The 4th International Conference on Data-Driven Optimization of Complex Systems

October 28-30, 2022, Chengdu, China

Conference Program

Welcome Messages

On behalf of the Organizing Committee of the 4th International Conference on Data-Driven Optimization of Complex Systems (DOCS2022), we would like to warmly welcome you to attend this event taking place in Chengdu, Sichuan, China during October 28-30, 2022. In the first three DOCS events, only invited talks by world-leading experts were presented and interested researchers were allowed to attend the conference without a registration. Technically co-sponsored by the IEEE Industrial Electronics Society and the IEEE Computational Intelligence Society, this is the first time that DOCS has accepted regular submissions and published a proceeding of accepted papers after a peer review process. We hope DOCS will become a high-level international forum for innovative academics and industrial experts in the cross-disciplinary areas of data-driven optimization of complex systems, advanced machine learning, and data science. The conference will be featured by tutorials, workshops, plenary speeches given by world-leading researchers, regular sessions with a broad coverage, and special sessions focusing on popular and emerging topics.

This year, the conference received 164 submissions. Special session organizers are also invited to enlist at least six papers with cohesive topics to form special sessions. Each submission was reviewed by at least two, and on average three Program Committee members. After a rigorous peer review process, the committee decided to accept 109 papers for publication in the proceedings, accounting for an acceptance rate of 66. 46%. These papers cover many topics on theory, methodology, and applications in optimization and learning. In addition to the contributed papers, the conference technical program included four plenary speeches by world-renowned scientists, Prof. Tianyou Chai and Prof. Lixin Tang, Prof. Yugang Yu, and Prof. Kaisa Miettinen.

Many organizations and volunteers made great contributions towards the success of this conference. We would like to express our sincere gratitude to Sichuan University for its sponsorship, the Business School, Sichuan University, the State Key Laboratory of Synthetical Automation for Process Industries for their organization, the Chinese Association of Automation, Northeastern University, the University of Electronic Science and Technology of China, and the Chinese Association for Artificial Intelligence for their co-sponsorship, and the IEEE Computational Intelligence Society and the IEEE Industrial Electronics Society for their technical co-sponsorship. We would also like to sincerely thank all organizing committee chairs and members for their great effort in organizing the conference. Special thanks go to the Program Committee members, reviewers and Publication Chairs that ensured the high quality of the accepted papers and the timely publication of the conference proceedings. Last but not the least, we would like to thank all the keynote speakers, authors, and participants for their support. We look forward to seeing you soon.

General Co-Chairs:

Yaochu Jin, Jiuping Xu, and Zhang Yi

Organization

Honorary General Chairs

Yanrong Li, Sichuan University
Tianyou Chai, Northeastern University

General Chairs

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Jiuping Xu, Sichuan University
Zhang Yi, Sichuan University

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Dujuan Wang, Sichuan University
Tao Yang, Northeastern University

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Mengjie Zhang, Victoria University of Wellington
Jinliang Ding, Northeastern University
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Huchuan Lu, Dalian University of Technology
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Barbara Hammer, Bielefeld University
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Biao Luo, Central South University
Yang Tang, East China University of Science and Technology
Handing Wang, Xidian University
Peng Yi, Tongji University
Yunqiang Yin, University of Electronic Science and Technology of China
Wenwu Yu, Southeastern University

Deming Yuan, Nanjing University of Science and Technology
Ye Yuan, Huazhong University of Science and Technology
Xingyi Zhang, Anhui University
Chunhui Zhao, Zhejiang University
Shen Yin, Norwegien University of Science and Technology

Invited Sections Chairs
Wei Dai, China University of Mining and Technology
Weinan Gao, Florida Institute of Technology
Hua Geng, Tsinghua University
Tieshan Li, University of Electronic Science and Technology of China
Jing Liang, Zhengzhou University
Jing Liu, Xidian University
Qiang Liu, Northeastern University
Jiahu Qin, University of Science and Technology of China
Guanghui Wen, Southeast University
Weiguo Xia, Dalian University of Technology
Hao Luo, Harbin Institute of Technology
Xinlei Yi, KTH Royal Institute of Technology, Sweden
Jinhui Zhang, Beijing University of Technology
Shanying Zhu, Shanghai Jiao Tong University
Chen Hongtian, University of Alberta

Publicity Chairs
Ziyang Meng, Tsinghua University
Zhengguang Wu, Zhejiang University
Yi Liu, Zhejiang University of Technology

Publications Chairs
Ran Cheng, Southern University of Science and Technology
Chaoli Sun, Taiyuan University of Technology

Financial Chairs
Chun-Yi Su, Concordia University
Wenjun Ye, Concordia University

Registration Chairs
Haiming Liang, Sichuan University
Jinxi Zhang, Northeastern University

Local Arrangements Chairs
Rui Qiu, Sichuan University
Pengyu Yan and Wei Yan, University of Electronic Science and Technology of China

Program at a Glance

October 28, 2022 (Friday)		
8:20-17:20	**Frontier Forum**	
19:00-21:30	Award Session-I: Best Paper Award Session (Huang Long)	Award Session-II: Student Outstanding Paper Award Session (Kang Ding)
October 29, 2022 (Saturday)		
7:30-20:30	**On-site Registration (Shangri-la Hotel Chengdu)**	
8:30-9:00	**Opening Ceremony (Dao Cheng Jian Ge)**	
9:00-9:50	**Plenary Speech I: Prof. Tianyou Chai**	
9:50-10:40	**Plenary Speech II: Prof. Lixin Tang**	
10:40-11:00	Tea break	
11:00-11:50	**Plenary Speech III: Prof. Yugang Yu**	
11:50-13:00	**Lunch (Rong coffee)**	
13:00-13:50	**Plenary Speech IV: Prof. Kaisa Miettinen**	
13:50-18:20	**Special Session (S1-S8)**	
13:50-15:50	S1: Data-based Learning for Control and Optimization of Complex Networked Systems (Dao Cheng Jian Ge)	S2: Data Science, Modeling, Control and Optimization in Complex Systems (Ping Le)	S3: Data-driven Fault Diagnosis and Optimization for High-speed Trains (Le Shan)
15:50-18:20	S4: Advanced Machine Learning Methods and Applications S5: Data-driven Control of Complex Networked Systems and Its Applications (Dao Cheng Jian Ge)	S6: Physics/Knowledge-informed Learning in Process Data Analytics (Ping Le)	S7: Learning-based Optimization and Application S8: Data-driven Evolutionary Transfer Optimization (Le Shan)
18:20-19:30	**Dinner (Rong coffee)**	
October 30, 2022 (Sunday)		
8:30-12:15	**Special Session (S9-S15)**	
8:30-11:00	S9: Big Data Analysis and Application S10: Data-driven Machine Learning (Dao Cheng Jian Ge)	S11: Distributed Data-Driven Control and Optimization for Smart Secure Transportation-Zero Carbon Energy-Polymorphic Information System (Ping Le)	S12: Data-driven Human Motion Analytics (Le Shan)
11:00-12:15	S13: Data Stream Analysis (Dao Cheng Jian Ge)	S14: Reinforcement Learning-based Control and Optimization for Complex Systems (Ping Le)	S15: Stochastic Configuration Networks for Industrial Data Analytics (Le Shan)
12:15-13:15	**Lunch (Rong coffee)**	
Adjournment		

Plenary Speech I

Title: Development Directions of Industrial Intelligence

Professor Tianyou Chai, Northeastern University, Shenyang, China
Member of Chinese Academy of Engineering,
IFAC Fellow and IEEE Life Fellow

Abstract: In this talk, the role of industrial automation and information technology in the industrial revolutions is analyzed, as well as the current status and main problems in automation and information for manufacturing enterprise. The connotation of industrial intelligence and the challenges in realizing industrial intelligence are put forward. Based on the analysis and application cases of industrial internet and industrial artificial intelligence, the technical basis of industrial intelligence is presented. Then, the research directions, ideas and methods of industrial intelligence are proposed.

