

# 11th International Conference on Information Science and Technology

ICIST2021 Final Program

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## Welcome Messages

On behalf of the Organizing Committee of the 13th International Conference on Information Science and Technology (ICIST2021), we welcome you to attend this event taking place in Chengdu, Sichuan, China during May 21-23, 2021. Thanks to the success of the previous events, ICIST has become a well-established series of popular and high-quality conferences on information science and technology. ICIST2021 aimed to provide a high-level international forum for scientists, engineers, and educators to present the state of the art of neural network research and applications in related fields. The conference also featured plenary speeches given by world renowned scholars, regular sessions with a broad coverage, and special sessions focusing on popular topics.

This year, the conference received 149 submissions. Each submission was reviewed by at least two, and on average three Program Committee members. After the rigorous peer reviews, the committee decided to accept 99 papers for publication in the proceedings accounting for 67% acceptance rate. These papers cover many topics on theory, methodology, and applications. In addition to the contributed papers, the conference technical program included two keynote speeches by renowned scholars: Prof. Tianyou Chai (IEEE Fellow, IFAC Fellow, and Academician of Chinese Academy of Engineering, Northeastern University) and Prof. Dacheng Tao (IEEE Fellow, ACM Fellow, Fellow of Australian Academy of Science, University of Sydney).

Many organizations and volunteers made great contributions toward the success of this conference. We would like to express our sincere gratitude to Sichuan University for its sponsorship, University of Electronic Science and Technology of China and City University of Hong Kong for their co-sponsorship, the IEEE Systems, Man and Cybernetics Society for its technical co-sponsorship. We would also like to sincerely thank all the committee members for their great efforts in organizing the conference. Special thanks to the Program Committee members and reviewers whose insightful reviews and timely feedback ensured the high quality of the accepted papers and the smooth flow of the conference. Finally, we would like to thank all the speakers, authors, and participants for their supports.

Yaochu Jin, Jun Wang, Jiuping Xu, Zhang Yi, General Chairs  
Hanxiong Li, Dujuan Wang, Yunqiang Yin, Organizing Chairs  
Jinliang Ding, Wenli Du, Jiancheng Lv, Program Chairs  
Wangli He, Jianbin Qiu, Tie Qiu, Program Co-Chairs

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## Program at a Glance

May 21, 2021 (Friday)			
10:00-17:00	<b>On-site Registration (Hotel lobby, 1<sup>st</sup> floor)</b>		
10:00-17:00	<b>Online sessions (S11-S16)</b>		
10:00-12:00	S11: Control Systems	S12: Classification and Pattern Recognition	
13:00-15:00	S13: Prediction and Forecasting	S14: Optimization	
15:00-17:00	S15: Information Processing	S16: Intelligent Systems	
17:30-19:00	<b>Welcome Reception (Phuket Island Restaurant, 1<sup>st</sup> floor, Wangjiang Club)</b>		
May 22, 2021 (Saturday)			
9:00-9:15	<b>Opening ceremony (Wufu Hall, 1<sup>st</sup> floor, Wufu Building)</b>		
9:15-10:15	<b>Plenary Speech I: Prof. Tianyou Chai</b>		
10:15-10:30	Tea break		
10:30-11:30	<b>Plenary Speech II: Prof. Dacheng Tao</b>		
11:30-13:00	<b>Lunch (Phuket Island Restaurant, 1<sup>st</sup> floor, Wangjiang Club)</b>		
13:30-17:30	<b>Parallel Sessions (S21-S26)</b>		
13:30-15:30	Sentosa Island Hall (4 <sup>th</sup> floor)	Brunei Room (2 <sup>nd</sup> floor)	Penang Island Room (2 <sup>th</sup> floor)
	S21: Control Theory	S22: Prediction and Classification	S23: Optimization
15:30-15:50	Tea break		
15:50-17:50	S24: Control Systems	S25: Pattern Recognition	S26: Communication and Hardware
18:00-19:30	<b>Banquet (Chiang Mail Hall, 2<sup>nd</sup> floor, Wangjiang Club)</b>		
May 23, 2021 (Sunday)			
8:00-12:00	<b>Parallel Sessions (S31-S34)</b>		
8:00-9:40	Brunei Room (2 <sup>nd</sup> floor)	Penang Island Room (2 <sup>nd</sup> floor)	
	S31: Industrial applications	S32: Intelligent Systems	
9:40-10:00	Tea break		
10:00-12:00	S33: Image Processing	S34: Scheduling Problems	
12:00-13:00	<b>Lunch (Phuket Island Restaurant, 1<sup>st</sup> floor, Wangjiang Club)</b>		
13:00-17:20	<b>Parallel Sessions (S35-S37)</b>		
13:00-15:00	Brunei Room (2 <sup>nd</sup> floor)	Penang Island Room (2 <sup>nd</sup> floor)	
	S35: Data and Language Processing	S36: Multi-agent Systems	
15:00-15:20	Tea break		
15:20-17:00	S37: Neural networks		
Adjournment			

