

31st International Conference on Parallel and Distributed Systems

14-17 December 2025 · Hefei, China

Ubiquitous Computing for Global Communities





Ubiquitous Computing for Global Communities - Hefei, China

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Ubiquitous Computing for Global Communities - Hefei, China

WELCOME MESSAGE

We are very pleased to welcome you to Hefei, China, for the 31st IEEE International Conference on Parallel and Distributed Systems (ICPADS 2025).

Hefei is a dynamic city blending technological innovation with cultural heritage. As cohosts, we have worked closely with the IEEE Computer Society to plan a broad program of interesting, challenging, and thought-provoking sessions to facilitate scholarly exchanges about how we approach the task of enhancing research and application in parallel and distributed systems within a rapidly changing computational context.

Under the theme, "Ubiquitous Computing for Global Communities," global pioneers will convene in Hefei to discuss, debate, and deliberate on this cutting-edge subject.

Distinguished keynote speakers: Prof. Qiang Yang; Prof. Jie Wu; Prof. Jiangchuan Liu; Prof. Laurence Tianruo Yang; Prof. Yanyong Zhang; Prof. Wei Zhang; Prof. Chengzhong Xu; Prof. Yunhuai Liu.

This year's conference will focus on a range of vital sub-themes, including:

AIGC & Multi-Agent Parallel Computing

Big Data & Foundation Models

Big Data and Machine Learning Systems

Blockchain & Activation of Data Value

Cloud & Edge Computing

Data Security and Privacy Protection

Distributed Storage

Distributed System and Ubiquitous Intelligence

Industrial Informatics & Internet

Information Security

Intelligent Data Processing & Management

Interdisciplinary Distributed System and IoT Applications

Networked Computing for Embodied AI

Security and Privacy in Mobile and Ubiquitous Systems

Smart Sensing and Information Processing

System and Applied Data Science

Wireless and Mobile AloT

We wish all of us a very pleasant and wonderful conference.



Ubiquitous Computing for Global Communities - Hefei, China

PROGRAM OVERVIEW

15 December 2025, Monday (CST, UTC+8)				
09:00-10:40	Keynote: Robust Autonomous Driving in Mixed Traffic Prof. Chengzhong Xu Keynote: Networked Multimedia Data Analytics in Challenging Environments: Experiences and Solutions Prof. Jiangchuan Liu	Milan Hall		
08:30-10:15	Session 1: Blockchain & Activation of Data Value I	Paris Hall		
08:30-10:15	Session 2: Information Security I	Huangshan Hall		
08:30-10:15	Session 3: Information Security II	Tongqing Hall A		
08:30-10:15	Session 4: Big Data and Machine Learning Systems I	Tongqing Hall B		
08:30-10:15	Session 5: AIGC & Multi-Agent Parallel Computing I	Tianzhu Hall		
10:15-10:30 10:30-12:00	Coffee Break Session 6: AIGC & Multi-Agent Parallel Computing II	Paris Hall		
10:30-12:00	Session 7: Intelligent Data Processing & Management I	Huangshan Hall		
11:00-12:00	Session 8: Smart Sensing and Information Processing I	Milan Hall		
10:30-12:00	Session 9: Data Security and Privacy Protection I	Tongqing Hall A		
10:30-12:00	Session 10: Distributed System and Ubiquitous Intelligence I	Tongqing Hall B		
10:30-12:00	Session 11: AIGC & Multi-Agent Parallel Computing III	Tianzhu Hall		
12:00-14:00 14:00-15:45	Lunch Session 12: Wireless and Mobile AIoT	Doha Cafeteria Paris Hall		
14:00-15:45	Session 13: Big Data and Machine Learning Systems II	Huangshan Hall		
14:00-15:45	Session 14: Smart Sensing and Information Processing II	Milan Hall		
14:00-15:45	Session 15: Big Data & Foundation Models I	Tongqing Hall A		
14:00-15:45	Session 16: Big Data & Foundation Models II	Tongqing Hall B		
14:00-15:45	Session 17: Security and Privacy in Mobile and Ubiquitous Systems	Tianzhu Hall		
15:40-16:05	Coffee Break			
16:05-17:50	Session 18: Big Data & Foundation Models III	Paris Hall		
16:05-17:50	Session 19: Blockchain & Activation of Data Value II	Huangshan Hall		
16:05-17:50	Session 20: Smart Sensing and Information Processing III	Milan Hall		
16:05-17:50	Session 21: Distributed System and Ubiquitous Intelligence II	Tongqing Hall A		
16:05-17:50	Session 22: Intelligent Data Processing & Management II	Tongqing Hall B		
16:05-17:50	Session 23: System and Applied Data Science	Tianzhu Hall		
18:00-20:00	Dinner	Doha Cafeteria		



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PROGRAM OVERVIEW

16 Decembe	er 2025, Tuesday (CST, UTC+8)	
09:00-09:30	Opening Ceremony	International Hall
09:30-10:15	Keynote: On Joint VM and Bandwidth Scheduling in a DCN Prof. Jie Wu	International Hall
10:15-10:30	Coffee Break	
10:30-11:15	Keynote: Cyber-Physical-Social Intelligence Prof. Laurence Tianruo Yang	International Hall
11:15-12:00	Keynote: Sensing with Millimeter-Wave Radar Prof. Yanyong Zhang	International Hall
12:00-14:00	Lunch	Doha Cafeteria
14:00-14:45	Keynote: AI-Powered Radio Maps for Low-Altitude Economy Prof. Wei Zhang	International Hall
14:45-15:30	Keynote: Metal Large Deformation Computations for Industry IOT Prof. Yunhuai Liu	International Hall
15:30-16:00	Coffee Break	International Hall
16:00-17:00	Posters	International Hall-Section A
18:00-20:00	Banquet	International Hall-Section B&C



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PROGRAM OVERVIEW

17 December 20	25, Wednesday (CST, UTC+8)	
09:00-10:00	Keynote: Future AI Challenges and Solutions by Federated Learning Prof. Qiang Yang	Huangshan Hall
08:30-10:15	Session 24: Industrial Informatics & Internet	Paris Hall
08:30-10:15	Session 25: Intelligent Data Processing & Management III	Milan Hall
08:30-10:15	Session 26: Interdisciplinary Distributed System and IoT Applications I	Tongqing Hall A
08:30-10:15	Session 27: Big Data and Machine Learning Systems III	Tongqing Hall B
08:30-10:15	Session 28: Cloud & Edge Computing I	Tianzhu Hall
10:15-10:30 10:30-12:00	Coffee Break Session 29: Distributed System and Ubiquitous Intelligence III	Paris Hall
10:30-12:00	Session 30: Data Security and Privacy Protection II	Huangshan Hall
10:30-12:00	Session 31: Big Data and Machine Learning Systems IV	Milan Hall
10:30-12:00	Session 32: Big Data and Machine Learning Systems V	Tongqing Hall A
10:30-12:00	Session 33: Distributed System and Ubiquitous Intelligence IV	Tongqing Hall B
10:30-12:00	Session 34: Cloud & Edge Computing II	Tianzhu Hall
12:00-14:00 14:00-15:45	Lunch Session 35: Cloud & Edge Computing III	Doha Cafeteria Paris Hall
14:00-15:45	Session 36: Cloud & Edge Computing IV	Huangshan Hall
14:00-15:45	Session 37: Networked Computing for Embodied AI I	Milan Hall
14:00-15:45	Session 38: Distributed Storage I	Tongqing Hall A
14:00-15:45	Session 39: Distributed Storage II	Tongqing Hall B
14:00-15:45	Session 40: Cloud & Edge Computing V	Tianzhu Hall
15:40-16:05	Coffee Break	
16:05-17:50	Session 41: Networked Computing for Embodied AI II	Paris Hall
16:05-17:50	Session 42: Next-Generation Mobile Networks and Connected Systems	Huangshan Hall
16:05-17:50	Session 43: Distributed Storage III	Milan Hall
16:05-17:50	Session 44: Distributed System and Ubiquitous Intelligence V	Tongqing Hall A
16:05-17:50	Session 45: Interdisciplinary Distributed System and IoT Applications II	Tongqing Hall B
18:00-20:00	Dinner	Doha Cafeteria



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KEYNOTES

Future AI Challenges and Solutions by Federated Learning



Prof.
Qiang Yang
Hong Kong Polytechnic
University, Hong Kong,
China

BIOGRAPHY

Professor Qiang Yang is a Fellow of the Canadian Academy of Engineering (CAE) and the Royal Society of Canada (RSC), Director of Hong Kong PolyU Academy for AI, and Vice President of the Chinese Association for Artificial Intelligence (CAAI). He is also a Fellow of CAAI, AAAI, ACM, IEEE and AAAS. He was the founding EiC of top international journals ACM Transactions on Intelligent Systems and Technology (ACM TIST) and IEEE Transactions on Big Data. His research focuses are the study and application of Transfer Learning, Federated Learning and AI Planning. His latest books are 《Transfer Learning》, 《Federated Learning》, 《Privacy-preserving Computing》,《AI Model Watermarks, etc. Professor Yang is a Professor Emeritus of Hong Kong University of Science and Technology and the Chief AI Officer Emeritus of WeBank. He has also been conference or program chairs for IJCAI and AAAI. He has been honored with the 2017 ACM SIGKDD Distinguished Service Award and the 2023 IJCAI Donald E. Walker Distinguished Service Award.

Keynote Abstract: With the development of large Artificial Intelligence (AI) models, AI has entered a new era. One challenge in the practical application of large models is how to transfer the knowledge of general-purpose large models to localized small models while protecting the privacy and data security of all parties. In this talk, I will first explore several challenges faced by large AI models, then discuss how to use the "Federated LLM" framework to provide some solutions.



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KEYNOTES

On Joint VM and Bandwidth Scheduling in a DCN



Prof.
Jie Wu
China Telecom, China;
Temple University, USA

BIOGRAPHY

Jie Wu is the Laura H. Carnell Professor at Temple University and the Director of the Center for Networked Computing (CNC). He served as Chair of the Department of Computer and Information Sciences from 2009 to 2016 and as Associate Vice Provost for International Affairs from 2015 to 2017. Before joining Temple University, he was a Program Director at the National Science Foundation and a Distinguished Professor at Florida Atlantic University. His current research interests include mobile computing and wireless networks, routing protocols, network trust and security, distributed algorithms, applied machine learning, and cloud computing. Dr. Wu has published extensively in scholarly journals, conference proceedings, and books, and serves on several editorial boards, including IEEE/ACM Transactions on Networking. He has served as General Chair or Co-Chair for IEEE IPDPS 2023, ACM MobiHoc 2023, and IEEE CCGrid 2024, and as Program Chair or Co-Chair for IEEE INFOCOM 2011, CCF CNCC 2013, and ICCCN 2020. He also chaired the IEEE Technical Committee on Distributed Processing (TCDP). Dr. Wu is a Fellow of the AAAS and IEEE and a Member of Academia Europaea (MAE). He is currently the Chief Scientist and Director of the Cloud Computing Research Institute at China Telecom.

Keynote Abstract: The joint allocation of virtual machines (VMs) to servers and network bandwidth has long been major challenges in data center networks (DCNs). The hose model was introduced to simplify VM and network bandwidth allocation without requiring pairwise traffic demands between VMs, as needed in the pipe model. In Oktopus, a virtual cluster VC(N, B) can be quickly constructed to guarantee a bandwidth B between N VMs under the hose model. A more recent approach, Elastic, defines VC(¬, B), where ¬ corresponds to the maximum number of VMs the current DCN can support. In this way, Elastic determines the largest slice, called the max C (for the cluster), and supports scheduling that offers maximum elasticity for future VM growth through a scaling-down approach. In this talk, we introduce a new approach, called Tailor, which is based on Elastic. Tailor first applies Elastic to generate the max C, and then subsequent VC requests are tailored and cut from this max C. Tailor also incorporates garbage collection after a sequence of releases and before constructing the next maximum VC. Comparisons in both simulation and testbed DCN show that Tailor outperforms Oktopus in terms of total execution time.



