning
Yu, Qing Kun — Univ. of Sci. & Tech. Liaoning

SuB02 16:00–18:20 箭杜鹃厅I

Special Session: Theory and Applications of nmODE (3)

Organizer: Zhang, Lei — Sichuan Univ.
Organizer: Guo, Quan — Sichuan Univ.
Organizer: Zhou, Yao — Sichuan Univ.
Chair: Guo, Quan — Sichuan Univ.
Co-Chair: Zhou, Yao — Sichuan Univ.

▶ SuB02-1 16:00–16:20

Predicting Tuberculosis Drug Resistance Using Semi-Supervised and Multi-Task Learning

Yang, Zhe — Sichuan Univ.
Liang, Shufan — Sichuan Univ.
Zhou, Lingyu — Sichuan Univ.
Yang, Shengjie — Sichuan Univ.
Xu, Xiuyuan — Sichuan Univ.
Wang, Chengdi — Sichuan Univ.

▶ SuB02-2 16:20–16:40

An Optimized YOLO Model with Local Attention for Arthritis Lesion Detection on X-ray Images

Liu, Yaqi — Sichuan Univ.
Yang, Li — North Sichuan Medical College
Wang, Tingting — Dazhou Central Hospital
Wu, Jianhong — Dazhou Central Hospital
He, Tao — Sichuan Univ.
Zhang, Yi — Sichuan Univ.

▶ SuB02-3 16:40–17:00

Enhanced Multi-Objective Evolutionary Framework for Fluence Map Optimization in Intensity-Modulated Radiation Therapy

Yao, Yuan — Sichuan Univ.
Yu, Chengrong — College of Computer Sci.
Hu, Junjie — Sichuan Univ.
Zhang, Yan — West China Hospital, Sichuan Univ.

▶ SuB02-4 17:00–17:20

Learning Compact Neural Network for Long-term Time Series Forecasting

Qin, Nianping — Sichuan Univ.
Zhou, Yao — Sichuan Univ.

▶ SuB02-5 17:20–17:40

Predicting EGFR Mutation Status Using Multi-View Transformer

Yang, Shengjie — Sichuan Univ.
Shao, Jun — Sichuan Univ.
Zhou, Kai — Sichuan Univ.
Yang, Zhe — Sichuan Univ.
Liu, Yunjie — Southwest Jiaotong Univ.
Xu, Xiuyuan — Sichuan Univ.
Wang, Chengdi — Sichuan Univ.

▶ SuB02-6 17:40–18:00

DoseNet: An Ensemble-based Deep Learning Method for 3D Dose Prediction in IMRT

Wang, Qiang — Sichuan Univ.
Song, Ying — West China Hospital
Hu, Junjie — Sichuan Univ.
Liang, Liang — Sichuan Provincial People's Hospital

▶ SuB02-7 18:00–18:20

Validation of Automatic Diabetic Retinopathy Screening and Diagnosis via Deep Neural Networks on Multi-modal Retinal Fundus Image Datasets

Guo, Jixiang — Sichuan Univ.
Li, Xiang — Sichuan Univ.
Zhang, Wei — Northwest Minzu Univ.
Zhong, Jie — Sichuan Acad. of Medical Sci. & Sichuan Provincial People's Hospital
Liu, Sanmei — Sichuan Acad. of Medical Sci. & Sichuan Provincial People's Hospital

SuB03 16:00–18:20 箭杜鹃厅II

Special Session: Intelligent Learning and Control for Robotics and Autonomous Systems

Organizer: Pan, Yongping — National Univ. of Singapore
Organizer: Li, Weibing — Sun Yat-sen Univ.
Organizer: Zhang, Yinyan — Jinan Univ.
Organizer: Chen, Silu — Ningbo Inst. of Materials Tech. & Engineering, Chinese Acad. of Sci.
Organizer: Liu, Heng — Shaanxi Normal Univ.
Organizer: Yang, Yongliang — Univ. of Sci. & Tech. Beijing
Chair: Li, Weibing — Sun Yat-sen Univ.
Co-Chair: Zhang, Yinyan — Jinan Univ.

▶ SuB03-1 16:00–16:20

Deception-Attack-Resilient Kinematic Control of Redundant Manipulators: A Projection Neural Network Approach

Zhang, Chaofan — Jinan Univ.
Zhang, Yinyan — Jinan Univ.
Dai, Linyan — Jinan Univ.