**Link to enter the plenary session:**

ICIST 2021

238 306 270

09:00

3小时

12:00


2021年05月22日

(GMT+08:00)

2021年05月22日



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## Plenary Speech I

### **Title: CPS Driven Control System**

**Professor Tianyou Chai**, Northeastern University, Shenyang, China

Member of Chinese Academy of Engineering, IFAC Fellow and IEEE Fellow

**Abstract:** China has abundance of mineral resources such as magnesite, hematite and bauxite, which constitute a key component of its economy. The relatively low grade, and the widely varying and complex compositions of the raw extracts, however, pose difficult processing challenges including specialized equipment with excessive energy demands. The energy intensive furnaces together with widely uncertain features of the extracts form hybrid complexities of the system, where the existing modeling, optimization and control methods have met only limited success. Currently, the mineral processing plants generally employ manual control and are known to impose greater demands on the energy, while yielding unreasonable waste and poor operational efficiency. The recently developed Cyber-Physical System (CPS) provides a new key for us to address these challenges. The idea is to make the control system of energy intensive equipment into a CPS, which will lead to a CPS driven control system.

This talk presents the syntheses and implementation of a CPS driven control system for energy-intensive equipment under the framework of CPS. The proposed CPS driven control system consists of four main functions: (I) setpoint control; (II) tracking control; (III) self-optimized tuning; and (IV) remote and mobile monitoring for operating condition. The key in realizing the above functions is the integrated optimal operational control methods to implement setpoint control, tracking control and self-optimized tuning together seamlessly. This talk introduces the integrated optimal operational control methods we proposed.

Hardware and software platform of CPS driven control system for energy-intensive equipment is then briefly introduced, which adopts embedded control system, wireless network and industrial cloud. It not only realizes the functions of computer control system using DCS (PLS), optimization computer and computer for abnormal condition identification and self-optimized tuning, but also achieves the functions of mobile and remote monitoring for industrial process.

Then, using fused magnesium furnace as an example, a hybrid simulation system for CPS driven control system for energy-intensive equipment developed by our team is introduced. The results of simulation experiments show the effectiveness of the proposed method that integrates the setpoint control, tracking control, self-optimized

tuning and remote and mobile monitoring for operating condition in the framework of CPS.

The industrial application of the proposed CPS driven control system is also discussed. It has been successfully applied to the largest magnesia production enterprise in China, resulting in great returns. Finally, future research on the CPS driven control system is outlined.



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 260 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: (Re-)building Trust in Deep Learning**

**Professor Dacheng Tao**, the University of Sydney, Sydney, Australia  
Fellow of the Australian Academy of Science, AAAS Fellow, ACM Fellow and IEEE Fellow

**Abstract:** The world is in the eve of the enthusiasm revolution by deep learning sweeping across almost all sectors of our society. Concerns are rising when the deployment has happened in the security critic domains, including autonomous vehicles and medical diagnosis. Fatal disasters on road, infamous privacy breaches, and shocking discrimination scandals undermine public confidence in deep learning applications. In this talk, we will present our perspectives, theory, and practice in (re-)building trust in deep learning.



Dacheng Tao is the Inaugural Director of the JD Explore Academy and a Vice President of JD.com. He is also an advisor of the digital science institute in the University of Sydney. He mainly applies statistics and mathematics to artificial intelligence and data science, and his research is detailed in one monograph and over 200 publications in prestigious journals and proceedings at leading conferences. He received the 2015/2020 Australian Eureka Prize, the 2018 IEEE ICDM Research Contributions Award, and the 2021 IEEE Computer Society McCluskey Technical Achievement Award. He is a fellow of the Australian Academy of Science, AAAS, ACM and IEEE.

**Online Sessions: The online session platform is the Tencent Meeting (VooV outside mainland China (<https://voovmeeting.com/>))**