Tianyou Chai received the Ph.D. degree in control theory and engineering in 1985 from Northeastern University, Shenyang, China, where he became a Professor in 1988. He is the founder and director of the Center of Automation, which became a National Engineering and Technology Research Center and a State Key Laboratory. He is a member of Chinese Academy of Engineering, IFAC Fellow and IEEE Fellow. He has served as director of Department of Information Science of National Natural Science Foundation of China from 2010 to 2018.

His current research interests include modeling, control, optimization and integrated automation of complex industrial processes.

He has published 297 peer reviewed international journal papers. His paper titled *Hybrid intelligent control for optimal operation of shaft furnace roasting process* was selected as one of three best papers for the Control Engineering Practice Paper Prize for 2011-2013. He has developed control technologies with applications to various industrial processes. For his contributions, he has won 5 prestigious awards of National Natural Science, National Science and Technology Progress and National Technological Innovation, the 2007 Industry Award for Excellence in Transitional Control Research from IEEE Multiple-conference on Systems and Control, and the 2017 Wook Hyun Kwon Education Award from Asian Control Association.

Plenary Speech II

Title: Data Analytics and Optimization for Smart Industry Learning

Professor Lixin Tang, Northeastern University, Shenyang, China
Member of Chinese Academy of Engineering

Abstract: Data analytics is the frontier basic research direction of industrial intelligence and one of the driving forces to promote scientific development. Systems optimization is not only the basic theory of intelligent manufacturing management, but also the core basic theory of industrial intelligence, as well as the heart and engine of data analytics. This talk discusses some interesting topics on systems optimization and data analytics of production, logistics and energy in the steel industry, including: 1) production batching and scheduling in steelmaking/continuous casting, and hot/cold rolling operations; 2) logistics scheduling in loading operations, shuffling/reshuffling, and stowage; 3) data analytics-based energy optimization, including dynamic energy allocation and scheduling, energy analytics covering energy description, diagnosis and prediction; 4) data analytics, including temperature prediction of blast furnace, dynamic analytics of BOF steelmaking process based on multi-stage modeling, temperature prediction of reheat furnace based on mechanism and machine learning, and strip quality analytics of continuous annealing based on multi-objective ensemble learning.

Lixin Tang is the Vice President of Northeastern University, China, a member of Chinese Academy of Engineering, the Director of Key Laboratory of Data Analytics and Optimization for Smart Industry, Ministry of Education, China, the Head of Center for Artificial Intelligence and Data Science, and the Chair Professor of the Frontiers Science Center for Industrial Intelligence and Systems Optimization (National Platform).

He is also a member of the discipline review group of the State Council for Control Science & Engineering, the Vice Director of Artificial Intelligence Committee of Ministry of Education, China, the Vice President of Operations Research Society of China (ORSC), and the Founding Director of Data Analytics and Optimization Society for Smart Industry for ORSC.

His research interests cover industrial intelligence and systems optimization theories and methods, covering industrial big data, data analytics and machine learning, deep learning and evolutionary learning, reinforcement learning and dynamic optimization, convex and sparse optimization, integer and combinatorial optimization, computational intelligence-based optimization. For

technologies, he mainly investigates on engineering optimization technologies for plant-wide production and logistics planning, production and logistics batching and scheduling, process optimization and optimal control in product quality; data analytics technologies including knowledge discovery such as quality prediction, process monitoring and equipment diagnosis; perception understanding technologies such as image and speech understanding and visualization. Meanwhile, he applies the above theories and technologies to engineering applications in manufacturing, logistics and energy systems.

He has published more than 127 papers in international journals such as IEEE Transactions on Evolutionary Computation, IEEE Transactions on Cybernetics, IEEE Transactions on Control Systems Technology, IEEE Transactions on Automation Science and Engineering, IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Power Systems, Operations Research, Manufacturing & Service Operations Management, INFORMS Journal on Computing, IISE Transactions and Naval Research Logistics. His paper published on IISE Transactions received the Best Applications Paper Award of 2017.

He currently serves as an Associate Editor of IISE Transactions, IEEE Transactions on Evolutionary Computation, IEEE Transactions on Cybernetics, Journal of Scheduling, International Journal of Production Research, and Journal of the Operational Research Society. Meanwhile, he is on the Editorial Board of Annals of Operations Research, and serves as an Area Editor of the Asia-Pacific Journal of Operational Research. He was invited to act as the Cluster Chair in 2018 INFORMS International Conference, and the Track Chair in 9th IFAC Conference on Manufacturing Modelling, Management and Control.

Plenary Speech III

Title: Theory and Practice of Data-driven Operations Management

Professor Yugang Yu, University of Science and Technology of China (USTC)
Dean of the School of Management,
Dean of the Institute of International Finance,
Yangtze Scholar Distinguished Professor,
The National Science Fund for Distinguished Young Scholars, China

Abstract: Data-driven research is a trend in operations management research, and more and more top journal papers in recent years are supported by real-life data from enterprises and show the contribution of research solutions to enterprises. This report presents representative results of data-driven research based on the "Platform Supply Chain" project, a national innovation group project of the Foundation. Firstly, we study the optimal pricing problem of bank loyalty e-commerce platform system, and reveal the product pricing strategy and application scenarios of loyalty platform. Secondly, we study the multi-product pricing problem considering network effects, propose a consumer choice model and semi-myopic pricing strategy, and practically test the obvious revenue enhancement it brings to enterprises. Finally, based on the Kiva robot logistics system in e-commerce logistics, we propose a joint goods shelving-storage location-goods picking optimization model and a two-stage optimization algorithm, which is effective in improving the existing strategies of enterprises.

Yugang Yu is Chair Professor of Logistics and Operations Management at the University of Science and Technology of China (USTC). He obtained his PhD in Management Science and Engineering from the School of Management, USTC in 2003. His current research interests are in logistics, supply chain management and business analytics.

He has published more than 150 papers in academic journals, including Productions and Operations Management, Manufacturing & Service Operations Management, Information Systems Research, Transportation Science, IISE Transactions, International Journal of Production Research, European Journal of Operational Research, and Navel Research Logistics. His papers were cited more than 3000 times, and Elsevier ranked him as one of "the most cited researchers in the Mainland of China" in 2014-2021. He received a career development VENI project from the Netherlands Organization for Scientific Research (NWO), a distinguished research scholar grant from the National Science Foundation of China (NSFC), and the first prize of natural science from China Ministry of Education. He is principal investigator for NSFC National Innovation Research Group Project, and vice president for the China Society of Logistics.

Plenary Speech IV

Title: Interactive Multiobjective Optimization to Support Data-Driven Decisions

Professor Kaisa Miettinen, University of Jyvaskyla,
Multiobjective Optimization Group,
Faculty of Information Technology, P.O. Box 35 (Agora), FI-40014
University of Jyvaskyla, Finland

Abstract: In data analytics, we can use descriptive analytics to understand the data or predictive analytics to make prediction, but to make recommendations or decisions based on the data, we need prescriptive or decision analytics. We can fit models in the data and derive decision problems. Real-world decisions are typically characterized by multiple conflicting objectives that should be considered simultaneously. Thus, decision problems often have multiple objectives. We can support decision making by applying multiobjective optimization methods.