▶ SuB03-2 16:20–16:40

A Spiking Cerebellar Model Enhanced Gradient Neural Solution to Time-Varying Linear Equations with Application to Robot Motion Planning

Li, Weibing — Sun Yat-sen Univ.
Zou, Yanying — Sun Yat-sen Univ.
Yi, Zilian — Sun Yat-sen Univ.
Hu, Kai — School of Artificial Intelligence, Sun Yat-Sen Univ.
Pan, Yongping — National Univ. of Singapore

▶ SuB03-3 16:40–17:00

Predefined-Time Synchronization of Different Dimensional Neural Networks with Time-Varying Delays

Wang, Qian — Sun Yat-sen Univ.
Pan, Yongping — National Univ. of Singapore
Liu, Heng — Shaanxi Normal Univ.

▶ SuB03-4 17:00–17:20

Fixed-Time Dynamic Surface Tracking of Nonlinear Systems with Unknown Control Directions

Liu, Guilong — Univ. of Sicience & Tech.
Yang, Yongliang — Univ. of Sci. & Tech. Beijing

▶ SuB03-5 17:40–18:00

Structured State Feedback by Gain Matrix Factorization with Application to the Integrated Design of A Flexure-linked Dual-drive Gantry

Yuan, Liming — Ningbo Inst. of Materials Tech. & Engineering, Chinese Acad. of Sci.
Chen, Silu — Ningbo Inst. of Materials Tech. & Engineering, Chinese Acad. of Sci.

Wang, Yin — Zhejiang Jiecang Linear Motion Tech. Co.,Ltd
Ding, Miaojiang — Zhejiang Jiecang Linear Motion Tech. Co.,Ltd
Qiu, Kaifeng — Zhejiang Jiecang Linear Motion Tech. Co.,Ltd
Zhu, Chuanchao — Zhejiang Jiecang Linear Motion Tech. Co.,Ltd
Zeng, Weican — Ningbo Inst. of Materials Tech. & Engineering, Chinese Acad. of Sci.
Fang, Zaojun — Ningbo Inst. of Materials Tech. & Engineering, Chinese Acad. of Sci.
Chi, Zhang — Ningbo Inst. of Materials Tech. & Engineering, CAS
Yang, Guilin — Ningbo Inst. of Materials Tech. & Engineering, CAS

▶ SuB03-6 18:00–18:20

Synchronous Motion Planning of Dual-Arm Robot System with Joint Constraint

Yu, Yilin — Hainan Univ.
Cang, Naimeng — Hainan Univ.
Xue, Shan — South China Univ. of Tech.
Jia, Zehua — Hainan Univ.
Guo, Dongsheng — Hainan Univ.

SuB04 16:00–18:00 箭杜鹃厅III

Regular Session: Learning Control and Optimization

Chair: Xu, Xiang — Southern University of Science and Technology
Co-Chair: Lv, Yongfeng — Taiyuan Univ. of Tech.

▶ SuB04-1 16:00–16:20

RL-based Robust Controller Design of Disturbed Servo System

Lv, Yongfeng — Taiyuan Univ. of Tech.
Yu, Tang — Taiyuan Univ. of Tech.
Zhao, Jun — Shandong Univ. of Sci. & Tech.
Huang, Yingbo — Kunming Univ. of Sci. & Tech.

▶ SuB04-2 16:20–16:40

Adaptive Dynamic Programming-based Optimal Interaction Control of Modular Robot Manipulators under Physical Human-robot Interaction

Dong, Bo — Changchun Univ. of Tech.
Gao, Yuhang — Changchun Univ. of Tech.
An, Tianjiao — Changchun Univ. of Tech.
Ma, Bing — Changchun Univ. of Tech.
Jiang, Hucheng — Changchun Univ. of Tech.

▶ SuB04-3 16:40–17:00

A Fixed-time Distributed Constrained Optimization Algorithm over Weight-unbalanced Directed Network

Shi, Xiasheng — China Univ. of Mining & Tech.
Mu, Chaoxu — Tianjin Univ.
Sun, Changyin — Southeast Univ.