**May 21, 2021 (Friday): 10:00-12:00**

**Meeting ID: 276 347 674**

**Meeting Link: <https://meeting.tencent.com/s/GdBn7Kpyku1N>**

**Chairs: Dawei Ding and Tieshan Li**

<b>Time</b>	<b>Session 11: Control Systems</b>
10:00 — 10:20	Liyan Zhu and Tieshan Li Observer-Based Adaptive Fuzzy Control for Intelligent Ship Autopilot with State Constraint
10:20 — 10:40	Lin Tian, Yang Xu, Wenchao Xue and Long Cheng. On Consistent Extended Kalman Filter Design for Maneuvering Target Tracking
10:40 — 11:00	Sijia Fan, Min Ma and Tong Wang Command filter based event-triggered adaptive control for strict-feedback nonlinear systems with full state constraints
11:00 — 11:20	Yunxi Zhang and Haibin Sun Disturbance observer based on NTSM output tracking control for second-order systems with power integrators and input quantization
11:20 — 11:40	Xiangfei Meng, Mengmeng Lv, Qiang Zhang, Yan Zhang, Yancai Hu and Wenxue Su Path Following Control of Ship Based on Concise Nonlinear Feedback Technique
11:40 — 12:00	Dongyu Zhang, Dawei Ding, Zeming Zhao and Xianggui Guo Adaptive Memory Event-triggered Control for Multi-agent Systems under External Disturbance

**May 21, 2021 (Friday): 10:00-12:00**

**Meeting ID: 229 938 445**

**Meeting Link: <https://meeting.tencent.com/s/s5tgi2p6JWhy>**

**Chairs: Man-Fai Leung and Hangjun Che**

<b>Time</b>	<b>Session 12: Classification and Pattern Recognition</b>
10:00 — 10:20	Qi Yan, Jinyan Wang and Songfeng Liu Differential Private Decision Tree Based on Pearson's Correlation Coefficient
10:20 — 10:40	Zihang Wang, Lin Zhou, Shuai Jiang and Wei Huang EPnet: A general network to predict enhancer-promoter interactions
10:40 — 11:00	Pengcheng Li, Zihao Dong, Jianjie Shi, Zengzhi Pang and Jinping Li Detection of Small Size Defects in Belt Layer of Radial Tire Based on Improved Faster R-CNN
11:00 — 11:20	Man-Chung Yuen, Sin-Chun Ng, Man-Fai Leung and Hangjun Che Metaheuristics for Index-tracking with Cardinality Constraints
11:20 — 11:40	Yunlong Sun, Xiaoyun Chang, Yi Sun and Xiangbo Lin SegPoseNet: Segmentation-Guided 3D Hand Pose Estimation
11:40 — 12:00	Yunan Qiu, Zhenyu Lu, Shiyang Yan and Yijun Chai An Improved Neutrosophic C-means Clustering with Convolutional Neural Networks for Change Detection in Synthetic Aperture Radar Images

**May 21, 2021 (Friday): 13:00-15:00**

**Meeting ID: 807 323 193**

**Meeting link: <https://meeting.tencent.com/s/qyMmr74I6Vql>**

**Chairs: Lihchyun Shu and Liping Zhang**

<b>Time</b>	<b>Session 13: Prediction and Forecasting</b>
13:00 — 13:20	Shanshan Li and Yong He Dynamic Sourcing Strategies for Supply Disruptions under Consumer Stockpiling and Observational Learning
13:20 — 13:40	Chaochao Zhao, Min Han and Jun Wang A Quantized Kernel Least-mean-square Algorithm Based on Echo State Network for Online Time-series Prediction
13:40 — 14:00	Genxuan Hong, Zhanquan Wang, Taoli Han and Hengming Ji Spatiotemporal Multi-Graph Convolutional Network for Taxi Demand Prediction
14:00 — 14:20	Liping Zhang, Jiayi Zeng, Shangwen Peng, Junjie Wang and Qiuhua Tang Demand Forecasting for Shared Umbrella using BP Neural Network
14:20 — 14:40	Lihchyun Shu and Ju-Kun Chou Using Deep Learning Techniques to Predict 10-Year US Treasury Yield
14:40 — 15:00	Haitao Yu, Jiao Gui, Zilong Zhao, Randong Xiao and Du Yong Analysis and forecast of taxi transport capacity in railway station: A case of Beijing West Railway Station

**May 21, 2021 (Friday): 13:00-15:00**

**Meeting ID: 639 668 555**

**Meeting link: <https://meeting.tencent.com/s/EFcBdaDpWaqD>**

**Chairs: Man-Fai Leung and Jiasen Wang**

<b>Time</b>	<b>Session 14: Optimization</b>
13:00 — 13:20	Qiang Peng, Husheng Wu and Qiming Zhu An interactive wandering Wolf Pack algorithm for solving High-dimensional complex functions
13:20 — 13:40	Qiming Zhu and Husheng Wu A review of intelligent optimization algorithm applied to unmanned aerial vehicle swarm search task
13:40 — 14:00	Man-Fai Leung and Jun Wang A Two-Timescale Neurodynamic Approach to Minimax Portfolio Optimization
14:00 — 14:20	Hongzong Li, Jiasen Wang and Jun Wang Solving the Travelling Salesman Problem Based on Collaborative Neurodynamic Optimization with Discrete Hopfield Networks
14:20 — 14:40	Enhong Liu, Dan Su, Liangming Chen, Long Jin, Xiuchun Xiao and Dongyang Fu An attempt of applying the Lagrange-type 1-step-ahead numerical differentiation method to optimize the SGD algorithm in deep learning
14:20	Rongjun Man, Yanyan Wang and Wanmeng Zhao