We discuss some examples of data-driven optimization problems, where a decision maker is supported in making better decisions. We formulate multiobjective optimization problems using data available and apply interactive multiobjective optimization methods to solve the problems. In interactive methods, a decision maker iteratively directs the search with one's preference information to find the best balance between the conflicting objectives. In this way, (s)he gains insight in the phenomena involved and learns about what kind of solutions are available as well as what kind of preferences are feasible. Based on the learning, the decision maker can modify preferences and eventually gain confidence in the final solution. We also briefly introduce the open-source software framework DESDEO (desdeo.it.jyu.fi), which contains implementations of different interactive methods.

Kaisa Miettinen is Professor of Industrial Optimization at the University of Jyvaskyla. Her research interests include theory, methods, applications and software of nonlinear multiobjective optimization including interactive and evolutionary approaches. She heads the Multiobjective Optimization Group and is the director of the thematic research area called Decision Analytics utilizing Causal Models and Multiobjective Optimization (DEMO, www.jyu.fi/demo). She has authored over 200 refereed journal, proceedings and collection papers, edited 17 proceedings, collections and special issues and written a monograph Nonlinear Multiobjective Optimization. She is a member of the Finnish Academy of Science and Letters, Section of Science and has served as the

President of the International Society on Multiple Criteria Decision Making (MCDM). She belongs to the editorial boards of seven international journals. She has previously worked at IIASA, International Institute for Applied Systems Analysis in Austria, KTH Royal Institute of Technology in Stockholm, Sweden and Helsinki School of Economics, Finland. She has received the Georg Cantor Award of the International Society on MCDM for independent inquiry in developing innovative ideas in the theory and methodology.

Award Session-I: Best Paper Award Session

Time: October 28, 2022 (Friday) 19:00-21:30

Meeting Room: Huang Long (Function Room)

Chairs: Tao Yang, Northeastern University

19:00 — 19:15	**1. Title:** Efficient Sampling Based Offspring Generation for Large-scale Multiobjective Optimization **Author:** Cheng He (Huazhong University of Science and Technology), Lianghao Li (Huazhong University of Science and Technology), Ran Cheng (Southern University of Science and Technology), Yaochu Jin (Bielefeld University)
19:15 — 19:30	**2. Title:** Partial Ordering Algorithm with Weight CLIQUE Model **Author:** Lizhu Yue (Liaoning Technical University), Yingda Hu (Liaoning Technical University)
19:30 — 19:45	**3. Title:** Adaptive Heading Tracking Control of Intelligent Ship with Stochastic Noise and Dead Zone Output **Author:** Yanli Liu (Dalian Maritime University), Runzhi Wang (Dalian Maritime University), Li-Ying Hao (Dalian Maritime University)
19:45 — 20:00	**4. Title:** Mixed-Distribution-Based Robust Stochastic Configuration Networks for Prediction Interval Construction **Author:** Jun Lu (Northeastern University), Jinliang Ding (Northeastern University)
20:00 — 20:15	**5. Title:** A Dual-Population Constrained Multi-Objective Evolutionary Algorithm with Variable Auxiliary Population Size **Author:** Jing Liang (Zhengzhou University), Zhaolin Chen (Zhengzhou University), Kangjia Qiao (Zhengzhou University), Yu Kunjie (zhengzhou university), Xuanxuan Ban (Zhengzhou University), Ke Li (Zhengzhou University)
20:15 — 20:30	**6. Title:** Goal Programming for Multi-objective Water Allocation: Application in Gansu province, China **Author:** Liming Yao (Sichuan University), Zerui Su (Sichuan University), Hao-Chun Lu (Chang Gung University)
20:30 — 20:45	**7. Title:** Highlight Removal with Orthogonal Decomposition **Author:** Zhen Zhang (Chinese Academy of Sciences), Weihong Ren (Harbin Institute of Technology, Shenzhen), Yang Lu (Shenyang Institute of Automation Chinese Academy of Sciences), Zhou Shijun (Shenyang Institute of Automation, Chinese Academy of Sciences), Jiandong Tian (Shenyang Institute of Automation, Chinese Academy of Sciences), Yandong Tang (Shenyang Institute of Automation, Chinese Academy of Sciences)
20:45 — 21:00	**8. Title:** An Off-COMA Algorithm for Multi-UCAV Intelligent Combat Decision-Making **Author:** Zhengkang Shi (Shanghai Jiao Tong University), Jingcheng Wang (Shanghai Jiao Tong University), Hongyuan Wang (Shanghai Jiao Tong University)
21:00 — 21:15	**9. Title:** Variable Contribution based Adaptive Mechanism for Evolutionary Multi-objective Cloud Workflow Scheduling **Author:** Lining Xing (Xidian University), Xiangjing Guo (Xidian University), Wen Zhong (Hunan Police Academy)
21:15 — 21:30	**10. Title:** Economic Dispatch of Smart Grid with Unknown Cost Functions and Switching Network Topology **Author:** Guanghui Wen (Southeast University), Xinghuo Yu (RMIT University), Pengcheng Dai (Southeast University), Wenwu Yu (Southeast University)

Award Session-II: Student Outstanding Paper Award Session

Time: October 28, 2022 (Friday) 19:00-21:15

Meeting Room: Kang Ding (Function Room)

Chairs: Yuzhe Li, Northeastern University

19:00 — 19:15	**1. Title:** Cooperative Adaptive Identification and Force Control for Networked Euler-Lagrange Systems **Author:** Xiaoxu Lv (Peking University), Yuqing Hao (Beihang University), Tao Xu (Peking University), Zhisheng Duan (Peking University)
19:15 — 19:30	**2. Title:** Knowledge-Informed Graph Convolutional Network for Process Fault Diagnosis **Author:** Mingwei Jia (Zhejiang University of Technology), Danya Xu (Northeastern University), Tao Yang (Northeastern University), Yuan Yao (National Tsing Hua University), Yi Liu (Zhejiang University of Technology)
19:30 — 19:45	**3. Title:** Image-Based Trajectory Tracking Control for Wheeled Mobile Robots with ADP **Author:** Ouyang Zhihua (Central South University), Biao Luo (Chinese Academy of Sciences), Xinning Yi (Central South University)
19:45 — 20:00	**4. Title:** Autistic Motor Skill Analysis via ICF-based Protocols **Author:** Carrie M. Toptan (University of Portsmouth), Zhang Dinghuang (University of Portsmouth), Gongyue Zhang(University of Portsmouth), Honghai Liu (University of Portsmouth)
20:00 — 20:15	**5. Title:** Application of Image Recognition for On-board Sailor Behavior Based on Broad Learning System **Author:** Liu Wenting (Navigation College), Yi Zuo (Dalian Maritime University), Tieshan Li (Dalian Maritime University), C. L. Philip Chen (University of Macau)
20:15 — 20:30	**6. Title:** Over-the-horizon Air Combat Environment Modeling and Deep Reinforcement Learning Application **Author:** Ao Wang (Shanghai Jiao Tong University), Shangwei Zhao (Shanghai Jiao Tong University), Zhengkang Shi (Shanghai Jiao Tong University), Jingcheng Wang (Shanghai Jiao Tong University)
20:30 — 20:45	**7. Title:** Hybrid Estimation of Distribution Based on Knowledge Transfer for Flexible Job-shop Scheduling Problem **Author:** Lulu Cao (Xiamen University), Min Jiang (Xiamen University), Liang Feng (add), Qiuzhen Lin (Shenzhen University), Renhu Pan (Fujian Longking Co., Ltd.), Kay Chen (University of Hong Kong, HK SAR)
20:45 — 21:00	**8. Title**: A Deep Learning-based Method for Segmentation of Ore X-ray Image **Author:** Wenxin Wang (Northeastern University,), Jie Huang (Northeastern University), Gaochang Wu (Northeastern University)
21:00 — 21:15	**9. Title:** A Time-domain Robust Frequency Estimation Approach **Author:** Mingyi Huo (Harbin Institute of Technology), Xinyu Qiao (Harbin Institute of Technology), Ke Zhang (Chongqing University), Yuchen Jiang (Harbin Institute of Technology), Hao Luo (Harbin Institute of Technology)