▶ SuB04-4 17:00–17:20

Inverse Control of Piezoelectric Motion Systems with Hysteresis Modeling and Parameter Optimization

Wu, Mingfan — Jinan Univ.
Zhang, Yangming — Beihang Univ.

▶ SuB04-5 17:20–17:40

A Hierarchical Control Strategy for Active Pantograph in High-speed Railway

Wang, Hui — Southwest Jiaotong Univ.
Liu, Zhigang — Southwest Jiaotong Univ.

▶ SuB04-6 17:40–18:00

Design and Analysis of A Single Lower Limb Rehabilitation Exoskeleton Robot

Li, Ang — Kunming Univ. of Sci. & Tech.
Luan, Fujin — Kunming Univ. of Sci. & Tech.
Zhang, Faxiang — Kunming Univ. of Sci. & Tech.
Lu, Sheng — First People's Hospital of Yunnan Province
Gao, Guanbin — Kunming Univ. of Sci. & Tech.
Liu, Meihong — Kunming Univ. of Sci. & Tech.

SuB05 16:00–18:00 紫荆厅

Regular Session: Multi-agent and Unmanned Aerial Vehicles

Chair: Li, Jinna — Liaoning Petrochemical Univ.
Co-Chair: Qiu, Tenghai — Inst. of Automation, Chinese Acad. of Sci.

▶ SuB05-1 16:00–16:20

Multi-Missile Cooperative Attack Using Attention-Based Reinforcement Learning

Qiu, Tenghai — Inst. of Automation, Chinese Acad. of Sci.
Pu, Zhiqiang — Inst. of Automation, Chinese Acad. of Sci.
Zhang, Tianle — Inst. of Automation, Chinese Acad. of Sci.
Yi, Jian-Qiang — Inst. of Automation, Chinese Acad. of Sci.
Zhao, Yuqian — Central South Univ.

▶ SuB05-2 16:20–16:40

A Learnable Noise Exploration Method for Multi-Agent Reinforcement Learning

Zhao, Zhitong — Univ. of Electronic Sci. & Tech. of China
Zhang, Ya — Univ. of Electronic Sci. & Tech. of China
Wang, Siying — Univ. of Electronic Sci. & Tech. of China
Qu, Hong — Univ. of Electronic Sci. & Tech. of China

▶ SuB05-3 16:40–17:00

Distributed Online Optimization via Kernel Reproduced Gradient Descent

Lin, Yifu — Beihang Univ.
Li, Wenling — Beihang Univ.

▶ SuB05-4 17:00–17:20

A Path-tracking Controller for Articulated Vehicle with Multi-full Trailers

Li, Hong — China Intelligent & Connected Vehicles (Beijing) Research Inst. Co.,Ltd

▶ SuB05-5 17:20–17:40

Quadrotor UAV Control Algorithm Based on Active Disturbance Rejection Control

Liu, Junhao — Beihang Univ.
Wang, Zhuo — Beijing Univ. of Aeronautics & Astronautics

▶ SuB05-6 17:40–18:00

Airspeed Identification of Stratospheric Airships

Wang, Fan — Chinese Acad. of Sci.

Author Index

(O=Organizer, C=Chair, CC=Co-Chair)

Z

Chair/Co-Chair Index

(C=Chair, CC=Co-Chair)

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Oral Presentation

- Timing: A maximum of 20 minutes in total, including 2 minutes for Q&A. Please make sure your presentation is well timed.
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- Videos: If your PowerPoint files contain videos, please make sure that they are well formatted and connected to the main files.

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(CSIS-IAC 2024)
中国，广州，2024 年 9 月 20 日–22 日

2024 国际复杂系统与智能科学年会 (2024 International Annual Conference on Complex Systems and Intelligent Science, CSIS-IAC 2024) 将于 2024 年 9 月 20 日–22 日在中国广州举行。会议由广东工业大学承办，IEEE、中科院自动化所、南方科技大学协办，旨在为复杂系统与智能科学领域专家学者与工程技术人员搭建展示最新研究成果的平台，并进一步推动相关领域理论与应用的发展。欢迎专家、学者及学生以投稿、组织邀请组等形式参会，会议征稿截止日期为 2024 年 7 月 1 日，会议网址：http://www.csisiac.org/。CSIS-IAC 2024 会议论文集将由 IEEE 出版，并由 EI 检索。

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