— 14:40	Storage Assignment Optimization for Fishbone Robotic Mobile Fulfillment Systems
14:40 — 15:00	Zhuo Shi, Shuzhen Zeng and Xiaonan Luo Research on Simplified Mesh Deformation Based on Differentiable Computation

**May 21, 2021 (Friday): 15:00-17:00**

**Meeting ID: 172 883 221**

**Meeting link: <https://meeting.tencent.com/s/3AFUDk5iJFIB>**

**Chairs: Daniel Romero and Hongfeng Wang**

Time	Session 15: Information Processing
15:00 — 15:20	Lei Hao, Hongfeng Wang and Qi Yan A data-driven storage assignment strategy for automated pharmacy
15:20 — 15:40	Rahul Kumar Jaiswal and Daniel Romero Wiener Filter Based Speech Enhancement Under Noisy Environments
15:40 — 16:00	Tingyu Zhang, Zhuxi Chen and Li Li A Hungarian-based Heuristic for Dual-command Storage/Retrieval in Single-machine Flow-rack AS/RS with Determined Locations
16:00 — 16:20	Mohammed Faisal, Mohammed Algabri and Mohamed Abdelkader Bencherif 2BEDM: Brightness-Based Enhancement for Disparity Maps
16:20 — 16:40	Zhongqing Wang, Yan Yang and Yingli Zhong Top-k Graph Similarity Search Based on Hierarchical Inverted Index
16:20 — 16:40	Qiang Liu, Min Han and Jun Wang An Aerial Image Stitching Algorithm Based on Long-distance Features
16:40 — 17:00	Hao Tang, Ming Zhan, Liangxi Liu, Mingjuan Qiu and Qian Zhang Segmented CRC-Aided Order Statistical Decoding with Multiple Biases for Short Polar Codes

**May 21, 2021 (Friday): 15:00-17:00**

**Meeting ID: 603 223 053**

**Meeting link: <https://meeting.tencent.com/s/j39eX6RA3EPO>**

**Chairs: Xinyi Le and Zhuo Shi**

Time	Session 16: Intelligent Systems
15:00 — 15:20	Xun Zhang, Kehao Wang and Wenfeng Dai Multi-UAVs Task Assignment Based on Fully Adaptive Cross-Entropy Algorithm
15:20 — 15:40	Junzheng Li, Dong Pang, Yu Zheng and Xinyi Le A Flexible Manufacturing Assembly System Based on Deep Reinforcement Learning
15:40 — 16:00	Shengying Zhao and Xiangyuan Lu Accounts Receivable Financing and Supply Chain Coordination under the Government Subsidy
16:00 — 16:20	Wencong Zhao, Renqian Zhang, Xi Yuan and Kaiping Luo An Improved Variable Neighborhood Search Algorithm for the Solid Waste Collection and Transportation Problem with Split Deliveries

16:20 — 16:40	Junqi Zhang, Peng Zu and Huan Liu Learning Automata-Based Multi-target Search Strategy Using Swarm Robotics
16:40 — 17:00	Xinghua Liu and Siwei Qiao Robust $H_\infty$ sliding mode load frequency control of multi-area power system

**May 22, 2021 (Saturday): 13:30-15:30**

**Meeting room: Sentosa Island Hall**

**Chairs: Yuming Feng and Yuyang Zhao**

<b>Time</b>	<b>Session 21: Control Theory</b>
13:30 — 13:50	Shalin Tong, Jie Zhong and Bowen Li. Structural Controllability of Boolean Control Networks with Known Nodes Coupling Relationships
13:50 — 14:10	Runsheng Guo, Kangkang Sun and Jianbin Qiu. Adaptive Output Feedback Boundary Stabilization for First-order Hyperbolic Distributed Parameter Systems
14:10 — 14:30	Yuyang Zhao Output Controllability of Mix-valued Logic Control Networks
14:30 — 14:50	Xin Ming, Yuming Feng, Liyuan Qi and Wei Zhang Alternate Control Time Delay System with Input Delay
14:50 -- 15:10	Jingfeng Zhou, Jianmin Cao and Manfeng Hu. Discrete Event-Triggered $H_\infty$ Control of NMJS with Unknown Transition Rates under Quantized Mechanism
15:10 -- 15:30	Meng Wang, Wenqiang Ji and Yue Li. A Novel Memory Output Feedback Controller Design for Piecewise Affine Systems