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KEYNOTES

Networked Multimedia Data Analytics in Challenging Environments: Experiences and Solutions



Prof.
Jiangchuan Liu
Simon Fraser University,
Canada

BIOGRAPHY

Jiangchuan Liu (S'01-M'03-SM'08-F'17) is a Professor in the School of Computing Science, Simon Fraser University, British Columbia, Canada. He is a Fellow of Royal Society of Canada, a Fellow of The Canadian Academy of Engineering, an IEEE Fellow, and an NSERC E.W.R. Steacie Memorial Fellow. He was an EMC-Endowed Visiting Chair Professor of Tsinghua University (2013-2016) and is a Distinguished Guest Professor of Tsinghua Shenzhen International Graduate School (2022-). In the past he worked as an Assistant Professor at The Chinese University of Hong Kong and as a research fellow at Microsoft Research Asia. He received the BEng degree (cum laude) from Tsinghua University in 1999, and the PhD degree from The Hong Kong University of Science and Technology in 2003, both in computer science. He is a co-recipient of the inaugural Test of Time Paper Award of IEEE INFOCOM (2015), IEEE ICDCS Distinguished Paper Award (2024), ACM SIGMM TOMCCAP Nicolas D. Georganas Best Paper Award (2013), and ACM Multimedia Best Paper Award (2012). His research interests include multimedia systems and networks, cloud and edge computing, social networking, online gaming, mobile and space networking. He has served on the editorial boards of IEEE/ACM TON, IEEE TNSE, TMM, TBD, COMST, and IOTJ. He was a Steering Committee member of IEEE TMobile, and Steering Committee Chair of IEEE/ACM IWQoS (2015-2017). He was TPC Chair of IEEE INFOCOM'2021 and General Chair of INFOCOM'2024.

Keynote Abstract: Online multimedia data analytics over wide-area networks have found diverse applications, including environmental monitoring, industrial automation, and autonomous systems, to name a few. In this talk, drawing from our recent research and development experiences in challenging environments, we will discuss our work on algorithm and system design in this field, including video and sonar analytics at the edge, serverless-based pipeline optimization, and streaming analytics over space networks. We will also explore the challenges and solutions related to real-world deployment, with a focus on remote ecosystems for wild salmon conservation along the Pacific Northwest coastline.



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KEYNOTES

Cyber-Physical-Social Intelligence



Prof.
Laurence Tianruo Yang
Zhengzhou University,
China

BIOGRAPHY

Laurence Tianruo Yang got his BE in Computer Science and Technology and BSc in Applied Physics both from Tsinghua University, China and Ph.D in Computer Science from University of Victoria, Canada. He is the Academic Vice-President and Dean of School of Computer Science and Artificial Intelligence, Zhengzhou University, China. His research includes Cyber-Physical-Social Intelligence. He has published 600+ papers in the above area on top IEEE/ACM Transactions with total citations of 46000+ and H-index of 109 including 8 and 44 papers as top 0.1% and top 1% highly cited ESI papers, respectively. His recent honors and awards include the member of US National Academy of Artificial Intelligence (2025) and a member of Academia Europaea, the Academy of Europe (2021), the John B. Stirling Medal (2021) from Engineering Institute of Canada, IEEE Sensor Council Technical Achievement Award (2020), IEEE Canada C. C. Gotlieb Computer Medal (2020), Clarivate Analytics (Web of Science Group) Highly Cited Researcher (2019, 2020, 2022, 2023, 2024, 2025), Fellow of Institution of Engineering and Technology (2020), Fellow of Institute of Electrical and Electronics Engineers (2020), Fellow of Engineering Institute of Canada (2019), Fellow of Canadian Academy of Engineering (2017), etc.

Keynote Abstract: The booming growth and rapid development in embedded systems, wireless communications, sensing techniques and emerging support for cloud computing and social networks have enabled researchers and practitioners to create a wide variety of Cyber-Physical-Social Systems (CPSS) that reason intelligently, act autonomously, and respond to the users' needs in a context and situation-aware manner, namely Cyber-Physical-Social Intelligence. It is the integration of computation, communication and control with the physical world, human knowledge and sociocultural elements. It is a novel emerging computing paradigm and has attracted wide concerns from both industry and academia in recent years. This talk will present our latest research on Cyber-Physical-Social Intelligence. Corresponding case studies in some typical applications will be shown to demonstrate the feasibility and flexibility.



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KEYNOTES

Sensing with Millimeter-Wave Radar



Prof.
Yanyong Zhang
University of Science and
Technology of China,
China

BIOGRAPHY

Yanyong obtained her B.S. from USTC in 1997, and her Ph.D. from Penn State in 2002, both in Computer Science. In July 2002, she joined the Electrical and Computer Engineering Department and Winlab at Rutgers University as an Assistant Professor. She was promoted to an Associate Professor with tensure in 2008, and a Professor in 2015. In July 2018, she moved back to her alma mater -- School of Computer Science at USTC. She has served on many organization committees sand TPC committees for international conferences. In the year of 2022, she serves as the TPC co-chair for ACM/IEEE IPSN. She has served as the Associate Editor for the following journals: IEEE TCC (cloud computing), IEEE TDSC, IEEE/ACM ToN, IEEE TMC, IEEE TSC, and Elsevier Smart Health. She is the winner of ACM Mobicom 2021 Best Paper Runner-Up Award.

Keynote Abstract: Millimeter-wave (mmWave) radar offers compelling advantages over other sensing modalities, including all-weather/all-day operation, direct velocity measurement, strong penetration capability, and inherent privacy preservation. Leveraging these benefits, our research explores various perception tasks implemented across different data representations, such as raw signals, heatmaps, and point clouds. This presentation will detail our recent advancements in mmWave radar sensing tailored for autonomous driving and smart home applications, covering topics from robust on-vehicle and roadside sensing to fine-grained human-centric perception.



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KEYNOTES

Al-Powered Radio Maps for Low-Altitude Economy



Prof.
Wei Zhang
The University of New
South Wales, Australia

BIOGRAPHY

Wei Zhang (F'15) is a professor at the University of New South Wales, Sydney, Australia. He has been Vice President of IEEE Communications Society since 2022. His research interests include 6G communications and networks. He has been an IEEE Fellow since 2015 and was an IEEE ComSoc Distinguished Lecturer in 2016-2017. Within the IEEE ComSoc, he has taken many leadership positions including Chair of Wireless Communications Technical Committee (2019-2020), Vice Director of Asia Pacific Board (2016-2021), Editor-in-Chief of IEEE Wireless Communications Letters (2016-2019), Member-at-Large on the Board of Governors (2018-2020), Technical Program Committee Chair of APCC 2017 and ICCC 2019 and 2024. Award Committee Chair of Asia Pacific Board and Award Committee Chair of Technical Committee on Cognitive Networks. He received the IEEE Communications Society Joseph LoCicero Award in 2024. He obtained the Ph.D. degree from the Chinese University of Hong Kong in 2005.

Keynote Abstract: The low-altitude economy (LAE), driven by drones (UAVs), is transforming industries like delivery, surveillance, and smart cities. However, maintaining stable wireless connections for fast-moving drones remains a critical hurdle. To address this, we propose an AI-enhanced solution that builds dynamic radio maps to predict and optimize signal strength in real time. Our approach begins by collecting wireless signal data across drone flight paths, then uses a novel deep learning model (CVCGAN) to generate continuous, high-accuracy predictions of signal quality, even in unmapped areas. By intelligently merging these AI-powered maps with real-time pilot signals, we achieve seamless connectivity that outperforms current methods. This breakthrough not only ensures reliable drone operations but also accelerates the potential of LAE applications, showcasing how AI can bridge the gap between mobility and robust wireless communication.



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KEYNOTES

Robust Autonomous Driving in Mixed Traffic



Prof.
Chengzhong Xu
University of Macau,
Macao SAR, China

BIOGRAPHY

Dr. Cheng-Zhong Xu is a Chair Professor of Computer Science and the Dean of the Faculty of Science and Technology, University of Macau. He served as Chief Scientist for key national projects on "Internet of Things for Smart City" (Ministry of Science and Technology of China) and "Intelligent Driving" (Macau SAR, China). He was also Director of Institute of Advanced Computing and Digital Engineering at the Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences. Before these roles, he spent over 18 years as a faculty member at Wayne State University, USA. Dr. Xu's research focuses on parallel and distributed systems, cloud computing, intelligent driving and smart city applications. He has published over 600 papers and held more than 150 patents. His work has garnered over 24000 citations and has been cited in 340+ international patents, including 240 U.S. patents. Dr. Xu chaired IEEE Technical Committee of Distributed Processing from 2014 to 2020. He earned his B.S. and M.S. in Computer Science from Nanjing University and his Ph.D. from the University of Hong Kong in 1993. He is an IEEE fellow, due to contributions in resource management in parallel and distributed systems.

Keynote Abstract: Autonomous driving is transitioning into a mature phase focused on robustness, leveraging cognitive edge AI technologies. This talk will first discuss the challenges for robust autonomous driving in mixed traffic where self-driving and human driving vehicles co-exist. It will then introduce University of Macau's MoCAD project, which develops core enabling technologies for robust autonomous driving in open and complex environments. Topics of generated AI for creating robust scenarios and world models for end-to-end driving simulation will be presented. Occupant emotional states and surrounding traffic behavior will also be discussed, as self-driving vehicles become moving robots on the road.



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KEYNOTES

Metal Large Deformation Computations for Industry IOT



Prof.
Yunhuai Liu
Peking University, China

BIOGRAPHY

Dr. Yunhuai Liu is now a professor with Peking University, P.R. China. He received his B.E in Computer Science from Tsinghua University, and PhD degree in Computer Science and Engineering from Hong Kong University of Science and Technology in 2008. In the year 2010, he joined Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences. From 2011 to 2016, he was with the Third Research Institute of Ministry of Public Security, China. He is the receipt of National Distinguish Young Scientists Foundation, and National Talented Young Scholar program. He received the third-class personal medal of Ministry of Public Security. He is now serves as the Vice chair of ACM China Council, and served as the Associate Editor for IEEE TPDS, IEEE TNSE, and TPC members of ACM Sensys, IEEE INFOCOM and etc. He received the Outstanding Paper Award at the 28th IEEE ICDCS, the 25th SANER, the 63rd ACL, and the 34th CIKM. He has published over 180 peer-reviewed technical papers with over 5800 citations (google scholar).

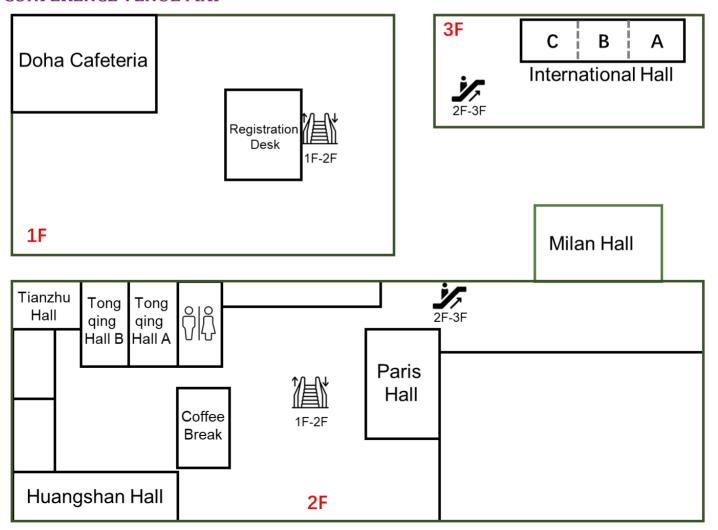
Keynote Abstract: The modeling, simulation, and scientific computation of complex physical processes, especially the continuum mechanics, are fundamental issues in the field of engineering technology, ranging from metal processing, aerospace, to materials science. Traditional numerical computation methods are mainly based on finite element and finite difference methods, and are limited by the computational accuracy and efficiency due to the discretization process. In this talk, we introduce some of our recent results in the computation of large deformations of metal crystals, especially data-driven methods without constitutive equations or numerical solutions. Compared with traditional solving methods, our methods improved computational efficiency by 4-6 orders of magnitude under the same solution accuracy.



PRESENTATION GUIDELINES

- Please confirm your attendance with the Session Chair at least 10 minutes before the session.
- Please check the program for the exact time of your session and where your paper falls within the session.
- The time allocation for each paper is **10 minutes for presentation plus 5 minutes** for Q&A. However, the Session Chair will determine the exact presentation time for each paper based on the total number of papers in the session.
- All presentations and slides must be in English.