Session 1: Data-based Learning for Control and Optimization of Complex Networked Systems

Time: October 29, 2022 (Saturday) 13:50-15:50

Meeting Room: Dao Cheng Jian Ge (Function Room)

Chairs: Guanghui Wen, Southeast University

Junjie Fu, Southeast University

Zhisheng Duan, Peking University

13:50 — 14:05	**1. Title:** Data-based robust distributed MPC for collision avoidance formation navigation of constrained nonholonomic multi-robot systems **Author:** Junjie Fu (Peking University), Guanghui Wen (Southeast University)
14:05 — 14:20	**2. Title:** Research on calibration method of extrinsic parameters of lidar and camera carried by UAV **Author:** Zhixiang Wang (Hefei University of Technology), Shen Han (Southeast University), Haibo Du (Hefei University of Technology), Jun Zhou (Southeast University), Xiaozheng Jin (HeFei University of Technology)
14:20 — 14:35	**3. Title:** Synchronization of Bilayer Boolean Networks with Unidirectional Cross-layer Interactions Extended Abstract **Author:** Xiaodong Li (Southeast university)
14:35 — 14:50	**4. Title:** Dynamic Economic Dispatch of Thermal-Wind-Storage Systems Based on Reinforcement Learning **Author:** Yuheng Li (Southeast University), Chengfang Hu (Southeast University), Junjie Fu (Peking University), Shuai Wang (Beihang University)
14:50 — 15:05	**5. Title**: Research on Destination Images with Information Containing Sentiment Classification Driven by Multi-source Data **Author**: Yuyan Luo (Chengdu University of Technology), Lihong Deng (Chengdu University of Technology), Letian Xiao (Chengdu University of Technology), Bingqian Wu (Chengdu University of Technology), Junchen Pan (Chengdu University of Technology), Jun Wang (Sichuan Normal University)
15:05 — 15:20	**6. Title**: Evolution of Online Public Opinions and Situational Control During the COVID-19 Pandemic: A case study from Chengdu, China **Author**: Ziqi Pan (Chengdu University of Technology), Songlin Li (Chengdu University of Technology), Yuyan Luo (Chengdu University of Technology), Xiaolei Xu (Chengdu University of Technology), Mou Yu (Sichuan University), Xu Liu (Chengdu University of Technology)
15:20 — 15:35	**7. Title**: A Study on Bike-sharing Rebalancing Problem Based on Spatial-temporal Demand Prediction **Author**: Jiaqing Sun (Tongji University), Ye Ding (Tongji University), Weichao Chu (Tongji University),Jiantong Zhang (Tongji University)
15:35 — 15:50	**8. Title**: Robust Dynamic Positioning of Marine Surface Vessels Under Denial-of-Service Attacks **Author**: Wei Ding (Changshu Institute of Technology), Jinxi Zhang (Northeastern University)

Session 2: Data Science, Modeling, Control and Optimization in Complex Systems

Time: October 29, 2022 (Saturday) 13:50- 15:50

Meeting Room: Ping Le (Function Room)

Chairs: Yi Zuo, Dalian Maritime University

Liying Hao, Dalian Maritime University

Xuesong Liu, Dalian Maritime University

13:50 — 14:05	**1. Title:** Unbalanced Data Pro3cessing for Software Defect Prediction **Author:** Yang Qu (Dalian Maritime University), Zhenming Li (Dalian Maritime Universty), Jiaoru Zhao (Dalian Maritime Universty), Hui Li (Dalian Maritime University)
14:05 — 14:20	**2. Title:** Co-evolutionary dynamics with alterable updating rules in the prisoner's dilemma game **Author:** Xuesong Liu (Dalian Maritime University), Sinan Feng (Dalian Maritime University), Tieshan Li (Dalian Maritime University)
14:20 — 14:35	**3. Title:** Consensus of Hybrid Multi-Agent System Based on Broadcast Event-Triggered Method **Author:** Yida Dong (Dalian Maritime University), Xuesong Liu (Dalian Maritime University), Tieshan Li (Dalian Maritime University), Qihe Shan (Dalian Maritime university)
14:35 — 14:50	**4. Title:** Efficient Named Entity Recognition Based on Broad Learning System and BERT **Author:** Yudi Wang (Dalian Maritime University), Yi Zuo (Dalian Maritime University), Tieshan Li (Dalian Maritime University), C. L. Philip Chen (University of Macau)
14:50 — 15:05	**5. Title:** Path Planning of Mission-driven USVs Based on Stochastic Schemata Exploiter **Author:** Liwei Zhi (Dalian Maritime University), Yi Zuo (Dalian Maritime University), Tieshan Li (Dalian Maritime University)
15:05 — 15:20	**6. Title:** Finite-time Synchronization of Complex Networks with Intermittent Event-Triggered Control **Author:** Rongqiang Tang (Sichuan University), Xinsong Yang (Sichuan University)
15:20 — 15:35	**7. Title:** Prescribed Performance Adaptive Tracking Control of Nonlinear Mass-Spring-Damper System with Stochastic Disturbance **Author:** Yanli Liu (Dalian Maritime University), Tao Hong (Dalian Maritime University)
15:35 — 15:50	**8. Title:** Multi-population cooperative particle swarm optimization with covariance guidance **Author:** Peng Liang (Jiangxi University of Science and Technology), Wei Li (Jiangxi University of Science and Technology), Ying Huang (School of Mathematics and Computer Science)