**May 22, 2021 (Saturday): 13:30-15:30**

**Meeting room: Brunei**

**Chair: Yadi Wang**

<b>Time</b>	<b>Session 22: Prediction and Classification</b>
13:30 — 13:50	Randong Xiao, Jiajia Zhu, Zilong Zhao, Haitao Yu and Du Yong. A passenger flow prediction method for bus lines based on multiple stepwise regression analysis
13:50 — 14:10	Zhongyi Hu, Qi Wu, Changzu Chen and Lei Xiao. Alzheimer's disease diagnosis method based on convolutional neural network using key slices voting
14:10 — 14:30	Shuhao Zhang, Lei Mu, Wei Xiao, Huanhuan Huang and Yan Xiang A Prediction Method of Elderly Cognitive Impairment Based on Edge Intelligence and Multimodal Perception
14:30 — 14:50	Jingbo Sun, Hongzu Su, Yue Xie and Jingjing Li. Low-Rank Transfer Learning for Multi-stream Data Classification
14:50 — 15:10	Jie Bai, Rui Han and Chengan Guo. A Hybrid Convolutional Network for Prediction of Anti-cancer Drug Response
15:10 — 15:30	Qian Ge, Guangbin Zhang and Xiaofeng Zhang. Automatic detection of Epilepsy based on EMD-VMD feature components and ReliefF algorithm

**May 22, 2021 (Saturday): 13:30-15:30**

**Meeting room: Penang Island**



**Chair: Huiwei Wang**

Time	Session 23: Optimization
13:30 — 13:50	Jia-Yu Wu, Min-Xia Zhang, Xue Wu and Yu-Jun Zheng. A Water Wave Optimization Algorithm for Order Selection and Delivery Path Optimization for Takeaway Deliverymen
13:50 — 14:10	Dongli Wang, Dashan Li, Yan Zhou and Jinzhen Mu. Improved Mushroom Reproduction Optimization for Robot Path Planning
14:10 — 14:30	Wei Ren, Yingjie Wei and Cong Wang Optimal Algorithm of Dual-satellite Navigation Information Based on Inertial Assistance
14:30 — 14:50	Xiwen Bao, Bo Zhou and Huiwei Wang Distributed Event-Triggered Projection Subgradient Algorithm over Unbalanced Digraphs Based on Row Stochastic Matrices
14:50 — 15:10	Jiaojiao Yan, Jinde Cao and Qingshan Liu Continuous-Time Algorithm for Multi-Agent Optimization with Global Coupled Constraints
15:10 — 15:30	Jian Yang and Yuhui Shi Adaptive Coordinated Motion Control for Swarm Robotics Based on Brain Storm Optimization

**Tea break 15:30-15:50****May 22, 2021 (Saturday): 15:50-17:50****Meeting room: Sentosa Island Hall****Chairs: Bo Zhao and Lu Liu**

Time	Session 24: Control Systems
15:50 — 16:10	Li-Ying Hao, Ying Yu and Hui Li. Fault-tolerant Control for Unmanned Marine Vehicles subject to Mismatched Quantization
16:10 — 16:30	Mingyu Fu, Yan Ji and Yujie Xu. Robust Fault Tolerant Control of Dynamic Positioning Ships based on Typical Actuator Constraints
16:30 — 16:50	Qiuye Wu, Qiliang Luo, Weichen Luo, Derong Liu and Bo Zhao. Decentralized Tracking Control for Modular Reconfigurable Robots Using Data-Based Concurrent Learning
16:50 — 17:10	Qiuyue Sun, Zhouhua Peng, Dan Wang, Haoliang Wang, Lu Liu and Anqing Wang Learning to Control of an Under-actuated Autonomous Surface Vehicle Based on Model-based Deep Reinforcement Learning
17:10 — 17:30	Xinghua Liu and Siwei Qiao Robust $H_\infty$ sliding mode load frequency control of multi-area power system
17:30 — 17:50	Shu Sun, Cheng Lian and Xiaoping Wang. Down-Level Control Based on Level Prediction of Landslide Evolutionary State

**May 22, 2021 (Saturday): 15:50-17:50****Meeting room: Brunei**

**Chairs: Wangli He and Xing He**

<b>Time</b>	<b>Session 25: Pattern Recognition</b>
15:50 — 16:10	Zhizhang Li, Junjian Huang, Xing He and Hangjun Che. Navigational assistance for visually impaired individuals with dual-view RealSense
16:10 — 16:30	Ye Li, Xiaoyu Luo, Shaoqi Hou, Chao Li and Guangqiang Yin. End-to-end Network Embedding Unsupervised Key Frame Extraction for Video-based Person Re-identification
16:30 — 16:50	Ar Junejo, Nauman Ullah Gilal and Xiang Li. Molecular Diagnosis: And using Ubiquitous Transcription Factor and MAPK to recover Thyroid Cells of hyperthyroidism
16:50 — 17:10	Yudi Tang, Bing Wang, Wangli He and Feng Qian. PointDet: An Object Detection Framework Based On Human local Features
17:10 — 17:30	Yan Zhou, Siqi Tan, Dongli Wang and Jinzhen Mu Actor Spatiotemporal Relation Networks for Group Activity Recognition
17:30 — 17:50	Mian Li, Xiaoping Wang and Zhanfei Chen Fully Circuit Implementation of a Two-layer Memristive Neural Network for Pattern Recognition