CONFERENCE VENUE MAP



ICAPDS 2025 ORAL PRESENTATIONS

Session 1: Blockchain Activation of Data Value I, December 15, 08:30-10:15

1. Incentive Mechanism for Blockchain-Enabled Coded Federated Learning in Edge Clouds

Authors: Xuanzhang Liu, Jiyao Liu, Xinliang Wei, and Yu Wang

2. AF-STip: Enhancing Smart Contract Security through Data-Free Knowledge Transfer and Adaptive Fusion Authors: Luqi Wang, Wenbao Jiang, Shangyong Zuo, and Yuchen Wang

3. B-Shard: Accelerating Sharding Blockchains through Batched Commits and Balancing Transaction Scheduling Authors: Hongwei Liu, Litong Sun, Jingjing Zhang, Weigang Wu, and Jieying Zhou

4. AranVoting: Ensuring Anonymity and Fairness in Blockchain-Based Ranked-Choice Voting

Authors: Yu Xia, Meiqi Li, Qiantong Jiang, Wentuo Sun, Yingjie Xue, and Kaiping Xue

5. Seller-directed Descending Price Auction: A Novel Welfare-Maximizing Trading Mechanism for Blockchain-based **Data Markets**

Authors: Lu Liu, Yong Yuan, Xuan Liu, Yuanyuan Ke, and Keke Gai

6. Authentication and Key Agreement Protocol for Urban Intelligent Transportation Systems

Authors: Feng Wang, Fei Wang, Ziqi Wang, and Jinquan Hou

Session 2: Information Security I, December 15, 08:30-10:15

1. A user authentication and key agreement scheme based on cancelable biometric and homomorphic encryption for driverless taxis

Authors: Peng He, Weixin Bian, Kangyi Chen, and Jinbin Meng

2. Density-Aware Personalized Differential Privacy for Multi-Objective Task Allocation in Mobile Crowdsensing Authors: Zhichao Fang, Tianjiao Ni, Siyu Chen, Ying Liu, Qingying Yu, and Yonglong Luo

3. Write-Once, Prove-Once: A Reusable Framework for Secure Boot Verification in Rocq

Authors: Minjie Fan, Qiyu Wu, Kuai Yu, Gaosong Xu, Xiaoyang Wang, and Jiwu Shu

4. Two Heads are Better than One: Robust Learning Meets Multi-branch Models

Authors: Zongyuan Zhang, Qingwen Bu, Tianyang Duan, Zheng Lin, Yuhao Qing, Zihan Fang, Heming Cui, and Dong Huang

5. A code-based group signature scheme from the Schnorr-Lyubashevsky framework

Authors: Shuwang Xu, Lusheng Chen, Geying Yang, Fangchao Yu, Yufei Hou, and Lina Wang

6. λ-SecAgg: Partial Vector Freezing for Lightweight Secure Aggregation in Federated Learning

Authors: Siqing Zhang, Yong Liao, and Peng Yuan Zhou

7. Fine-grained Privacy-aware Parameter Coaching for Personalized Federated Learning

Authors: Hongpu Jiang, Jinxin Zuo, Yueming Lu, Tingsong Lu, and Long Zhang

8. Encrypted Malicious Trafffc Detection with Limited data based on Active Learning

Authors: Ziyi Chen, Xingwei Wang, Yang Tang, Rongfei Zeng, Yuhai Zhao, Min Huang, and Bo Yi

Session 3: Information Security II, December 15, 08:30-10:15

1. A Distributed and Reliable Blockchain-based Routing Algorithm for Satellite-Terrestrial Networks

Authors: Shixiong Yao, xuan zhang, Yufeng Wei, Yao Chen, Chuyan Niu, and Shuangxi Cao



2. HARE Attack: Inaudible Harmony in Voice Enrollment

Authors: Xingcan Shang, Haolin Wu, Kun He, and Jing Chen

3. Faster Polynomial Multiplication with Novel Fermat Number Transform for Accelerating Saber Post-quantum Cryptosystem

Authors: Hongian Zhao, Fanyu Kong, Guoqiang Yang, Yunting Tao, and Hongtao Hu

4. FCA-MARS: Full-Coverage Adversarial Camouflage for Few-Shot Ships with Multi-Angle Attack Robustness

Authors: Yaoran Wang, Haoqi Gao, Shijie Zhao, Anjie Peng, Hui Zeng, and Xing Yang

5. A Universal and Dynamically Aware Multi-Attack Adversarial Patch Generation Framework

Authors: Yiwen Wang, Sheng Cao, and Xiaosong Zhang

6. KGSC-SAT: Key-Gated Semantic Communication Enhanced by Steganography Adversarial Training for Secure **Transmission**

Authors: Xin Wang, Xiulong Liu, Xin Xie, Kaixuan Zhang, Qixuan Cai, Xinyu Tong, Zheng Gong, and Keqiu Li

7. CtrlMark: Controllable Watermarking for ControlNet Against Downstream Fine-tuning

Authors: Chi Liu, Rui Zhang, Wenbo Jiang, Hongwei Li, and Guowen Xu

Session 4: Big Data and Machine Learning Systems I, December 15, 08:30-10:15

1. DBNet: A Dual-Branch Network with Boundary Awareness for Few-Shot 3D Medical Image Segmentation

Authors: Yuqin Li, Hengjun He, Xu Wang, Ziyang Zhang, Wei He, and Weili Shi

2. Breaking the Fusion Barrier: An Online Algorithm for Fused Normalization and Linear Layers

Authors: Hanghang Cao, Shihao Gao, Quanyi Li, Hongbin Zhang, Mingjie Xing, Yanjun Wu, and Chen Zhao

3. Federated Prompt Learning for Few-Shot Graph Classification

Authors: Xijun Wu, Shiqi Wei, and Xinming Zhang

4. A Learning Framework of Machine Learning in an Untrustworthy Cloud

Authors: Longtao Tang, Yu Yin, and Yu Yang

5. Money Laundering Detection Based on Suspicious Subgraph in Bitcoin Networks

Authors: Ailing Meng, Xu Chen, and Xiangling Li

6. Interpretable Bilevel Additive Taylor Model for Datasets with Noisy Labels and Imbalanced Classes

Authors: Wenxing Zhou, Chao Xu, Lian Peng, and Xuelin Zhang

Session 5: AIGC Multi-Agent Parallel Computing I, December 15, 08:30-10:15

1. LISLLM: Long Context Inference of Large Language Models with Short KV Cache

Authors: Tielong Liu, Gang Li, Zeyu Zhu, Zitao Mo, Xingting Yao, and Jian Cheng

2. Attention-enhanced Multi-agent Reinforcement Learning for Priority-aware Traffic Signal Control

Authors: Qinghan Huang, Lei Nie, Fangchao Liu, and Qiuming Ai

3. A Dual Large Language Models Architecture with Herald Guided Prompts for Parallel Fine Grained Traffic Signal Control

Authors: Qing Guo, Xinhang Li, Junyu Chen, Zheng Guo, Xiaocong Li, Lin Zhang, and Lei Li

4. GRACE: Graph-Adapted Case-Augmented Execution for Tool Use in Large Language Models

Authors: Tong Lin, Yuanzhao Zhai, Dawei Feng, and Bo Ding

5. HAP Hybrid Adaptive Parallelism for Efficient Mixture-of-Experts Inference

Authors: Haoran Lin, Xianzhi Yu, Kang Zhao, Han Bao, Zongyuan Zhan, Ting Hu, Wulong Liu, Zekun Yin, Xin Li, and Weiguo Liu



6. MedStructGen: A Two-Stage Method for Medical Record Generation Using Large Language Models

Authors: zhaoqun ma, ruixia liu, and yinglong wang

7. ECMSA: Dual-Agent Learning-Based Edge Caching with Multi-Strategy Adaptation in Dynamic Environments

Authors: Jiayi Zhang, Ting Wang, Lu Yang, Yuanming Shi, and Haibin Cai

Session 6: AIGC Multi-Agent Parallel Computing II, December 15, 10:30-12:00

1. HIPS: Hierarchical Decision-making Pathfinding Based on Social Value Orientation

Authors: Haoxiang Zhao, Mengwei Li, Weizhen Han, Enshu Wang, Bingyi Liu, and Libing Wu

2. Dual-level Facilitated Multi-view Contrastive Graph Clustering

Authors: Ziying Li, Guangyu Zhang, Haiyan Wang, Dong Huang, Changdong Wang, and Yang Liu

3. ARC: A Runtime Engine for Accelerating Independent Multi-Agent Reinforcement Learning on Multi-Core

Processors

Authors: Samuel Wiggins, Nikunj Gupta, Grace Zgheib, Mahesh A. Iyer, and Viktor Prasanna

4. SAFL: Structure-Aware Personalized Federated Learning via Client-Specific Clustering and SCSI-Guided Model Pruning

Authors: Nan Li, Xiaolu Wang, Xiao Du, Chengcheng Wang, Puyu Cai, and Ting Wang

5. ConSFL: A Lightweight Contrastive Learning-Driven Split Federated Learning for Heterogeneous LEO **Constellations**

Authors: Hengzhong Du, Liang Zhao, Ammar Hawbani, Redhwan Algabri, Zhi Liu, and Qiang He

6. Improving One-Shot Person Re-Identification with Video Diffusion Model

Authors: Yi Zhou, Xianyang Xu, and Zhiwei Zhao

7. Occlusion-Aware Multi-Model ReID via Skeleton-Based Dynamic Inference

Authors: Bairong Liu, Zhenguo Bi, and Zhiwei Zhao

8. AndroidWMSearch: Mobile Agents Tree Search With World Model

Authors: Xianqing Jia, Li Zhang, and Mengwei Xu

Session 7: Intelligent Data Processing Management I, December 15, 10:30-12:00

1. NIKI: Neighbor Interfering Knowledge Injection for Large Language Models

Authors: Guiyang Ji, Yuchen Jiang, Peiyang Wang, Danqingxin Yang, and Yuxun Xia

2. Relative Performance Bandits: An Adaptive RAG Framework with Reward-Aware Exploration

Authors: Yuhang Dai, Jing Li, and Bohan Li

3. Large Receptive Field Network for Time Series Image Classification

Authors: Yanxuan Wei, Yingxia Tang, Yupeng Hu, Xiangwei Zheng, and Cun Ji

4. PC-DPRRT*: An efficient method for Collaborative Multi-UAV Path Planning in 4D Spatiotemporal

Authors: Yuxing Guo, Jiajia Li, Yang Song, and Yuanqiang Liu

5. Emotion-Aware Multimodal Fusion for Rumor Detection on Social Media

Authors: Yuliang Ma, Qingbao Guo, Mingliang Ding, and Hongren Luo

6. AACoT: Chain-of-Thought Fine-Tuning via Associative Memory and Adaptive Error Correction

Authors: Ruiyue Wang, Lingyun Song, Xinbiao Gan, Yudai Pan, and Xuequn Shang



Session 8: Smart Sensing and Information Processing I, December 15, 10:30-12:00

1. FEDeS: Fair, Efficient, and Reliable Multi-tenant Deep Learning Training with Serverless Computing

Authors: Yeonhyeok Jeong, Seungmin Lee, Seonghyeon Jue, Sam H. Noh, and Young-ri Choi

2. HPCLog: A Transformer-based Log Anomaly Detection Framework for Distributed Systems

Authors: Qinxuan Shi, Zhanglong Yang, and Sicong Shao

3. Decentralized Reinforcement Learning for Cooperative Multi-Robot Navigation

Authors: Yihao Zheng, Farshad Arvin, and Junyan Hu

4. 3D imaging and automatic measurement method of goose based on filtering and improved ICP fusion algorithm

Authors: Jing Zhang, Jiaqi Jiang, Xiancun Zhou, and Zhuangzhuang Liu

Session 9: Data Security and Privacy Protection I, December 15, 10:30-12:00

1. Boosting Malicious Traffic Detection Accuracy with Stacked Feature Fusion and Attention Mechanism

Authors: Menghui Wu, Xuanbo Huang, Zhongxiang Cai, Lutong Chen, Yan Zhuang, and Kaiping Xue

2. GAIA-UL: Surgical Unlearning of Visual Knowledge via Causally-Guided Orthogonalization

Authors: Jinghan Xu, Xiulong Liu, Xin Xie, Kaixuan Zhang, Qixuan Cai, Xinyu Tong, Zheng Gong, and Wenyu Qu

3. ContractDB: Enabling Secure and Efficient DApps via Integrating Blockchain and External VDBs

Authors: Meiqi Li, Yunshu Wang, Yingjie Xue, Xinyi Luo, Kaiping Xue, and Lutong Chen