Session 3: Data-driven Fault Diagnosis and Optimization for High-speed Trains	
Time: October 29, 2022 (Saturday) 13:50- 15:50	
Meeting Room: Le Shan (Function Room)	
Chairs: Hongtian Chen, University of Alberta Zhiwen Chen, Central South University Chao Cheng, Changchun University of Technology Qiang Liu, Northeastern University	
13:50 — 14:05	**1. Title**: Fault Injection Strategies for Air Brake System of High-speed Train with AMESim/Simulink Co-simulation **Author**: Lijuan Peng (Central south university), Jingke Fan (Central South University), Zhiwen Chen (Central South University), Jiuhe Wang (Central South University), Tao Peng (Central South University)
14:05 — 14:20	**2. Title**: Deep Learning Based Robust Modeling of Multi-Rate Data for Quality Prediction **Author**: Xiangan Meng (Northeastern University), Qiang Liu (Northeastern University)
14:20 — 14:35	**3. Title:** Generative Adversarial Network and Principal Component Analysis Based Data Augmentation for Fault Diagnosis **Author:** Zejun Gong (Northeastern University)
14:35 — 14:50	**4. Title:** Data-driven Bearing Degradation Modeling and Remaining Useful Life Prognosis of High-Speed Trains **Author:** Yijie Zhang (Northeastern University), Qiang Liu (Northeastern University)
14:50 — 15:05	**5. Title:** Traffic Modeling and Rescheduling for High-speed Train Based on Block Sections **Author:** Peng Yue (Northeastern University), Yaochu Jin (University of Surrey), Xuewu Dai (Northeastern University), Dongliang Cui (Northeastern University), Qi Shi (Northeastern University)
15:05 — 15:20	**6. Title:** Robot Manipulator Anti-Disturbance Control based on PSO Multi-task Optimization **Author:** Yifan Chen (Ningbo University), Miaomiao Qu (Ningbo University), Xuhua Shi (Ningbo university)
15:20 — 15:35	**7. Title:** Fault Detection Algorithm of Integrated Navigation Based on LVQ Neural Network **Author:** Xiaojing Du (Beijing Institute of Technology), Changte Sun (Beijing Institute of Technology), Huaijian Li (Beijing Institute of Technology), Rongjing Xu (Beijing Institute of Technology)
15:35 — 15:50	**8. Title:** Support Vector Machine Based on Genetic Algorithm Integrated Navigation Fault Detection Parameter Optimization Method **Author:** Huaijian Li (Beijing institute of technology), Jing Fang (Beijing Institute of Technology), Xiaojing Du (Beijing institute of Technology), Ziye Hu (China State Shipbuilding Corporation Limited)

Session 4: Advanced Machine Learning Methods and Applications

Time: October 29, 2022 (Saturday) 15:50- 17:20

Meeting Room: Dao Cheng Jian Ge (Function Room)

Chairs: Yiuming Cheung, Hong Kong Baptist University

　　　　　Yuping Wang, Xidian University

15:50 — 16:05	**1. Title:** Multitask Singleobjective Optimization Algorithm Based on Elite Individual Transfer **Author:** Hongyan Chen (Guangdong University of Technology), Hailin Liu (Guangdong University of Technology), Fangqing Gu (Guangdong University of Technology)
16:05 — 16:20	**2. Title:** A Reference Point and Multi-direction Search Based Evolution Algorithm for Large-scale Multi-objective Optimization Author: Shuai Tian (Xidian University), Ziqing Wang (Xidian University), Xiangjuan Wu (Xidian Universtiy), Yuping Wang (Xidian University)
16:20 — 16:35	**3. Title:** Optimizing Dosing Regimens of Tacrolimus in Lung Transplant Recipients **Author:** Boyang Xie (Guangdong University of Technology), Chenyu Huang (Harbin Institute of Technology), Fangqing Gu (Guangdong University of Technology)
16:35 — 16:50	**4. Title:** An Improved Association Rule Mining Algorithm Based on the Prior Information **Author:** Xiaoquan Cai (Guangdong University of Technology), Shengbing Xu (Guangdong University of Technology), Lei Chen (Guangdong University of Technology), Jinzhang Li (Guangdong University of Technology), Xinyu Qiu (Guangdong University of Technology), Boqi Zheng (Guangdong University of Technology)
16:50 — 17:05	**5. Title:** Causal Discovery of Medical Test Parameters Based on Improved PC Algorithm **Author:** Xueyao Qiu (Guangdong University of Technology), Fangqing Gu (Guangdong University of Technology), Yiqun Zhang (Guangdong University of Technology)
17:05 — 17:20	**6. Title:** One-class Anomaly Detection with Redundancy Reduction and Momentum Mechanism **Author:** Xingbao Zhang (Jiangxi University of Science and Technology), Wei Li (Jiangxi University of Science and Technology), Yue Zhao (Jiangxi University of Science and Technology)

	Session 5: Data-driven Control of Complex Networked Systems and Its Applications
	Time: October 29, 2022 (Saturday) 17:20- 18:20
	Meeting Room: Dao Cheng Jian Ge (Function Room)
	Chairs: Yuezu Lv, Beijing Institute of Technology Zhou Jialing, Nanjing University of Science and Technology Guanghui Wen, Southeast University Tingwen Huang, Texas A&M University at Qatar
17:20 — 17:35	**1. Title:** Accelerated Linear Convergence in Distributed Aggregative Optimization Over Directed Graphs **Author:** Liyuan Chen (Southeast University), Guanghui Wen (Southeast University), Fang Xiao (Southeast University)
17:35 — 17:50	**2. Title:** ADMM-based Distributed Electric Vehicle Charging Optimization Algorithm **Author:** Qiutong Ji (Southeast University), Yuezu Lv (Beijing Institute of Technology), Zhongyuan Zhao (Nanjing University of Information Science & Technology)
17:50 — 18:05	**3. Title:** Pure Relative Output-feedback Tracking Protocols for Lipschitz-type Multi-agent Systems via Transformation-based Appointed-time Observers **Author:** Yuezu Lv (Beijing Institute of Technology)
18:05 — 18:20	**4. Title:** Fully Distributed Containment Control of Nonlinear Multi-agent Systems **Author:** Tianqi Liu (Southeast University), Yuezu Lv (Beijing Institute of Technology), Guanghui Wen (Southeast University)

Session 6: Physics/Knowledge-informed Learning in Process Data Analytics

Time: October 29, 2022 (Saturday) 15:50- 18:20

Meeting Room: Ping Le (Function Room)

Chairs: Yi Liu, Zhejiang University of Technology

Tao Yang, Northeastern University Shenyang

Yuan Yao, National Tsing Hua University

15:50 — 16:05	**1. Title:** GCN-CAM: A New Graph Convolutional Network-based Fault Diagnosis Method With its Interpretability Analysis **Author:** Jiamin Xu (Central South University), Haobin Ke (Central South University), Zhiwen Chen (Central South University), Tao Peng (Central South University), Xinyu Fan (Central South University)
16:05 — 16:20	**2. Title:** Mapless Path Planning of Multi-robot Systems in Complex Environments via Deep Reinforcement Learning **Author:** Wanbin Han (Shanghai Jiao Tong University), Chongrong Fang (Shanghai Jiao Tong University), Jianping He (Shanghai Jiao Tong University)
16:20 — 16:35	**3. Title:** Quality Prediction of Industrial Polyethylene Process with Robust Long Short Term Memory Model **Author:** Qiao Liu (Zhejiang University of Technology), Weiwei Guo (Zhejiang University of Technology), Liangfeng Xu (Zhejiang University of Technology), Zengliang Gao (Zhejiang University of Technology), Yi Liu (Zhejiang University of Technology)
16:35 — 16:50	**4. Title:** G-MTAD: Graph-based Unsupervised Multivariate Time-series Anomaly Detection **Author:** Danya Xu (Northeastern University), Mingwei Jia (Zhejiang University of Technology), Yi Liu (Zhejiang University of Technology), Yuan Yao (National Tsing Hua University), Tao Yang (Northeastern University)
16:50 — 17:05	**5. Title:** Prescribed-time Practical Tracking Control of Unknown Time-Delay Nonlinear Systems Under Output Constraints **Author:** Kaidi Xu (Northeastern University)
17:05 — 17:20	**6. Title:** Decentralized Robust Funnel Control of Unknown Interconnected Nonlinear Systems **Author:** Junguo Song (Northeastern University)
17:20 — 17:35	**7. Title:** Fault Detection Method for Chemical Process Based on Long Short-term Memory Network Under the Framework of Parallel Computing **Author:** Chao Wu (Zhejiang University of Science and Technology), Le Zhou (Zhejiang University of Science and Technology)
17:35 — 17:50	**8. Title:** Preparation of Shunting Plan for Large Freight Train Depot Based on BST **Author:** Wei Ren (Lanzhou Jiaotong University), Jiandong Qiu (College of Mechanical and Electrical Engineering), Minan Tang (Lanzhou Jiao Tong University), Fan Yu (Lanzhou Jiao Tong University), Panpan Ma (Lanzhou Jiao Tong University)
17:50 — 18:05	**9. Title:** Improved YOLOV3 Surveillance Device Object Detection Method Based on Federated Learning **Author:** Huiping Li (University of Electronic Science and Technology of China), Kangning Yin (University of Electronic Science and Technology of China), Xinhui Ji (Suzhou University of Science and Technology), Liu Yin (University of Electronic Science and Technology of China) et al.
18:05 — 18:20	**10. Title:** Multi-scale Enhanced Fine-grained Feature-based Person Re-identification Algorithm **Author:** Zhen Ding (University of Electronic Science and Technology of China), Kangning Yin (UESTC), Tingting Huang (University of Electronic Science and Technology of China), Lin Xiao (University of Electronic Science and Technology of China), Zhihua Dong (University of Electronic Science and Technology of China), Guangqiang Yin (University of Electronic Science and Technology of China)