**May 22, 2021 (Saturday): 15:50-17:30**

**Meeting room: Penang Island**

**Chair: Shenshen Gu**

<b>Time</b>	<b>Session 26: Communication and Hardware</b>
15:50 — 16:10	Lan Ma, Yirui Cong, Xiangke Wang and Huiming Li Formation Maintenance of Large-Scale Unmanned Aerial Vehicles Under Wireless Channels
16:10 — 16:30	Guoqiang Wang, Yuanyuan Jiang, Xin Cao, Xiaoduo Li and He Luo Fast Generation of Optimal Topology for 3D Wireless Sensor Networks
16:30 — 16:50	Yupei Yang, Yifan Song and Shaofu Yang Distributed Constrained Online Optimization with Noisy Communication
16:50 — 17:10	Chi Jin, Qinglin Wang, Yang Zhao and Yong Dou Parallelization of Fast Monte Carlo Dose Calculation for Radiotherapy Treatment Planning on the ARMv8 Architecture
17:10 — 17:30	Jin Wang and Shenshen Gu FPGA Implementation of Object Detection Accelerator Based on Vitis-AI

**May 23, 2021 (Sunday): 8:00-9:40**

**Meeting room: Brunei**

**Chairs: Zhouhua Peng and Lu Liu**

<b>Time</b>	<b>Session 31: Industrial applications</b>
08:00 — 08:20	Longchang Zhang Uncertain Service Skyline Queries Based on Cloud Model in Mobile Application
08:20 — 08:40	Zipeng Huang, Lu Liu, Dan Wang, Haoliang Wang and Zhouhua Peng Collision-free Cooperative Kinematic Guidance Laws for Multiple Unmanned Surface

	Vehicles Subject to Static and Dynamic Obstacles
08:40 — 09:00	Zhangcheng Feng, Wenyong Xu, Jinde Cao and Shaofu Yang Distributed Alternated-Inertia Generalized Nash Equilibrium Seeking Algorithm: The Partial-Decision-Information Case
09:00 — 09:20	Lu Wang, Huidong Wang and Chuanzheng Bai A New Multi-Prototype Based Clustering Algorithm
09:20 — 09:40	Yiliang Li, Biao Wang and Jun-E Feng A Method To Identify f the Delay Parameter for Time-Delay Boolean Networks

**May 23, 2021 (Sunday): 8:00-9:40**

**Meeting room: Penang Island**

**Chairs: Lin Xiao and Jianquan Lu**

Time	Session 32: Intelligent Systems
08:00 — 08:20	Ping Liu, Lin Xiao, Yongjun He and Lei Jia. A Novel-restraint and Predefined-time ZNN Model for Time-dependent Matrix Inversion
08:20 — 08:40	Zhiguang Wang, Zhaoyu Wei, Yuehui Teng, Caoyang Yu, Baoheng Yao and Lian Lian. Research and design of a new hybrid energy positive buoyancy autonomous vehicle
08:40 — 09:00	Bowen Li, Jianquan Lu, Rongjian Liu and Jie Zhong Distributed diagnosis of discrete-event systems under dynamic event observation
09:00 — 09:20	Luyao Du, Wei Chen, Zhonghui Pei, Jing Ji, Bingming Tong and Hongjiang Zheng. Design of Data Acquisition System with High Precision for Lane-change Behavior Detection Applied in Intelligent and Connected Vehicles
09:20 — 09:40	Xuegang Tan and Jinde Cao Self-triggered Impulsive Synchronization of Multi-agent Systems with Encrypted Communication

**Tea break 9:40-10:00**

**May 23, 2021 (Sunday): 10:00-12:00**

**Meeting room: Brunei**

**Chair: Wenshan Fan**

Time	Session 33: Image Processing
10:00 — 10:20	Yuchao Guo, Yuan Fan, Gaofeng Pan and Cheng Song. A Visual SLAM Image Mismatching Filter Algorithm Based on Progressive Sample Consensus
10:20 — 10:40	Shaoqi Hou, Dongdong Fang, Yixi Pan, Ye Li and Guangqiang Yin. Hybrid Pyramid Convolutional Network for Multi-scale Face Detection
10:40 — 11:00	Lingyu Zhou, Xiuyuan Xu, Kai Zhou and Jixiang Guo LTS-NET: Lung Tissue Segmentation from CT Images using Fully Convolutional Neural Network
11:00 —	Wenshan Fan A Fast and Realistic Bloom Rendering Method for Large Scale 3D Scene