4. 3D-MGW: A Memory-efficient Grouped Watermark for Multi-object 3D Gaussian Splatting

Authors: Hui Su, Gaolei Li, Rui Xu, Wenkai Huang, Xiaoyu Yi, and Jianhua Li

5. Revealing the Vulnerabilities of Learning-based Network Intrusion Detectors through XAI-guided Adversarial Attack

Authors: Shuhua Li, Ruiying Du, and Jiyuan Gu

6. Analysis of Bit-Flip Attacks on Encrypted Neural Networks

Authors: Zihao Yang, Yilan Zhu, Rui Hou, Dan Meng, Shengyu Fan, and Mingzhe Zhang

7. TDID: A Three-factor Decentralized Identity Authentication Scheme in Metaverse

Authors: Jie Cui, mengfei cheng, Jing Zhang, Li Wang, Irina Bolodurina, and Hong Zhong

Session 10: Distributed System and Ubiquitous Intelligence I, December 15, 10:30-12:00

1. μ-Fed: Memory-Efficient Federated Learning on Microcontrollers for Multi-Modal Cardiovascular Monitoring

Authors: Siming Li, Chenyang Xu, and Hao Wang

2. Aclipse: Attention-based Cascaded Learning Enabling Privacy-preserving Speech Emotion Recognition

Authors: Jiusong Luo, Shan Chang, Luo Zhou, and Shizong Yan

3. Accelerating Paging via Novel User Prediction Mechanism with Spatial Indexed Correction

Authors: Lijing Zheng, Cong Li, Weizhi Meng, Xiangrong Zhang, and Xinsheng Ji

4. DeepSeer: Deep Metropolitan Perception with Short-term Noisy Sensory Data

Authors: Zhuo Chen, Chunqin Li, Yi Jiang, Hongzi Zhu, and Shan Chang

5. MFEL-HAM: Multimodal Federated Edge Learning with Heterogeneity-Aware Modality Balancing

Authors: Shihan Chen, Hui Jiang, Tao Ouyang, Min Lin, Xiaodong Zhang, and Xu Chen

6. LLM-Driven Cloud-Edge Collaboration for Resilient Multi-UAV Task Planning

Authors: Xuan Ling, Yingchi Mao, Yu Tang, Benteng Zhang, Yi Rong, and Xiaoming He

7. Intelligent Distributed Task Offloading for V2V Collaborative Perception: A Game-Theoretic Optimization Approach



Authors: Fenghui Zhang, Xiangrui Xie, Quan Zhou, Shijian Zheng, Ruixia Li, and Xiancun Zhou

8. PVPC: Parallel and Verifiable Polynomial Computation with Privacy Protection

Authors: Zhicheng Li, Huiyang He, Chen Wang, Long Yin, and Jian Xu

Session 11: AIGC Multi-Agent Parallel Computing III, December 15, 10:30-12:00

1. Retrieval Augmented Generation-Enhanced Distributed LLM Agents for Generalizable Traffic Signal Control with **Emergency Vehicles**

Authors: Xinhang Li, Qing Guo, Junyu Chen, Zheng Guo, Shengzhe Xu, Lei Li, and Lin Zhang

2. Multi-view Clustering via Flexible Dual-level Fusion

Authors: Guangyu Zhang, Jiaming Deng, Zihao Wen, Dong Huang, and Changdong Wang

3. Test Case Enhanced Self-Iterative Code Generation Framework

Authors: tianyou chang, yupeng zhang, and yujie fang

4. Planning ECMP Paths with Minimal Overlap for Efficient Cross-Host Collective Communications

Authors: Boyang Zhou, Chunming Wu, Qiang Yang, and Bing Hu

5. Old Photo Restoration with Diffusion Models via Contrastive Learning

Authors: Weiguang Lv, Hao Wu, Guowu Yuan, and Dirui Min

6. FUPS: Fusion-Based Parallel Structured Pruning for Large Language Models

Authors: Shouyuan Qin, Guixia Wang, and Xuhui Xiong

Session 12: Wireless and Mobile AloT, December 15, 14:00-15:45

1. NN-Pulse: Neural Network Defined Pulse Modulator

Authors: Zeyu Zhang, Shuai Wang, Wenchao Jiang, Ruofeng Liu, Zhimeng Yin, and Shuai Wang

2. RainfalLTE: A Zero-effect Rainfall Sensing System Utilizing Existing LTE Infrastructure

Authors: Pengfei Shi, Fei Shang, and Haohua Du

3. MP-VVC: A Patch-adaptive Volumetric Video Compression Framework Based on Motion Analysis

Authors: Mengfan Wang, Jiyi Wu, Chengjun Li, and Zhiwei Zhao

4. ESVFLR-Efficient and Secure Vertical Federated Logistic Regression

Authors: Changzhi Wang, Wei Gao, Keyang Li, Xiaosong Hou, and Haoming Ma

5. Pre-training with Siamese Networks using self-supervised Information for Unlabeled Images

Authors: Lei Zhu, Ruinan Peng, Musab Sahrim, Minghua Zhao, Xinhong Hei, and Jie Zhang

6. Towards Resilient AloT-enabled Disaster Response: A Cloud-Edge-End Semantic Communication Framework

Authors: Chenlang Jin, Tianle Mai, Shan Huang, Xiaoxu Ren, Fu Wang, and Xiang Xiao

7. Multi-Modal Spatiotemporal Behavior Recognition and Visualization in Classroom Environments

Authors: Chunyan Yu, Lan Gao, and Meiling Liu

Session 13: Big Data and Machine Learning Systems II, December 15, 14:00-15:45

1. FedANC: Towards Accurate and Learnable Knowledge-Aware Neighbor Collaboration in Personalized Federated Learning

Authors: Ting Liao, Hongyang Yan, Jiatong Lin, Yu Cheng, and Fan Chen

2. Towards Adaptive Multi-Object Fuzzing: A Map-Aware Reinforcement Approach for Autonomous Driving Systems



Authors: Qi Jin, Tingting Wu, Zuohua Ding, Yongkui Xu, and Yunwei Dong

3. FedSAGA: Composite Federated Learning with Inertial Douglas-Rachford Splitting and Variance Reduction Method Authors: Jiao Xue and Chundong Wang

4. PEC-GAT: A Context-Aware Gated Transformer for Intelligent Bearing Life Prediction with Multi-Scale Position-**Encoded Convolutions**

Authors: Xing Xiong, Junxiao Ren, Qiang Li, and Chengxi Cao

5. SSTANet: Surgical Spatio-Temporal Aggregation Network for Phase Recognition

Authors: Yuqin Li, Chuqi Li, Chengzhe Jin, Guowei Zhao, Yu Miao, and Zhengang Jiang

6. QPO: Accelerating Memory-Efficient DNN Training with Quantization and Pipelining

Authors: Xiang Fan and Shaohuai Shi

7. Dual-Stream Transformer with Part-Aware Attention for 3D Human Pose Estimation

Authors: Liyan Wang, Yang Li, Yunlong Zhao, and Fukang Wang

Session 14: Smart Sensing and Information Processing II, December 15, 14:00-15:45

1. 3D Localization in Urban Environments

Authors: Yan Xia

2. HIOCS: Heuristic Inter-Operator Co-Scheduling Method for Efficient DNN Inference on GPUs

Authors: Ning Wang, Andrea Raith, and Oliver Sinnen

3. Covert THz Communication against Randomly Distributed Wardens

Authors: Xinzhe Pi, Bin Yang, Lisheng Ma, Haibao Chen, Guozhu Zhao, and Bao Gui

4. MCLiD: Multi-Target and Container-Independent Liquid Sensing via mmWave and Camera Fusion

Authors: Jiawen Gai, Cheng Peng, Zhekai Xu, Kaiyan Cui, Yiming Wang, Zhengxin Guo, and Fu Xiao

5. FastAvatar: Enabling Fast Talking-Face Synthesis on Resource-Constrained Devices via Multimodal Caching and Adaptation

Authors: Runzheng Wang, Jiahua Wang, Yan Lu, Lei Fu, and Huanle Zhang

6. m3FacePass: mmWave-based Multi-User Face Authentication with Zero-Shot Learning

Authors: Junlin Yang, Jiadi Yu, Hao Kong, and Yanmin Zhu

Session 15: Big Data Foundation Models I, December 15, 14:00-15:45

1. Completely independent spanning trees in folded hypercube-variant networks

Authors: Junkai Zhu, Yan Wang, Jianxi Fan, Baolei Chen, and Hao Wang

2. Federated Learning Algorithm Based on Latency-Aware Hierarchical Clustering

Authors: Yue Li, Chaocen Tang, Xueying Ren, Luohao Zheng, and Yiting Yan

3. F³KDH: Fine-Grained Feature Fusion Knowledge Distillation Hashing for Cross-Modal Retrieval

Authors: Liangliang Su, Yubin Liu, Li Gao, Xiao Wei, and Yalong Yang

4. Adaptive Multiscale Decomposition Echo State Network for Chaotic Time Series Prediction

Authors: Jing Zhang, Xiaodan He, Yige Yuan, and Yang Yang

5. Diffusion-Based Implicit Feedback Modeling for Point-of-Interest Recommendation

Authors: Zhi Liu, Zhaolin Deng, Junhui Deng, Xuyuan Hu, Guojiang Shen, and Xiangjie Kong

6. FedPce: Prompt-based Federated Cross-domain Recommendation

Authors: Zhi Liu, Xuyuan Hu, Xiaohua He, Zhaolin Deng, Guojiang Shen, and Xiangjie Kong



7. PERec: Prompt-enhanced Semantic Modeling with Large Language Models for Long-tail Recommendation Authors: Han Han, Chengkai Wang, Yiru Zhou, Tingting Ma, and Baisong Liu

Session 16: Big Data Foundation Models II, December 15, 14:00-15:45

- 1. CondAlign: Condition-aware Cross Domain Account Alignment based on Large Language Models Authors: Hang Lin, Zuolin Feng, Canyong Cai, Ziyang Xie, and Yun Peng
- 2. Black-box Adversarial Robustness Testing with Partial Observation for Multi-Agent Reinforcement Learning Authors: Bang Zhang, Wenjian Luo, Kesheng Chen, Yujiang Liu, Shuhan Qi, and Xuan Wang
- 3. DTAFormer: A Disk Failure Prediction Model Fusing Temporal Change Perception with Dual-Dimension Attention Authors: Ming Zhong, Jie Sun, Bing Wei, Yuheng Li, Yubin Li, and Ting Wang
- 4. A BERT-assisted LLM Framework for Knowledge Graph Construction

Authors: Yixin Jiang, Kaitian Huang, Ximing Zhang, Wenqian Xu, Zhihong Liang, Yiwei Yang, Peiming Xu, Tao Dai, and Leyu Bi

5. LLaMed: An Efficient Adaptation Framework for Medical Large Language Models Based on Low-Rank Adaptation and Dynamic Evidence Retrieval

Authors: Weibin Kong, Jinwei Ye, Chonglin Zhao, Yunqing Ma, Yanrong Chen, and Wei Lv

- 6. CORE-NER: LLM-Based Character-Oriented Reference Enhancement for Chemical Named Entity Recognition Authors: Fujian Yan, Chunming Yang, Yingjie He, Jian Liu, and Hui Zhang
- 7. IndiTag: An Online Media Bias Analysis System Using Fine-Grained Bias Indicators Authors: Luyang Lin, Lingzhi Wang, Jinsong Guo, Jing Li, and Kam-Fai Wong

Session 17: Security and Privacy in Mobile and Ubiquitous Systems, December 15, 14:00-15:45

- 1. Short Text Clustering Model Integrating Deep Feature Representation and Self-Supervised Clustering Loss Authors: Saiqi Wang, Liping Sun, Ziang Zheng, Wei Ding, and Zhiwei He
- 2. FusionDisassembler: An Efficient and Robust Side-Channel Framework for Instruction Disassembly with Multi-**Device Fusion**

Authors: Chen Ling, Jinyuan Zhang, Changhai Ou, Hangcheng Liu, and Xingshuo Han

- 3. IMUWatermark: A Blind and Robust Backdoor Watermark via Frequency-Domain Injection Authors: Lei Xie, Xiulong Liu, Xin Xie, Kaixuan Zhang, Qixuan Cai, Xinyu Tong, Zheng Gong, and Keqiu Li
- 4. VRPTD: Verifiable and Robust Privacy-preserving Truth Discovery for IoT Crowdsensing