Session 7: Learning-based Optimization and Application	
Time: October 29, 2022 (Saturday) 15:50- 17:05	
Meeting Room: Le Shan (Function Room)	
Chairs: Kunjie Yu, Zhengzhou University Jing Liang, Zhengzhou University Caitong Yue, Zhengzhou University Ke Chen, Zhengzhou University	
15:50 — 16:05	**1. Title:** IDPSO for Influence Maximization under Independent Cascade Model **Author:** Bohan Wang (Northeastern University), Lianbo Ma (Northeastern University), He Qiang (Northeastern University)
16:05 — 16:20	**2. Title:** Searchability, Funnels, and Keenness in Fitness Landscapes for Continuous Optimization Problems and the Effect on Differential Evolution Performance **Author:** Yaxin Li (Zhengzhou University), Jing Liang (Zhengzhou University), Kunjie Yu (Zhengzhou university), Caitong Yue (Zhengzhou University), Yingjie Zhang (Zhengzhou University)
16:20 — 16:35	**3. Title:** Substation Switching Device Identification Method Based on Deep Learning **Author:** Liang Wang (State Grid Luoyang Electric Power Supply Company), Qilong Kou (State Grid Luoyang Electric Power Supply Company), Qinggai Zeng (State Grid Luoyang Electric Power Supply Company), et al.
16:35 — 16:50	**4. Title:** A Bi-criterion Differential Evolution for Multimodal Multi-objective Optimization **Author:** Li Yan (Zhongyuan University of Technology), He Tian (Zhongyuan University of Technology), Yiran Li (Zhongyuan University of Technology), Xuzhao Chai (Zhongyuan University of Technology), Chao Huang (Zhongyuan University of Technology), Boyang Qu (Zhongyuan University of Technology)
16:50 — 17:05	**5. Title:** A Task Allocation Scheme Generation Method for Maritime Oil Spill Emergency Disposal Based on Bilateral Matching **Author:** Xiaotian Liang (National University of Defense Technology), Yu Guo (National University of Defense Technology), Jiang Jiang (Nation University of Defense Technology), Xueming Xu (National University of Defense Technology), Qingqing Yang (National University of Defense Technology)

Session 8: Data-driven Evolutionary Transfer Optimization

Time: October 29, 2022 (Saturday) 17:05- 18:20

Meeting Room: Le Shan (Function Room)

Chairs: Qiuzhen Lin, Shenzhen University

Liang Feng, Chongqing University

Min Jiang, Xiamen University

Kay Chen Tan, The Hong Kong Polytechnic University

17:05 — 17:20	**1. Title:** A Multiobjective Evolutionary Multitasking Algorithm Based on Decomposition and Multiple Knowledge Transfer **Author:** Zhongjian Wu (Shenzhen University), Qingling Zhu (Shenzhen University), Jianyong Chen (Shenzhen University)
17:20 — 17:35	**2. Title:** Clustering-based Autoencoding for Dynamic Multiobjective Evolutionary Optimization **Author:** Yulong Ye (Shenzhen University), Qingling Zhu (Shenzhen University), Lingjie Li (Shenzhen University), Jianyong Chen (Shenzhen University)
17:35 — 17:50	**3. Title:** Solving Large-scale Multiobjective Optimization via Transfer Weights **Author:** Haokai Hong (Xiamen University), Min Jiang (Xiamen University), Qiuzhen Lin (Shenzhen University), Liang Feng (add), Kay Chen (University of Hong Kong, HK SAR)
17:50 — 18:05	**4. Title:** Knowledge Transfer for Object Detection with Evolution Architecture Search **Author:** Jiaquan Li (Xiamen University), Minghui Shi (Xiamen University), Qiuzhen Lin (Shenzhen University), Fenfen Zhou (Longking), Kay Chen (University of Hong Kong, HK SAR), Min Jiang (Xiamen University)
18:05 — 18:20	**5. Title:** Sequential Covariance Intersection Fusion Kalman Filters **Author:** Wenjuan Qi (Heilongjiang University), Shigang Wang (Heilongjiang University)

Session 9: Big Data Analysis and Application

Time: October 30, 2022 (Sunday) 8:30-9:45

Meeting Room: Dao Cheng Jian Ge (Function Room)

Chairs: Yuchen Jiang, Harbin Institute of Technology

Hongyan Yang, Beijing University of Technology

Yunsong Xu, National University of Defense Technology

Hao Luo, Harbin Institute of Technology

Shen Yin, University of Duisburg-Essen

Time	
8:30 — 8:45	**1. Title:** A Hybrid State of Health Estimation Method for Lithium Ion Battery **Author:** Xinyue Wang (Liaoning Technical University), Rui Guo (Liaoning Technical University), Jia Guo (Liaoning Technical University)
8:45 — 9:00	**2. Title:** Semi-Supervised Prototype Network with CBAM and Data Selector for Few-Shot Bearing Fault Diagnosis **Author:** Wenkang Zhou (Shanghai Jiao Tong University), Ning Li (Shanghai Jiao Tong University)
9:00 — 9:15	**3. Title:** Evolutionary Neural Architecture Search Based on Variational Inference Bayesian Convolutional Neural Network **Author:** Jialiang Yu (Shandong Normal University), Song Gao (Shandong Women's University), Jie Tian (Shangdong Woman University), Hongli Bian (Shandong Normal University), Hui Liu (Shandong Women's University), Junqing Li (Liaocheng University)
9:15 — 9:30	**4. Title:** Few-shot Classification Based on CBAM and Prototype Network **Author:** Shuo Xin (Xi'an University of Technology), Han Liu (Xi'an University of Technology)
9:30 — 9:45	**5. Title:** Graph Multi-Attention Network-based Taxi Demand Prediction **Author:** Haifan Tang (Sichuan University), Youkai Wu (Sichuan University), Zhaoxia Guo (Sichuan University)

Session 10: Data-driven Machine Learning

Time: October 30, 2022 (Sunday) 9:45-11:00

Meeting Room: Dao Cheng Jian Ge (Function Room)