11:20	
11:20 — 11:40	Yan Zhou, Biye Li, Dongli Wang and Jinzhen Mu 2D Grid map for navigation based on LCSD-SLAM

**May 23, 2021 (Sunday): 10:00-12:00**

**Meeting room: Penang Island**

**Chairs: Xing He and Yuyan Han**

Time	Session 34: Scheduling Problems
10:00 — 10:20	Yao-Hua Wu, Hong-Lin Zhang and Zai-Xing Sun. EHEFT-R: Multi-Objective Task Scheduling Scheme in Cloud Computing
10:20 — 10:40	Xujin Pu, Lichao Li and Yaping Fu. Multi-objective Stochastic Home Health Care Routing and Scheduling Problem with Multiple Care Centers
10:40 — 11:00	Haoxiang Qin, Yuyan Han, Junqing Li, Hongyan Sang, Qingda Chen, Leilei Meng and Biao Zhang. A Quick and Effective Iterated Greedy Algorithm for Energy-Efficient Hybrid Flow Shop Scheduling Problem with Blocking Constraint
11:00 — 11:20	Xinchao Zhao, Hao Hao, Hua Qu and Zhiyu Li. Research on Single-deport Multi-line vehicle scheduling problem based on DP-TABU algorithm
11:20 — 11:40	Xue Han, Yuyan Han and Yiping Liu. An improved iterated greedy algorithm for the distributed flow shop scheduling problem with sequence-dependent setup times
11:40 — 12:00	Shifan Wen and Xing He. Distributed Optimization Strategy for Energy Scheduling Game in Microgrid Management System

**Lunch break 12:00-13:00**

**May 23, 2021 (Sunday): 13:00-15:00**

**Meeting room: Brunei**

**Chairs: Jianchao Fan and Xiangguang Dai**

Time	Session 35: Data and Language Processing
13:00 — 13:20	Yao Xiao, Xiangguang Dai, Xiangqin Dai and Nian Zhang. Truncated Cauchy Supervised Discrete Hashing
13:20 — 13:40	Tianzhong Lan, Jingwei Li, Xiuyuan Xu, Chengdi Wang, Zhang Yi, Weimin Li and Jixiang Guo. A Deep Learning Based Method for Structuring the Chinese Pathological Reports of Lung Specimen
13:40 —	Yaru Zhang and Xijin Tang. CLACTA: Comment-Level-Attention and Comment-Type-Aware for Fake News Detection

14:00	
14:00	Guoyong Cai, Hongyu Li and Tian Lan
—	Opinion Targets and Sentiment Terms Extraction based on Self-Attention
14:20	
14:20	Linlin Tan, Cheng Xing, Xinzhe Wang and Jianchao Fan
—	Mangrove Information Extraction Based on Multi-source Remote Sensing Images
14:40	
14:40	Keyu Xiang, Haiming Liang, Zhaoxia Guo and Yucheng Dong
—	Measuring the efficiency of highly funded scientists in China based on the data envelopment analysis
15:00	

**May 23, 2021 (Sunday): 13:00-15:00**

**Meeting room: Penang Island**

**Chairs: Jianbin Qiu and Jiejie Chen**

Time	Session 36: Multi-agent Systems
13:00	Yunfan Zhang, Yifan Su and Feng Liu.
—	Protocol for Constrained Multi-Agent Optimization with Arbitrary Local Solvers
13:20	
13:20	Xiaoxiao Lv and Jinde Cao.
—	Impulsive Local Leader-following Consensus and Estimation of Domain of Attraction of Multi-agent Systems with Actuator Saturation
13:40	
13:40	Anqing Wang, Lu Liu and Jianbin Qiu.
—	Cooperative Output Tracking of Heterogeneous Uncertain Nonlinear Multi-Agent Systems via Distributed Event-Triggered Adaptive Fuzzy Control
14:00	
14:00	Xiaotong Zhou and Liguo Tan.
—	Designing Event-Triggered Prescribed-Time Consensus and Containment Control of Multi-Agent Systems Under Directed Graphs
14:20	
14:20	Jiejie Chen, Boshan Chen, Zhigang Zeng and Ping Jiang.
—	Impulsive Containment Control for Linear Multi-Agent Systems with Self-Feedback and Aperiodic Sampling
14:40	
14:40	Jing Tian and Wenfeng Hu
—	Bearing-only Formation Control of First-Order Discrete-Time Multi-Agent Systems
15:00	

**Tea break: 15:00-15:20**

**May 23, 2021 (Sunday): 15:20-17:00**

**Meeting room: Brunei**

**Chairs: Sitian Qin and Peng Liu**

Time	Session 37: Neural networks
15:20	Yunliu Li, Minglin Xu, Junwei Sun, Na Liu, Peizhao Yu and Peng Liu.
—	Finite-time Synchronization of Fractional-Order Neural Networks With Time-Varying Delays
15:40	
15:40	Wenqiang Ji, Qifu Qu, Junhua Gu, Meng Wang and Yiwei Zhao.