Authors: Shuang Chen, You Li, Pengfei Zhang, Zhao Li, Ji Zhang, and Yining Liu

- 5. Personalized Federated Learning with Partial Model Sharing and Client-Customized Aggregation Authors: Yitang Huang, Jun Xu, and Dejun Yang
- 6. Byzantine-Robust and Privacy-Preserving Federated Learning via Two-Stage Two-Party Computation and **Compressed Sensing**

Authors: Di Xiao, Jialei Tang, and Lvjun Chen

7. Anomaly Detection of Vehicle Data Stream Based on LSTMAM

Authors: Jinfeng Zhang, Yuezhong Zhang, Yabing Peng, Zhen Zhang, Yupeng Zhang, and Shaoxun Liu



Session 18: Big Data Foundation Models III, December 15, 16:05-17:50

1. GCP-LP: A GPU-CPU Collaborative Framework for Accelerating Large-Scale Sparse Linear Programming

Authors: Zi-Rui Huang, Yi-Xiang Hu, Feng Wu, and Xiang-Yang Li

2. A Prediction-Driven Collaborative Scheduling Strategy for Distributed Stream Computing Systems

Authors: Minghui Wu, Dawei Sun, Xiaoxian Wang, Shang Gao, and Rajkumar Buyya

3. Large-Scale Evolutionary Multi-Objective Optimization via Specialty-Guided Fast Non-Dominated Sorting

Authors: Xiuzuo Wu, Hao Wu, Puyu Cai, Yanyan Kang, Lu Wang, and Ting Wang

4. Dispenser: Hierarchical KV Cache Management for Efficient LLM Generative Inference

Authors: Beiquan Cao, Kaigui Bian, Guojie Luo, and Joongheon Kim

5. Aegis Sketch: High-Throughput and Accurate Top-\$k\$ Elephant Flows Detection in Large-Scale Parallel Network Traffic Processing

Authors: Siyuan Wang, Lu Cao, Desheng Wang, and Weizhe Zhang

6. NL2CSP: Towards Automated CSP Code Generation with Large Language Models

Authors: Chenhui Wang, Nuowei Liu, Han Bao, Di Wu, Huiying Liu, Jiaqi Yin, and Huibiao Zhu

7. HIRSA: A Novel Hybrid Method for the Infrared Object Recognition of Weak and Small Aircrafts

Authors: Huanyu Dong, Jiaqi Yin, Huale Li, and Yue Zhao

8. A Self-training and semi-supervised-based Microservice Performance Prediction method for Cloud-native **Microservices**

Authors: Ruijie Cao, Jia Hao, and Hongyan Xia

Session 19: Blockchain Activation of Data Value II, December 15, 16:05-17:50

1. MHTGR: Multi-modal Hierarchical Temporal Graph Representation Learning for Ethereum Phishing Detection

Authors: Yiming Fan, Shunrong Jiang, and Yong Zhou

2. SimSecLLM: A Similarity-Grounded LLM Framework for Smart Contract Auditing

Authors: Xiangke zhang, Chunxiao Ye, Ning Wang, Jelly Gan, and Nan Jiang

3. A Blockchain-Based Traceable Aggregate Signcryption Scheme for VANETs

Authors: Yingfu Xu, Feng Zhao, Meng Zhao, Zhaoyu Su, Chunhai Li, and Yujue Wang

4. DyNoS: Dynamic Notary Subset Selection Framework for Validating Cross-Chain Transactions using Stackelberg Game

Authors: Mahen Mondal and Dr. Amit Banerjee

5. TrustFabric: A Privacy-Preserving Method for Hyperledger Fabric Using Trusted Execution Environment

Authors: Dongyu Cao, Bixin Li, Jiahao He, Lulu Wang, Li Liao, and Ying Zhou

6. Joint-FU: Blockchain-based Federated Feature Unlearning Method

Authors: Siyun Guo, Leixiao Li, and Jinze Du

7. Dissecting Ethereum Staking at Scale: A Comprehensive Measurement and Analysis

Authors: Quanbi Feng, Yinan Mi, Hanzheng Lyu, Jianbin Zou, and Jianyu Niu

Session 20: Smart Sensing and Information Processing III, December 15, 16:05-17:50

1. SafeSQL-LLM: A Synthetic Data Approach to Privacy-Preserving Text-to-SQL

Authors: Rui Zhang and Shenghui Zhao



2. A Multi-branch Collaborative Network with Level-Separated Attention and Bidirectional Interactive Attention

Authors: Yadong Yang, Chengcheng Jia, Kang Yang, Deyong She, Xin An, and Xiancun Zhou

3. CTESense: Cross-Technology Enhanced Bluetooth Low Energy Sensing

Authors: Zifan Guo, Yutong Liu, and Jie Xiong

4. Energy-Efficient Task Migration for Sustainable LEO Satellite Computing

Authors: Jiayu Zhang, Lifeng Tian, Deze Zeng, Liang Zhong, and Chengyu Hu

5. RFID-movdev: Gesture Recognition for Equipment in Uniform Motion with RFID

Authors: Yi Fang, Pengbo Wang, Shigeng Zhang, and Xuan Liu

6. DEOF: Discerning and Elastic Offloading for Accuracy-Efficient Video Analytics

Authors: Hao Pan, Ning Chen, Xiaoyu Wang, Yanni Xing, Sheng Zhang, and Jie Wu

7. A Multi-Modal DRL Framework for Fair and Efficient Multi-UAV Communication Coverage

Authors: Cheng Cui, Xiaoyu Wang, and Ning Chen

Session 21: Distributed System and Ubiquitous Intelligence II, December 15, 16:05-17:50

- 1. Mobile TantivyFormer U-Net: A Lightweight Network with Dynamic Tanh for UAV-Compatible Crack Segmentation Authors: Nan Jiang, Zhixiang Qian, Tongtong Zhou, Lihong Tong, Lingxiao Guan, and Ziyi Li
- 2. DynGPU: A Dynamic GPU Sharing Framework for Enhanced Resource Utilization and Task Scheduling in **Concurrent DNN Training**

Authors: Zhiji Yu, Desheng Wang, Weizhe Zhang, Sichao Chen, Meng Hao, and Yu-Chu Tian

3. MGFA-Unet: A Lightweight Crack Segmentation Network for Crowdsourcing

Authors: Nan Jiang, Tongtong Zhou, Zhixiang Qian, Lihong Tong, and Yalong Jiang

4. GNSS Spoofing Defense Method for UAV Swarm Based on Consensus Reinforcement Learning

Authors: Zhaojun Gu, Huan Zhao, Yuxin Xue, and Shuang Wang

5. SCFU: A Collaborative Federated Unlearning Algorithm with Weighted Penalty and Adaptive Rewards

Authors: Ping Cai, Wei Jiang, and Bin Wang

6. Efficient Scheduling for Multiple Distributed DNN Training Tasks in Resource-Constrained Edge Networks

Authors: Zhihang Tang, Weiqi Yue, Baofu Wu, Binbin Huang, Laiping Zhao, and Keqiu Li

7. Heuristica: A Distributed System for Self-Reasoning Neuro-Symbolic Digital Twins in Ubiquitous Health Monitoring

Authors: Kun Chen, Chenyang Xu, and Hao Wang

Session 22: Intelligent Data Processing Management II, December 15, 16:05-17:50

1. FedD2:Data poisoning robust defense strategy in federated learning

Authors: Jian Wu, Ying Liu, TianJiao Ni, XiaoYao Zheng, YongLong Luo, and Peng Hu

2. Multi-Indicator Latent Factorization of Tensors for Spatio-Temporal Signal Recovery

Authors: Chengjun Yu, Di Wu, Jia Chen, Min Zhou, and Xin Luo

3. FOCUS: Fault-tolerant Online Cloud Utility Scheduling with Imperfect-data-driven Strategies

Authors: Long Chen, Luyao Luo, Yu-E Sun, and He Huang

4. xHyperG: A Hypergraph Analytical Framework on GPUs with Scalability

Authors: Shang Wang, Yansong Dong, Kaifan Jia, Haonan Zou, and Heng Zhang

5. DW-FL-CBBA: A Federated Learning Framework with Hybrid Detection Methods for Android Malware Recognition

Authors: Shan Huang, Ruihong Liu, Xingxing Liu, Jingjie Li, and Xiaodong Duan



Session 23: System and Applied Data Science, December 15, 16:05-17:50

1. High-Dimensional Federated Feature Selection Algorithm Oriented to Participant Requirements

Authors: Ying Hu, Jiang-shan Sun, Xiao-rui Chen, Peng Li, and Xin Jin

2. Collaborative V2V Task Offloading for Safety-Aware Speed Optimization

Authors: Jing Yao, Yongmin Zhang, Bingting Jiang, Pengyu Huang, and Wei Wang

3. Data and Resource Heterogeneity-Aware Efficient Federated Learning with Personalized Models

Authors: Maomao Li, Kang Yan, Tao Wu, Danlu Wang, and Xiaohua Xu

4. A Route Planning Approach with Traffic Data and Edge Servers Information

Authors: Xinghong Jiang, Yong Ma, Changhao Jin, Jiang Luo, Yunni Xia, and Yongzhao Zhang

5. VIF-YOLO: Visible-Infrared Fusion YOLO for Remote Sensing Small Object Detection

Authors: Renjie Chen, Hua Sun, Haiyang Fan, and Pingxiang Wu

6. Towards Resilient Federated Learning: Efficient and Privacy-Preserving Recovery Mechanism against Model **Poisoning**

Authors: Rui Zhang, Chungen Xu, Lei Xu, Pan Zhang, and Kang Yang

7. Intelligent Parsing of Floor Plans for Full-Scenario Applications

Authors: Yinqiao Ren, Chenyu Liu, Jinghan Wen, and Chaidi Xu

8. ReMO: Adaptive Region-Based Offloading for Collaborative Edge Video Analytics

Authors: Yanni Xing, Yu-E Sun, Ning Chen, Hao Pan, Sheng Zhang, and Jie Wu

Session 24: Industrial Informatics Internet, December 17, 08:30-10:15

1. An Adaptive Dynamic Programming Algorithm with Fast Policy Iteration for Optimal Control of Discrete-Time **Nonlinear Systems**

Authors: Taotao Wu, Bowen Yao, and Heng Zhang

2. LINEADAPTER: Parameter-Efficient Fine-Tuning for Log Anomaly Detection and Root Cause Analysis

Authors: Xinyuan Liu, Wenhao Bao, Yumin Zhang, Yinhao Li, Rajiv Ranjan, and Devki Nandan Jha

3. A Behavioural Fingerprinting-Based Attack Detection Framework for Smart Home Devices

Authors: Tianpu Li, Tomasz Szydlo, Rajiv Ranjan, and Devki Nandan Jha

4. Towards Fine-Grained CQF Scheduling for TSN with Temporal Conflict Resolution

Authors: Moran Sun, Xuan Zhou, and Feng He

5. Physics-Informed Fusion of Vision and Sensor Data for CO2 Prediction

Authors: Shouqi Wang, Lijuan Lan, Qiwu Luo, Yang Yang, and Cong Wang

6. PPEM-BM: Portable Power Estimation Methodology for Bare Metal Servers

Authors: Maxime Agusti, Eddy Caron, Benjamin Fichel, Laurent Lefèvre, Olivier Nicol, and Anne-Cécile Orgerie

7. Fairness-Oriented Resource Allocation in STAR-RIS Enhanced NOMA Communication for Industrial IoT

Authors: Shiqi Ren, Yihe Xiong, Yang Yang, Cheng Zhan, Fei Wang, Zili Zhang, Yue Zeng, and Luyue Ji

Session 25: Intelligent Data Processing Management III, December 17, 08:30-10:15

1. Accurate Table Integration via Schema and Row Matching

Authors: Jingya Huang, Haoyang Zhang, Xiao Pang, Jingwen Pan, Aoqian Zhang, and Lianpeng Qiao

2. Model Optimization and Confidence Level Evaluation for Complex Aerospace Equipment



Authors: MengYu Wu, Jiehao Chen, MoDi Cui, ZhiLiang Xu, and JiYun Shi

3. TMAML: A Task-adaptive Model-Agnostic Meta-Learning Framework for Cross-Domain Few Shot Image Classification

Authors: Tianming Zhang, Xuanlong Shi, Chenyu Hou, Bin Cao, Jing Fan, and Ting Wang