Chairs: Ye Tian, Anhui University

Ran Cheng, Southern University of Science and Technology

Xingyi Zhang, Anhui University

Time	Content
9:45 — 10:00	**1. Title:** XRF Analysis of Heavy Metals in Soil by CARS Assisted Extreme Learning Machine **Author:** Wanqi Yang (University of Electronic Science and Technology of China), Siyuan Yang (University of Electronic Science and Technology of China), Yanchun Zhao (University of Electronic Science and Technology of China), Fusheng Li (University of Electronic Science and Technology of China)
10:00 — 10:15	**2. Title:** Ship Trajectory Prediction Based on Transformer Model **Author:** Kaihang Kang (Dalian Maritime University), Chuang Zhang (Dalian Maritime University), Chen Guo (Dalian Maritime University)
10:15 — 10:30	**3. Title:** Classification of Pathological Images of Skin Diseases Based on Deep Learning **Author**: Ke Liu (Sichuan University), Tao Huang (James Cook University), Zhaoxia Guo (Sichuan University)
10:30 — 10:45	**4. Title:** An Explainable Multitask Shapley Explanation Networks for Real-time Polyp Diagnosis in Videos **Author:** Dujuan Wang (Sichuan University), Xinwei Wang (Sichuan University), Sutong Wang (Dalian University of Technology), Yunqiang Yin (University of Electronic Science and Technology of China)
10:45 — 11:00	**5. Title:** An Adaptive Robust UKF Initial Alignment Algorithm **Author:** Huaijian Li (Beijing Institute of Technology), Tao Wang (Beijing Institute of Technology), Xiaojing Du (Beijing institute of Technology), Tianhang Yan (Beijing Institute of Technology)

Session 11: Distributed Data-Driven Control and Optimization for Smart Secure Transportation-Zero Carbon Energy-Polymorphic Information System

Time: October 30, 2022 (Sunday) 8:30-11:00

Meeting Room: Ping Le (Function Room)

Chairs: Qihe Shan, Dalian Maritime University

Fei Teng, Dalian Maritime University

8:30 — 8:45	**1. Title:** Continuous Berth Allocation Considering Carbon Emission and Uncertainty **Author:** Feifei Yu (Dalian Maritime University), Fei Teng (Dalian Maritime University), Qihe Shan (Dalian Maritime University), Tieshan Li (Dalian Maritime University), Yang Xiao (The University of Alabama)
8:45 — 9:00	**2. Title:** Research on Ship Automatic Collision Avoidance and Obstacle Avoidance Based on Improved Artificial Potential Field Method **Author:** Haoran Ma (Dalian Maritime University), Zhi Li (Dalian Maritime University), Jun Ning (Dalian Maritime University), Eryue Wang (Dalian Maritime University)
9:00 — 9:15	**3. Title:** Topology Design for Multiple Unmanned Surface Vessels Cooperative Control in Polymorphic Networks **Author:** Yuzhou Lu (Dalian Maritime University), Qihe Shan (Dalian Maritime university), Pu Zhang (Dalian Maritime University), Tieshan Li (Dalian Maritime University)
9:15 — 9:30	**4. Title:** A Cooperative Flow Simulator for Distributed Computing Based on Full-Dimensional Definable Network **Author:** Yuan Liang (Zhejiang Lab), Geyang Xiao (Zhejiang Lab), Shaofeng Yao (Zhejiang Lab), Hongsheng Wang (Zhejiang Lab), Linlin Yan (Zhejiang Lab), Xiaoyu Yi (Intelligent Network Research Institute)
9:30 — 9:45	**5. Title:** Continuous-time Value-Iteration-Based Learning for Constrained-Input Nonlinear Nonzero-Sum Game **Author:** Geyang Xiao (Zhejiang Lab), Yuan Liang (Zhejiang Lab), Linlin Yan (Zhejiang Lab), Xiaoyu Yi (Intelligent Network Research Institute), Congqi Shen (Zhejiang Lab), Huifeng Zhang (Zhejiang Lab)
9:45 — 10:00	**6. Title:** Review of Improved Cooperative Control of Unmanned Surface Vehicle Based on Multi-Agent System **Author:** Wei Liu (Dalian Maritime University), Qihe Shan (Dalian Maritime University), Yuhao Mao (Dalian Maritime University), Jingchen Wong (Dalian Maritime University)
10:00 — 10:15	**7. Title:** Proximal Policy Optimization for Explainable Recommended Systems **Author:** Qian Feng (Beijing Normal University), Geyang Xiao (Zhejiang Lab), Yuan Liang (Zhejiang Lab), Huifeng Zhang (Zhejiang Lab), Linlin Yan (Zhejiang Lab), Xiaoyu Yi (Intelligent Network Research Institute)
10:15 — 10:30	**8. Title:** A Survey on Optical Adversarial Examples Against DNNs **Author:** Haiyan Li (Zhejiang Lab), Bing Bai (Zhejiang Lab), Geyang Xiao (Zhejiang Lab)
10:30 — 10:45	**9. Title:** Distributed Energy Management for Ships Entering and Leaving the Port Considering the Carbon Tax **Author:** Qihe Shan (Dalian Maritime university), Jing Song (Dalian Maritime University), Fei Teng (Dalian Maritime University), Xin Zhang (Dalian Maritime University), Tieshan Li (Dalian Maritime University)
10:45 — 11:00	**10. Title:** An Optimized Transfer Attack Framework Towards Multi-Modal Machine Learning **Author:** Yinjie Zhang (Zhejiang Lab), Geyang Xiao (Zhejiang Lab), Bing Bai (Zhejiang Lab), Zhiyu Wang (Zhejiang Lab), Caijun Sun (Zhejiang Lab), Yonggang Tu (Jiaxing Big Data Center)

Session 12: Data-driven Human Motion Analytics

Time: October 30, 2022 (Sunday) 8:30-10:45

Meeting Room: Le Shan (Function Room)