— 16:00	Improved Synthesis and Analysis Results on Synchronization of T-S Fuzzy Neural Network Systems
16:00 — 16:20	Qingfa Li, Sitian Qin and Wei Bian. Neural Network for A Class of Sparse Optimization in Machine Learning Problems
16:20 — 16:40	Yafei Song and Guoyong Cai. Mutual Attention Graph Neural Network Based on Joint Representation of Nodes and Reviews for Recommendation
16:40 — 17:00	Sutong Wang, Yunqiang Yin, Dujuan Wang, Zehui Lv, Yanzhang Wang and Yaochu Jin. An Interpretable Deep Neural Network Method for Polyp Diagnosis Under Colonoscopy

END

# Eleventh International Conference on Intelligent Control and Information Processing

December 3 - 7, 2021

Dali, Yunnan, China

## Call for Papers

<https://conference.cs.cityu.edu.hk/icicip/>

Sponsors and Organizers: Dali University

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The 11th International Conference on Intelligent Control and Information Processing (ICICIP2021) will be held in Dali, Yunnan, China during December 3-7, 2021, following the successes of previous events. Situated between Cangshan Mountain and Erhai Lake in southwestern China, in the site of ancient Nanzhao Kingdom (738-937AD) and Dali Kingdom (937-1253AD) as an entry in the tentative list of UNESCO World Heritages, Dali is a multicultural city and an autonomous prefecture with many ethnic minorities living there for thousands of years. ICICIP2021 aims to provide a high-level international forum for scientists, engineers, and educators to present the state of the art of research and applications in related fields. The conference will feature plenary speeches given by world renowned scholars, regular sessions with broad coverage, and special sessions focusing on popular topics.

### Call for Papers and Special Sessions

Prospective authors are invited to contribute high-quality papers to ICICIP2021. In addition, proposals for special sessions within the technical scopes of the symposium are solicited. Special sessions, to be organized by internationally recognized experts, aim to bring together researchers in special focused topics. Papers submitted for special sessions are to be peer-reviewed with the same criteria used for the contributed papers. Researchers interested in organizing special sessions are invited to submit formal proposals to ICICIP2021. A special session proposal should include the session title, a brief description of the scope and motivation, names, contact information and brief biographical information on the organizers.

**Topic Areas:** *Topics of contributing papers include, but are not limited to, the following areas:*

### Intelligent Control and Automation

Autonomous systems, linear and nonlinear control, learning and adaptive control, intelligent control, optimization-based and optimal control, fault detection and identification, hybrid intelligent systems, networked control, fuzzy logic control, industrial automation, neural control, process control, robot control, mechatronic systems, environmental monitoring and control, intelligent manufacturing systems, microprocessor-based control, motor control, power systems, vehicle control, aerospace applications, and other applications.

### Intelligent Information Processing

Machine learning, adaptive filtering, signal processing, audio/speech processing and coding, higher order spectral analysis, nonlinear & blind signal processing, neural signal processing, component analysis array signal processing, array signal processing, parallel and distributed processing, time series analysis, multimedia signal processing, design and implementation of signal processing systems, DSP Implementations and embedded systems, image and multidimensional signal processing, image processing & understanding, computer vision & pattern recognition, bioimaging and signal processing, multimedia communications, computer vision & virtual reality, next generation mobile communications, communication signal processing, modulation and channel coding, network coding, sensor networks, cryptography and information security and other applications.

### Paper Submission

Authors are invited to submit full-length papers (8 pages maximum) by the submission deadline through the online submission system. Potential organizers are also invited to enlist five or more papers with cohesive topics to form special sessions. The submission of a paper implies that the paper is original and has not been submitted under review or is not copyright-protected elsewhere and will be presented by an author if accepted. All submitted papers will be refereed by experts in the field based on the criteria of originality, significance, quality, and clarity. The authors of accepted papers will have an opportunity to revise their papers and take consideration of the referees' comments and suggestions. All accepted papers are expected to be included in IEEE Xplore and indexed by EI. Selected high-quality papers will be included in several journal special issues.

### Important Dates

Special session proposals deadline.....July 1, 2021  
Paper submission deadline..... August 1, 2021  
Notification of acceptance.....September 1, 2021  
Camera-ready copy and author registration.....October 1, 2021

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