4. VRKG-EPCL: Edge Pruning and Contrastive Learning Driven Recommendation via Virtual Relation Knowledge Graph

Authors: Xianji Cui, Jinhua Zhang, Xiaojing Zhang, Yan Lan, and Shan Huang

5. A Lightweight Continual Learning Method for Traffic Flow Prediction Based on B-splines

Authors: Xu Zhao, Xiaoxi Cui, Xiangguo Zhao, Yongjiao Sun, Lianpeng Qiao, and Boyang Li

6. Pyramid ViG with Dual-Branch Multi-Scale Fusion: A Novel Semantic Segmentation Network for High-Precision **Pavement Crack Detection**

Authors: YaLong Yang, Sheng Zhang, Hao Huang, Yonglin Chen, and Liangliang Su

Session 26: Interdisciplinary Distributed System and IoT Applications I, December 17, 08:30-10:15

1. Analysis of Distributed Element-level Resource Allocation Efficiency

Authors: Hao Pan, Chunlei Han, Jianjun Sun, Shuanglin Li, and Shihui Ji

2. SecFinder: An IoT Device Identification System Based on Flow-level Traffic in Smart Home

Authors: Ning Zhang, Suning Chen, Shenghao Liu, Xianjun Deng, Yuanyuan He, Wei Xiang, and Meng Li

3. ASDMR: Adaptive Scheduling of DNN Models and Resources for Collaborative Edge-Cloud Video Analytics

Authors: Yanfen Liang and Guanyu Gao

4. NNUT: NN-based Wi-Fi Universal Transmitter for Cross-Technology Communication

Authors: Demin Gao, Zhijun Cao, Weizheng Wang, Zhaoyang Han, and Yunhuai Liu

5. WiBlue: Cross-Technology Communication from Wi-Fi to Bluetooth

Authors: Zhijun, Demin, Zhengli, Yunhuai, and Siru

6. FCAC: Content-Aware Adaptive Configuration with Scene-Target Fusion in Edge Video Analytics

Authors: Yufeng Li, Rui Yao, Zhihan Cao, and Jun Shen

7. Multi-UAV Cooperative Pursuit Scheme via Multi-agent Reinforcement Learning Approach

Authors: Jiahong Liu, Hang Tao, Yang Zhao, Chao Liu, and Hanjiang Luo

Session 27: Big Data and Machine Learning Systems III, December 17, 08:30-10:15

1. WeakMap: Weak-supervised Indoor Floor Plan Construction for Crowdsourcing Instant Delivery

Authors: Hao Xiong, Dan Luo, Fang Zhao, Haiyong Luo, Yang Gao, and Bojie Rong

2. Latent Interest Discovery and Cross-Level Interest Alignment for Multimodal Recommendation

Authors: Chenyu Sun, Haokai Liang, Wenze Ma, Yanmin Zhu, and Qinghua Chen

3. AS-Mamba: Multimodal Semantic Segmentation via Mamba with Asymmetric Cross and Spatial Perception

Authors: Guohao Shen, Hongzhao Li, Hao Yang, Xianglong Shen, Jingya Dong, and Shupan Li

4. SE-D3FNet: A LiDAR-Camera Fusion Network with SE Attention and Dynamic 3D Focal Loss for 3D Object Detection

Authors: Guowei Wu, Qian Li, Mingyuan Jiu, Shupan Li, Hongru Zhao, and Mingliang Xu

5. FedKDC: Toward Efficient Federated Learning via Knowledge Distillation and Data Compression for Heterogeneous

Authors: Yuqian He, Deng Meng, Huan Zhou, Zhenning Wang, Liang Zhao, and Xinggang Fan



6. DareCRS: A Dual-Strategy Approach for User-oriented Fairness in Conversational Recommender Systems

Authors: Zijing Wang, Baisong Liu, Wei Liu, Xueyuan Zhang, Hongzan Mao, and Zining Feng

7. Pairwise Generalized Importance Weighting for Metric Learning under Distribution Shift

Authors: Richeng Zhou, Xuelin Zhang, Hong Chen, Weifu Li, and Liyuan Liu

Session 28: Cloud Edge Computing I, December 17, 08:30-10:15

1. Federated Fine-Tuning on Heterogeneous Devices with Adaptive Quantization and LoRA depths

Authors: Qianshu Wang, Yang Xu, Hongli Xu, Liusheng Huang, Yunming Liao, and Jun Liu

2. Toward Scalable and High-Performance GNN-Based Traffic Engineering with Free Path Selection

Authors: Qiang Su, Yining Jiang, Siyong Huang, Qingyu Song, Qiao Xiang, Xue Liu, and Jiwu Shu

3. DPA-TA2C: Dynamic Priority-Aware Workflow Scheduling Method With Transformer and A2C in Cloud Data Center

Authors: Fashun Jian, Guowei Shen, Xiaodan Lv, Chun Guo, and Yunhe Cui

4. SmartHD: Zero-shot MARL Framework for Multi-Target Tracking on Heterogeneous Extreme Edge Devices

Authors: Xianyang Xu, Zi Wang, Jiacheng Li, and Zhiwei Zhao

5. Joint Offloading, Trajectory, and Resource Optimization for Service Fairness in UAV-Assisted MEC

Authors: Luping Wu and Gaocai Wang

6. Efficiency Optimization under Spatiotemporal Sharing Fairness for Deep Learning Workloads in Heterogeneous

GPU Clusters

Authors: Chunhong Du, Mengyu Shi, Shanjiang Tang, Jianhang Tang, Ce Yu, Jian Xiao, Chao Sun, and Bin Yang

7. Lightweight In-Network Flow Classification with Deep Differentiable Logic Gate Networks

Authors: Song Liu, Kaiwei Gao, Xinjing Yuan, Jianxin Shi, and Lingjun Pu

Session 29: Distributed System and Ubiquitous Intelligence III, December 17, 10:30-12:00

1. LightTrace: A Versatile Ebpf-enabled Toolkit for Lightweight Distributed Tracing

Authors: Yanze Zhang, Kanye Ye Wang, Shufan Gong, Huanghuang Liang, Chuang Hu, and Xiaobo Zhou

2. HyDLR: Load-Aware Dynamic Rescheduling for Deep Learning Hybrid Deployment

Authors: Desheng Wang, Xiao Sun, Shuo Si, Sichao Chen, and Weizhe Zhang

3. A DRL-based Load-Balanced Task Offloading Approach for Vehicular Edge Computing

Authors: Shucai Wang, Chaogang Tang, Shuo Xiao, Haifeng Jiang, Huaming Wu, and Ruidong Li

4. Fine-Grained State Sharding and Communication Pipelining for Partially Sharded Data Parallelism

Authors: Weimin Li, Yuzhong Sun, and Lin Meng

5. Additive Residual Personalization for Federated News Recommendation

Authors: Jichang Yao, Kedong Yan, Chanying Huang, and Dan Yin

6. ServerlessLego: An Elastic Serverless Framework Assembling Model Building Blocks to Provide SLO-Aware Inference Services

Authors: Yiting Li, Desheng Wang, Weizhe Zhang, Sichao Chen, and Yuming Feng

Session 30: Data Security and Privacy Protection II, December 17, 10:30-12:00

1. Privacy-Preserving and Efficient Multi-Keyword Search for Blockchain-Enabled Medical Data

Authors: Taochun Wang, Guodong Zhang, Tong Ye, and Fulong Chen



2. Federated Cross-Domain Recommendation Based on Adaptive Weights and Consensus Encryption

Authors: Huayang Chen, Xiongchao Cheng, Danyang Wang, and Xiaoyao Zheng

3. Exp-Arch: A Novel LLM-Powered Approach for Facilitating Exploit Primitive Assessment in the Linux Kernel

Authors: Zuxin Chen, Zhi Li, Zhanwei Song, Zhiqiang Shi, and Limin Sun

4. A Trust-Enhanced Proof of Useful Work for Blockchain-Based Cloud Manufacturing

Authors: Juncheng Tong, Bo Zhao, and Yang An

5. False Data Injection Attack Detection in Smart Grids Using Graphormer and LSTM Networks

Authors: Zhuoqun Xia, Ze Su, Jingjing Tan, Han Qiu, and Yutong Xie

6. A Secure Anonymous Authentication and Key Agreement Scheme for UAV Swarms in Emergency Rescue **Environments**

Authors: Fengqun wang, Hang Hai, Jie Cui, Wuquan Wen, Qingyang Zhang, and Hong Zhong

Session 31: Big Data and Machine Learning Systems IV, December 17, 10:30-12:00

1. Semantic Communication-Assisted Cloud-Edge-Client Hierarchical Efficient Federated Learning

Authors: Peiyan Yuan and Xinyue Tian

2. Straggler Dynamic Management for Distributed DNN Training

Authors: Tiance Li, Bo Chai, Xiaobin Tan, Shenzhi Yuan, Kexin Ju, and Shiyin Zhu

3. KMPE Loss Function-Based Clustering Multi-View Point Cloud Registration Algorithm

Authors: Shengmei Chen, Jingyi Han, Lu Ren, Tianzhang Xing, and Lin Wang

4. BTune: Bottleneck-Centric Configuration Parameters Tuning for Mixed Workloads

Authors: Qinwen Shi, Yuwan Li, Yubo Deng, Yida Wang, and Yuanchao Xu

5. Traffic Flow Prediction Based on Graph Federated Learning and Digital Twins

Authors: Bing Li, Shiyu Li, Honghai Wu, and Kaikai Deng

6. A Simplified Method of 3D Point Cloud Based on Partition Strategy and Information

Authors: Zeying Zhang, Shengmei Chen, Tao Yang, Tianzhang Xing, and Lin Wang

7. Key-Factor-Aware Customer Value Prediction on Multi-View Hypergraphs

Authors: An Li, Li Lin, Xinrui Zhang, Kaiwen Xia, Qi Zhang, and Shuai Wang

Session 32: Big Data and Machine Learning Systems V, December 17, 10:30-12:00

1. AURORA: Adaptive Audio-Video Multi-Scale Attention Fusion for Deepfake Detection

Authors: Jie Xu, Shan Chang, and Hongzi Zhu

2. STRNet: Segmented Temporal and Reliability-Aware Trajectory Prediction Network

Authors: Xuan Liu and Ying Xia

3. ITSPM: An Interpretable Time Series Prediction Model Based on Multi-scale Feature Extraction

Authors: Yuzhi Li, Qi Zhang, Li Lin, and Shuai Wang

4. A Self-supervised Heterogeneous Graph Learning Framework for Customer Value Prediction

Authors: Junjie Lin, Kaiwen Xia, Xinrui Zhang, Li Lin, and Shuai Wang

5. CLASP: Contrastive Learning with Asymmetric Stochastic Patching for Anomaly Detection

Authors: Zhenchang Xia, Ke Xu, Chengyi Qiu, Yuqi Zhou, and Hanyuan Hang

6. MMM-RAG: A Multi-Agent Multi-Feature Method for Multimodal Retrieval-Augmented Generation

Authors: Tianyou Chang, Yupeng Zhang, and Yujie Fang



Session 33: Distributed System and Ubiquitous Intelligence IV, December 17, 10:30-12:00

1. Night-to-Day Translation for Nighttime Surveillance

Authors: Jingzhu Li, Guanzhou Lan, Bin Zhao, and Jianbin Jiao

2. Generic Cross-Modality Feature Descriptor Network for Multimodal Image Matching

Authors: Huajin Sun and Jiang Wang

3. ISMF-Net: An Integrated Multi-Modal, Multi-Task Framework for Intelligent Monitoring of Wet Slag Removal Systems

Authors: Hong Wang, Xinghui Liu, Canghai Zhu, Zhaokuo Li, Qingpeng Meng, and Xiaowen Sun

4. Research on Authenticity Identification of Cigarettes Based on YOLOv5-ResNet34

Authors: Gao Bao-Hong, WEI Shuai, ZHANG She-Sheng, CHEN Wei, WANG Chun, JIA Jiang, HU Wen-Long, TIAN Li-Hua, XIE Li-Bo, and XU Xing-Zhi