Chairs: Weihong Ren, Harbin Institute of Technology

Jing Li, Tianjin University of Technology

Time	Presentation
8:30 — 8:45	**1. Title:** Vision based Abnormal Action Detection of Children in Wards **Author:** Yuhang Shi (Harbin Institute of Technology, Shenzhen), Shuli Luo (Shenzhen Children's Hospital), Weihong Ren (Harbin Institute of Technology, Shenzhen), Weibo Jiang (Harbin Institute of Technology, Shenzhen), Sufang Li (Shenzhen Children's Hospital), Honghai Liu (University of Portsmouth)
8:45 — 9:00	**2. Title:** Graph Attention Memory for Visual Navigation **Author:** Dong Li (Hauwei), Qichao Zhang (Chinese Academy of Sciences), Dongbin Zhao (Institute of Automation)
9:00 — 9:15	**3. Title:** A Bayesian Network Safe Control Method for Coal Slime Flotation Process Based on Multi-model and Time Delay Transfer Entropy **Author:** Fei Chu (China University of Mining and Technology), Chenfeng Xu (China University of Mining and Technology), Wenchao Bao (China University of Mining and Technology), Wang Pei (China University of Mining and Technology), Xiaoping Ma (China University of Mining and Technology)
9:15 — 9:30	**4. Title:** Urban Cold Chain Logistics Vehicle Path Optimization Based on IOT Real-Time Traffic **Author:** Yanan Huang (Wuhan University of Technology), Lin Pan (Wuhan University of Technology)
9:30 — 9:45	**5. Title:** Identity-Assisted Network for Pedestrian Attribute Recognition **Author:** Ye Li (University of Electronic Science and Technology of China), Lei Wu (University of Electronic Science and Technology of China), Ziyang Chen (University of Electronic Science and Technology of China), Guangqiang Yin (University of Electronic Science and Technology of China), Xinzhong Wang (Shenzhen Institute of Information Technology), Zhiguo Wang (University of Electronic Science and Technology of China)
9:45 — 10:00	**6. Title:** Doppler Location Algorithm and Performance Analysis of Low Orbit Constellation **Author:** Huaijian Li (Beijing Institute of Technology), Chao Yin (Beijing Institute of Technology), Xiaojing Du (Beijing institute of Technology), Yanbo Wei (Chinese Aeronautical Radio Electronics Research Institute (CARERI))
10:00 — 10:15	**7. Title:** Bipartite Coordination for the Structurally Balanced Networks **Author:** Shuhang Yu (Northeastern University), Huaguang Zhang (Northeastern University, China)
10:15 — 10:30	**8. Title:** Stacking Based LightGBM-CatBoost-RandomForest Algorithm and Its Application in Big Data Modeling **Author**: Zhihong Wang (Guangdong University of Technology), Hongru Ren (Guangdong University of Technology), Renquan Lu (Guangdong University of Technology), Lirong Huang (Guangdong University of Technology)
10:30 — 10:45	**9. Title:** Data-Driven Teleconsultation Dynamic Scheduling: A Two-level Model **Author:** Wenjia Chen (Beijing Information Science and Technology University), Le'an Yu (Please fill in), Jinlin Li (Beijing Institute of Technology)

Session 13: Data Stream Analysis

Time: October 30, 2022 (Sunday) 11:00-12:15

Meeting Room: Dao Cheng Jian Ge (Function Room)

Chairs: Yinan Guo, China University of Mining and Technology

Shengxiang Yang, De Montfort University

Cuie Yang, Victoria University of Wellington

Botao Jiao, China University of Mining and Technology

Time	Content
11:00 — 11:15	**1. Title:** A High-dimensional Anomaly Detection Algorithm Based on IForest with Autoencoder **Author:** Jinhong Yang (Systems Engineering Research Institute of CSSC), Xinxin Yang (China Academic of Electronics and Information Technology), Zhenyu Zhang (Systems Engineering Research Institute of CSSC)
11:15 — 11:30	**2. Title:** Improved Online Active Learning Method for Data Stream **Author:** Zhiji Zheng (China University of Mining and Technology), Yinan Guo (China University of Mining and Technology), Botao Jiao (China University of Mining and Technology), Jiawei Feng (China University of Mining and Technology), Jiayang Pu (China University of Mining and Technology,Beijing)
11:30 — 11:45	**3. Title:** A Time Series Forecast Method for Vessel Trajectory Prediction **Author:** Shaobin Li (City University of Macau), Zehan Tan (Fudan University), Yanyu Chen (Gree Electric Appliances, Inc.of Zhuhai), Weidong Yang (Fudan University), Siyuan Lei (Fudan University), Jiale Zhang (Fudan University)
11:45 — 12:00	**4. Title:** Looking into the Word-of-Mouth in Tourist Accommodations Based on Big Data **Author:** Pingping Chen (Chengdu University of Technology), Zerui Su (Sichuan University), Yuyan Luo (Chengdu University of Technology), Ting Zhao (Chengdu University of Technology)
12:00 — 12:15	**5. Title:** High-speed Rail Scheduling and Performance Analysis Based on Branch and Bound Method **Author:** Yukun Wang (Northeastern University), Guoqi Feng (Northeastern University), Xuewu Dai (Northeastern University), Dongliang Cui (Northeastern University)

Session 14: Reinforcement Learning-based Control and Optimization for Complex Systems

Time: October 30, 2022 (Sunday) 11:00-12:15

Meeting Room: Ping Le (Function Room)

Chairs: Derong Liu, Guangdong University of Technology

Bo Zhao, Beijing Normal University

11:00 — 11:15	**1. Title:** Optimal H Control of Nonlinear Systems via Static and Dynamic Triggering Critic Learning **Author:** Zhiquan Zhang (University of Electronic Science and Technology of China), Zhinan Peng (University of Electronic Science and Technology of China), Bo Zhao (Beijing Normal University), Rui Huang (University of Electronic Science and Technology of China), Jiangping Hu (University of Electronic Science and Technology of China), Hong Cheng (University of Electronic Science and Technology of China)
11:15 — 11:30	**2. Title:** Reinforcement Learning for Robust Neuro-Control of Constrained Nonlinear Systems **Author:** Xiong Yang (Tianjin University), Mengmeng Xu (Tianjin University)
11:30 — 11:45	**3. Title:** Data-Driven Optimal Control for Multi-Player Non-Zero-Sum Games with Unknown Dynamics **Author:** Liao Zhu (Beijing Normal University), Hongbing Xia (Beijing Normal University), Jiaxu Hou (Beijing Normal University), Ping Guo (Beijing Normal University)
11:45 — 12:00	**4. Title:** Adaptive Tracking Control for Hypersonic Flight Vehicle Using ADHDP **Author:** Shuai Liang (Northwestern Polytechnical University), Daqian Wang (Chengdu Aircraft Design & Research Institute), Bin Xu (Northwestern Polytechnical University)
12:00 — 12:15	**5. Title:** A Multi-Objective Direct Heuristic Dynamic Programming Based Tracking Control for Wastewater Treatment Process **Author:** Weiwei Cao (Zhejiang University), Qinmin Yang (Zhejiang University), Wenchao Meng (Zhejiang University)

Session 15: Stochastic Configuration Networks for Industrial Data Analytics

Time: October 30, 2022 (Sunday) 11:00-12:15

Meeting Room: Le Shan (Function Room)

Chairs: Dianhui Wang, China University of Mining and Technology, Northeastern University

Wei Dai, China University of Mining and Technology

Weitao Li, Hefei University of Technology

11:00 — 11:15	**1. Title:** Human Activity Recognition based on Ensemble Stochastic Configuration Networks **Author:** Wenhua Jiao (China University of Mining and Technologies), Ruilin Li (China University of Mining and Technology), Jianguo Wang (Beijing Chest Hospital)
11:15 — 11:30	**2. Title:** Adaptive Surrogate Model Coupled With Stochastic Configuration Network Strategies for Time-dependent Reliability Assessment **Author:** Huizhen Liu (School of Mechanical Engineering and Automation), Shangjie Li (School of Mechanical Engineering and Automation), Xianzhen Huang (School of Mechanical Engineering and Automation)
11:30 — 11:45	**3. Title:** Improved Compact SCNs for Water Quality Prediction in Wastewater Treatment Process **Author:** Kang Li (Beijing University of Technology), Junfei Qiao (Beijing University of Technology)
11:45 — 12:00	**4. Title:** Stochastic Configuration Network for Solving Ordinary Differential Equations **Author:** Shangjie Li (Northeastern University), Xianzhen Huang (Northeastern University)
12:00 — 12:15	**5. Title:** Fault Diagnosis of Indicator Diagram of Pumping Well Based on Stochastic Configuration Network **Author:** Baojun Zhao (Shenyang University of Technology), Chuanzhi Zang (Shenyang University of Technology), Na Li (Shenyang University of Technology), Peng Zeng (Shenyang Institute of Automation)

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