5. FLO: Focal Loss-based oversampling for high-dimensional imbalanced biomedical data classification

Authors: Zheng Ming, Ma Kai, Zhou Qiran, and Chen Fulong

Session 34: Cloud Edge Computing II, December 17, 10:30-12:00

1. Multi-objective partial computation offloading for edge intelligence with heterogeneous components

Authors: Baoyu Xu, Yancheng Ruan, Tianyu Qi, Guobing Zou, Xiaoyang Kang, and Lihua Zhang

2. FASP: A Fast and Accurate Framework for Schedule Performance Evaluation

Authors: Qingqiu Lan, Ao Ren, Zhenyu Wang, Wei Li, Hongbin Zhu, Yujuan Tan, Duo Liu, Kan Zhong, and Chaoxia Qin

3. AUE: A Normalized Energy Efficiency Metric for Al Servers under LLM Workloads

Authors: Yijia Zhang, Dongxiang Zhang, Xianglin Liu, Qiang Wang, Bingqiang Wang, Shixun Zhang, and Yonghong Tian

4. Client Selection for Multi-Task Federated Learning: A Lyapunov Optimization Approach

Authors: Jingzhou Wang, Xiumin Wang, Weiwei Lin, Kai Liu, and Weiwei Wu

5. Multi-factor Preemptive Scheduling for Heterogeneous Mixed Jobs in Cloud Computing

Authors: Jia Wang, Qianxi Pan, and Abdullah Lakhan

6. Towards Real-Time Job Scheduling for Load Balancing in Clouds

Authors: Qiuyang Zhu, Luyao Luo, and Yu-E Sun

Session 35: Cloud Edge Computing III, December 17, 14:00-15:45

1. MOCAS: Affinity-Aware Moldable Scheduling for Containers in Heterogeneous Clusters

Authors: Xun Hu, Luyao Luo, Yu-E Sun, and He Huang

2. Task Offloading and Resource Allocation Optimization via Stackelberg Game in Parked-Vehicle-Assisted Vehicular **Edge Computing**

Authors: Chunlin Li, Ke Xiao, Jinkun Xu, Wenjie Ji, and Liping Gao

3. Lazy-ConSnap: On-Demand Memory Persistence for Efficient Continuous VM Snapshots and Low-Latency Rollback

Authors: Ze Qu, Jiami Lin, Lei Cui, Lun Li, Haiqiang Fei, and Hongsong Zhu

4. A Node Load-Aware Horizontal Autoscaling Strategy for FaaS with Shared Resources

Authors: Xiaoyong Tang, Sikai Wu, Ronghui Cao, Mingfeng Huang, Wenzheng Liu, and Tan Deng

5. Multi-objective Deep Reinforcement Learning for Adaptive Virtual Machine Allocation in Clouds

Authors: Yuzi Chen, Jie Sun, Xiao Du, Puyu Cai, and Ting Wang

6. Col-TEEs: Secure and Efficient Collaborative Inference Framework in Heterogeneous TEEs



Authors: Xu Liu, Tao li, Zhaolong Jian, Xueshuo Xie, Mulin Li, and Gang Wang

7. Millisecond-Level Live Migration of Object-Detection Applications in Edge Environments

Authors: Zhangyi He, Gaotao Shi, Shikang Yang, Zhijun Li, Wanyou Wang, and Pingfu Chao

Session 36: Cloud Edge Computing IV, December 17, 14:00-15:45

1. EdgeSched: Adaptive User-space Scheduling for Serverless Functions in Edge Computing

Authors: chengqing zhao, Borui Li, shuaiwang, and shuaiwang

2. Resource State Evolution and Heterogeneous Task Aware Intelligent Scheduling in Computing Power Networks Authors: Xuefeng Huang, Junyan Chen, Baokang Zhao, and Wei Xiao

3. Dynamic Multi-Objective Task Offloading in Edge Computing via Proximal Policy Optimization with Hybrid **Prioritized Experience Replay**

Authors: Xiaoli Lu and Gaizhi Guo

4. SwiftReTaKe: Quick and Accurate Redundancy Reduction for Cloud-Edge Collaborative Video-Language Understanding

Authors: Xinqi Jin, Fan Dang, Kebin Liu, Jiangchuan Liu, and Jingao Xu

5. A High-Precision CSI-Based Localization Framework with Kolmogorov-Arnold Network and Broad Learning System Authors: Xuanqi He, Mingbo Zhang, Xiaoqiang Zhu, Yingying Yao, Chenyang Wang, and Lingkun Li

6. Generalizing WiFi Gesture Recognition via Large-Model-Aware Semantic Distillation and Alignment

Authors: Feng-Qi Cui, Yu-Tong Guo, Tianyue Zheng, and Jinyang Huang

7. PACKLOC: Fine-Grained Tag Ordering for Anti-Counterfeiting in Packaged Products

Authors: Xuanyang Huang, Yachen Mao, Huiyong Lu, and Yubo Yan

Session 37: Networked Computing for Embodied AI I, December 17, 14:00-15:45

1. Efficient LLM Edge Collaboration Deployment with LoRA

Authors: Yang Xiao, Xin He, Weijun Wang, Jian Zhou, and Fu Xiao

2. Unlocking Agentic Al Service Deployment Complexity: Simulation-guided Strategy Orchestration and Optimization

Authors: Chongxi Ma, Chengyun Zhang, Long Luo, Weihong Wu, and Hongfang Yu

3. FedTeddi: Temporal Drift and Divergence Aware Scheduling for Timely Federated Edge Learning

Authors: Yuxuan Bai, Yuxuan Sun, Tan Chen, Wei Chen, Sheng Zhou, and Zhisheng Niu

4. Scalable Bolt: Taming the Burst Queue via Scalable Token Management

Authors: Haoyang Li, Peile Chen, Ang Jiang, Yanxi Chen, and Wanchun Jiang

5. HCC: A Hybrid Centralized-Distributed Collaboration Coverage Strategy for UAV Swarms in Unknown **Environments**

Authors: Jie Li, Hao Liu, Yi Bo, Xingwei Wang, and Xijia Lu

6. Hierarchical Multi-Agent Deep Reinforcement Learning for Cooperative Exploration of UAV Swarms

Authors: Nathaniel Mackay Salt, Farshad Arvin, and Junyan Hu

7. DRL-VLA: An Optimization Method for VLA Model Based on Deep Reinforcement Learning

Authors: Mengkun Zhang, Pengfei Gao, Yinuo Sheng, Ran Li, Qingliang An, and Wenxin Wang



Session 38: Distributed Storage I, December 17, 14:00-15:45

1. A Bit Level Weight Reordering Strategy Based on Column Similarity to Explore Weight Sparsity in RRAM-based NN **Accelerator**

Authors: Weiping Yang, Shilin Zhou, Yujiao Nie, Qimin Zhou, Hui Xu, Zhiwei Li, and Changlin Chen

2. Reviving eBPF-Based Storage Isolation in FaaS via Model-Rule Decoupling

Authors: Darong Yang, Hechen Sun, Qicong Lin, and Shiyi Li

3. PQC-LLM: Post-Quantization Delta Compression for LLMs

Authors: Yujin Zhong, Chao Wu, and Cheng Ji

4. PStore: End-to-End Integrity and High-Performance I/O for Cloud-Native Databases

Authors: Ying Wang, Dejun Jiang, and University of Chinese Academy of Sciences)

5. CacheMon: In-Network Cache Coordination for Massively Scalable Distributed Storage Systems

Authors: Kexin Ju, Xiaobin Tan, Shenzhi Yuan, Shangwei Li, Chaoming Huang, and Quan Zheng

6. GCLComp: A GPU-Centric Compaction Strategy for LSM-based KV Store

Authors: Hao Zhou, Wu Zeng, Gang Wang, and Xiaoguang Liu

7. FAI-CXL: An Efficient Hardware-Accelerated Fairness-Aware CXL Memory Pool Management with Fine-Grained **Cacheline-Level Interleaving**

Authors: Jiaxi Li, Yixuan Liu, Yunfei Gu, and Chentao Wu

Session 39: Distributed Storage II, December 17, 14:00-15:45

1. SaneKV: A Swift-Adaptive and NUMA-Enhanced Persistent Key-Value Store

Authors: Shengquan Yin, Yili Ma, Jing Xing, Zheng Wei, Dingwen Tao, and Guangming Tan

2. MergeFS: Optimizing Node-Local Burst Buffers for Complex HPC Workflows

Authors: Zhaohao Zhong, Huijun Wu, Min Xie, Yong Dong, Wenzhe Zhang, Zhenwei Wu, Lihua Yang, and Ruibo Wang

3. GTree: A Trie-Based Alignment-Free Clustering Framework for Efficient DNA Data Storage and Enhanced Error Resilience

Authors: Linxuan Han, Guanjin Qu, Zihui Yan, and Huaming Wu

4. DBR Lock: Dynamic Frequency-Aware Batching for Efficient Shared Lock Release in RDMA Systems

Authors: Jingjing Liu, Hong Gao, Jinbao Wang, and Lina Chen

5. Double-Metadata-Cache: An Efficient Metadata Caching Architecture for Distributed File Systems

Authors: Yuhang Li, Fan Guo, Yu-Ang Cao, Deming Ren, Wenzhe Zhu, Yongkun Li, and Yinlong Xu

6. ZlearnIndex: Learned Index on ZNS SSDs for Space and Performance Efficiency

Authors: Jingze Huo, Cheng Li, and Yinlong Xu

Session 40: Cloud Edge Computing V, December 17, 14:00-15:45

1. AODMS: Adaptive Online Edge-cloud Collaborative Inference with Dynamic Model Switching and Resource Allocation

Authors: Lulu Zuo, Qingfang Zheng, Zheming Yang, and Wen Ji

2. Multilevel Matching Geometric Range Query Over Encrypted Spatial Data With Forward And Backward Privacy

Authors: mingyue li, yuehui zhang, ruizhong du, and chunfu jia

3. GroupRS: Node-Grouping Based Data Placement Strategy in Erasure-Coded Data Center Storage for High Data



Reliability

Authors: Junyuan Huang, Yuchong Hu, and Guanglei Xu

4. Layer Fusion-accelerated Online Scheduling for Multi-Tenancy on Heterogeneous DNN Accelerators

Authors: Lei Jia, Zhaojun Ni, Yutong Wang, Siting Liu, and Chundong Wang

5. Haina Storage: Large-Scale and Secure Decentralized Storage for Files in Private Cloud

Authors: Zijian Zhou, Caimei Wang, Xiaoheng Deng, Hairong Lin, Jianhao Lu, and Shaohua Wan

6. Optimizing Distributed LLM Serving through Request Scheduling and Key-Value Cache Sharing

Authors: Hongye Jiang, Mu Wang, Su Yao, Cui Ting, Ziwei Li, and Changqiao Xu

7. BEMOS: A Beam Exploration Framework for Energy and Makespan Optimization in Heterogeneous Multiprocessor Scheduling

Authors: Aradhana Mishra and Subrat Kar

Session 41: Networked Computing for Embodied Al II, December 17, 16:05-17:50

1. FENSe: Feedback-Enabled Neighbor Selection for Spatial Aware Collaborative Perception

Authors: Qianxun Xu, Azzedine Boukerche, and Peng Sun

2. MixLoc: Universal Magnetic Indoor Localization Via Mixed-Frequency Data Representation Learning

Authors: Qinghu Wang, Jie Jia, Jian Chen, Yansha Deng, Xingwei Wang, and Abdol Hamid Aghvami

3. Multi-Modal Indoor Localization by Reducing Intra- and Inter-Modality Feature Heterogeneity

Authors: Jinyu Liu, Qinghu Wang, Xiaoqiang Zeng, Zhili Pei, Xiaoxiong Sun, Xueyan Chen, and Zhigao Zhang

4. CLF-SFC: Freshness-Aware Service Function Chain Orchestration across End-Edge-Cloud

Authors: Wenlin Cheng, Xingwei Wang, Bo Yi, Xijia Lu, Yong Zhao, Chuangchuang Zhang, and Min Huang

5. Integrated Data Collection and Model Retraining Optimization in UAV-Enabled ECNs

Authors: Xiuling Zhang, Ding Xu, Lingjie Duan, and Miao Zhang

6. Towards Communication-Efficient Heterogeneous Collaborative Perception via Semantic Disentanglement

Authors: Shijie Feng, Tiange Fu, Hongru Zhao, Guiyang Luo, Quan Yuan, and Jinglin Li

7. PCSR: A Low-Latency Routing Protocol for Polymorphic Networks in Real-Time Embodied Al

Authors: Yingpu Nian, Bo Yi, Zhi Wang, Yuan Yang, Xingwei Wang, and Keqin Li

8. Joint UAV Deployment and Model Partition for Efficient Collaborative Inference

Authors: Wenjing Xia, Tao Wu, Hongjun Wang, Ruhao Jiang, Mingjin Zhang, and Yuben Qu

Session 42: Next-Generation Mobile Networks and Connected Systems, December 17, 16:05-17:50

1. Multi-Scale Dual-Domain Attention Network for Traffic Flow Prediction

Authors: Chenhui Wei, Chuanming Chen, Xiang Wu, Ming Zheng, Tianjiao Ni, and Qingying Yu

2. NomaFdRaN: Performance Analysis of NOMA-Optimized Fully-Decoupled RAN for 6G Reliable Massive Connectivity

Authors: Rawan A. Ameen, Haithm M. Al-Gunid, Wang Xingfu, Fuyou Miao, Wei Zhao, Ammar Hawbani, Hui Tian, and Nawaf Q. Othman

3. User-Aware Critical Thread Identification and Proactive CPU Governing on Mobile Devices

Authors: Jiahao Qiu, Yuezhi Che, and Dazhao Cheng

4. Joint Content Placement and Delivery Optimization in LEO-Vehicular Networks via Deep Reinforcement Learning

Authors: Ramiz Sharafat Rajput, Xinming Zhang, and Cunlai Pu

5. DARE: Towards Maximized Bandwidth Utilization of Dynamic Bandwidth Allocation for Next-Generation Passive **Optical Networks**



Authors: Kuangxun Huang, Xiao Yun, Lihe Liang, and Zhe Lin

6. MoEoM: Joint Compute and Memory-Aware Balancing for Fast MoE Inference

Authors: Ziqi Gong, Yitao Hu, Sheng Chen, Wenxin Li, and Keqiu Li

7. A Two-Phase BLS Multi-Signature Backed Transaction Propagation Mechanism for Blockchain-Enabled Multi-**Access Edge Computing**

Authors: Xijia Lu, Xingwei Wang, Bo Yi, Qiang He, Jie Li, and Min Huang

8. LOAR-Fi: Location- and Orientation- Adaptive Respiration Monitoring Using Low-Cost WiFi

Authors: Bo Wang, Dawei Yan, Xiaoshan Zhu, Yubo Yan, and Lei Yu

Session 43: Distributed Storage III, December 17, 16:05-17:50

1. An Efficient Server-Side Prefetching Scheme to Optimize Performance of Distribution File Systems

Authors: Yong Li, Shuibing He, Qian Zhao, Zhan Shi, Yi Qin, Weixu Zong, Peng Xu, and Lingfang Zeng

2. BRGCs: A New Class of Horizontal Code with Excellent Scalability and High Computational Efficiency

Authors: Ziwen WEI, Yidong Wang, Meijuan Li, Xiaolin Qin, and Dan Tang

3. Improving Overall Data Availability in Decentralized Storage via an Availability-Balanced Replica Placement Strategy

Authors: Weichen Huang, Jiali Liu, and Shenggang Wan

4. A Reinforcement Learning-based Approach for Storage Assignment in Coded Blockchain

Authors: Changlin Yang, Weijian Xia, Xiaoyuan Wu, Yuan Huang, and Xiangping Chen

5. IPAR: An Invalid-Page-Aware Refresh Scheme for High-Performance 3D High-Density NAND Flash Memory

Authors: Xiaokun Zhu, Yang Zhang, Pengchao Han, and Guojun Han

6. CacheMigrate: Efficient Cache Migration for Load Balancing in Distributed Key-Value Storage Systems

Authors: Xianda Meng, Ammar Hawbani, Jiangyuan Chen, Abdulbary Naji, and Liang Zhao

7. THDP: Temporal History based Dynamic Prefetching for GPU Memory Oversubscription

Authors: Minghui Wang, Guangping Xu, Mingyuan Ding, and Zitong Wang

Session 44: Distributed System and Ubiquitous Intelligence V, December 17, 16:05-17:50

1. Honeycomb: A Unified Route-Aware Interoperability Framework for Complex Cross-chain Network Architecture

Authors: Yi Guo, Yuying Wang, Tiantian Duan, Linpeng Jia, Hanwen Zhang, and Yi Sun

2. CGAN-Based High-Performance Privacy-Enhanced Federated Learning

Authors: Xinglong Wei, Yuhao Zhao, Qingyuan Meng, and Siguang Chen

3. Optimal Cost-Sensitive Microservice Granulation Based on Granular-Ball Computing

Authors: Zhenchao Yan, Songlin He, Jianhui Yu, Aiqin Hou, and Chase Wu

4. HiPOD: Hierarchical Pruning for Low-Distinction Multi-Scale Object Detection on Edge Devices

Authors: Jieyu Zhou, Feng Lyu, Mingliu Liu, Hao Wu, Xueying Li, Fan Wu, and Yaoxue Zhang

5. Rethinking Uplink Multi-User Access for Dense WLANs with Heterogeneous User States

Authors: Han Hao and Wei Xi

6. Latency Analysis of DAG-Driven Blockchain System for IoV Through the Lens of IOTA

Authors: Xuefeng Piao, Jiasi Li, Hao Ding, Haobo Wang, Huihui Song, Seong-Je Cho, and Zhenzhou Ji

7. Detecting and Characterizing APT Attacks in the Open World

Authors: Hao Xi, Yibin Han, Xiaoxiang Li, Jingwei Song, Zhenwei Zhang, Hai Wan, and Xibin Zhao



8. Wi-Fi Based Indoor Human Trajectory Tracking with Diffusion-Model

Authors: Rui Zang, Dawei Yan, Bo Wang, and Yubo Yan

Session 45: Interdisciplinary Distributed System and IoT Applications II, December 17, 16:05-17:50

1. NCCP: A Notary Group-Based Cross-Chain Channel Protocol for Secure and Scalable Interoperable Payments Authors: Hai Liang, XiaoYe Lu, Yujue Wang, Changsong Yang, Yu Xu, and Shuo Wang

2. Spatiotemporal Feature Enhancement Adversarial Attack for Multivariate Time Series Prediction

Authors: Changsong Yang, Zhenzhong Zhu, Chunhai Li, Yong Ding, and Chuan Zhang

3. Invisible Stealthy Backdoor Attack On Diffusion Models

Authors: Zhi Chen, Qing Luo, Xiaoyi Zhou, and Jixin Ma

4. FedSDT: A Federated Distillation Optimization Method for Heterogeneous Non-IID Data through Dual-Teacher Distillation and Bidirectional Knowledge Filtering.

Authors: Zhenqi Zhang, Sun Hua, Haiyang Fan, and Linlin Zhang

5. FCSA: A Multi-Domain Enhancement Method for Improving Adversarial Transferability

Authors: Shengyu Xiong, Anjie Peng, Hui Zeng, Shujian Liao, Fudie Ai, Qiang Wan, Yong Peng, and Wanli Dong

6. BFAE-Net: Behavior Feature Aggregation Enhancement Module for Effective Action Recognition in Infrared Videos Authors: Jinlong Liu, Jinjiu Liu, Naji Alhusaini, Liang Zhao, and Amar N.Alsheavi

7. From Docking Station to Docking Station: Completing Tasks in Minimum Time by Cooperative UAV Fleets Authors: Baixin Wan, Feng Shan, and Jianping Huang

8. Classifying Host-Side RDMA Pingmesh Results to Efficiently Identify Transport Faults in Data Centers

Authors: songhao Ding, Boyang Zhou, and Yuhua Zheng



ICAPDS 2025 POSTERS

Posters

1. FedAT- Federated Adversarial Training Framework for Insider Threat Detection

Authors: R G Gayathri, Atul Sajjanhar, Md Palash Uddin, Yong Xiang, and Ying Zhao

2. Improving Knowledge Graph Completion through Structural-Aware Context Distillation and Reverse Descriptions

Authors: Chuanjiang Yang, Xiaoge Li, Huizhi Zhang, Xinzun Wang, Yanping Chen, and Zhongmin Wang

3. ParkPredictNet: A Framework Integrating GCN and Transformer for Parking Recommendation

Authors: Jiangnan Yan, Haoxuan Kuang, Kunxiang Deng, and Jun Li

4. DSPJ: Deep Reinforcement Learning-based Scheduling Algorithm for Parallel Multi-stage Cloud Fuzzy Jobs

Authors: Kejia Guo, Jinquan Zhang, and Xiaoping Li

5. Mobility-aware Partial Task Offloading Scheme for Vehicular Edge Computing

Authors: Yufeng Li, Lisha Tao, and Jun Shen

6. AutoTPA: Automated and Efficient Trigger-Targeted Data Poisoning in Retrieval-Augmented Generation

Authors: Chenhao Jin, Jin Ma, Xiuzhen Chen, Yinghua Ma, and Zhihong Zhou

7. Split-LSM-Tree: High-Performance KV Storage via Dynamic Tree Splitting

Authors: Yu-Ang Cao, Fan Guo, Yuhang Li, Deming Ren, Ruida Xu, Wenzhe Zhu, Yongkun Li, and Yinlong Xu

8. Poster: Boosting Inter-Procedural Vulnerability Detection via Retrieval-Augmented Generation

Authors: Linru Ma, Hongquan Xu, Hongyu Kuang, Feng Yang, and Boyu Deng

9. WPM-GAN: Watermark-Preserving Module for GAN-based Robust Industrial Image Watermarking

Authors: Xiangyu Wang, Yingchao Yang, Ruilin Wang, Lingchen Gu, and Wenbo Wan

10. FedPLC: Noise-Robust Federated Learning for Object Detection in Autonomous Driving

Authors: Yufeng Li, Qiange Li, and Jun Shen

11. STTE: A Spatio-Temporal Graph Neural Network Approach base on Trajectory for Travel Time Estimation

Authors: Ping Zhong, Jiarong He, Anning Wang, Lin Li, and Yingwen Chen

12. Provisioning of Kubernetes Clusters for Task-Based Python Applications

Authors: Andrey Nagiyev, Enes Bajrovic, and Siegfried Benkner

13. ProFL: A Proactive and Privacy-Preserving Client Selection Framework for Straggler Mitigation in Federated Learning

Authors: Bojin Wang, Chenyang Xu, and Hao Wang

14. FedGuard: A Two-Stage Defense Framework against Model Poisoning in Federated Learning via Verifiable

Training Dynamics

Authors: Boyun Zhang, Chenyang Xu, and Hao Wang

15. Co-Warm: An Application-Aware Framework for Collaborative and Cost-Effective Cold Start Mitigation in **Serverless Computing**

Authors: Dongwei Zhao, Chenyang Xu, and Hao Wang

16. FedTrim: A Unified Framework for Secure, Private, and Efficient Federated Learning via In-TEE Model Debloating

Authors: Jiaxu Guo, Kun Chen, and Hao Wang

17. ConceptCraft: Attention-Based Multi-Concept Decoupling for Text-to-Image Personalization

Authors: Ruyue Zhang, Yinhua Tian, and Wen Liu

18. AquaLite: Mobile-Oriented Lightweight Detector for Marine Organism Detection in Oceanariums



Authors: Baihao You, Jingheng Long, Zelin He, Jiangsan Zhao, and Ximing Li

19. Meta-Gradient Adversarial Attack for Weight Assignment Based on Model Differences

Authors: Yujie Wang, Jingjing He, and Zhichao Lian

20. MobileNetV4 Optimization for Edge Devices: Dynamic UIB Selection and Resource-Constrained Decisions

Authors: Tianxiang Zhang, Jing Chen, Chuanfu Zhang, Tonglin Fu, Mingchao Ji, and Shengnan Li

21. Adaptive Multimodal Fusion with Modality-Aware Feature Selection for Malware Classification

Authors: Fanqi Meng, Huimin Li, and Jingdong Wang

22. FPGA-Based Accelerator for Parallel High Utility Itemset Mining Using Utility List

Authors: Gufeng Li, Ying Wu, Zhanpeng Wei, Jiawei Xiang, and Tao Shang

23. Dynamic Energy-Performance Optimization Tool extension with periodic power cap tuning

Authors: Dawid Szmidka, Adam Krzywaniak, Paweł Czarnul, and Jerzy Proficz

24. SLAG: A Sensitive Layer Activation-Guided Jailbreak Attack on Vision-Language Models

Authors: Jingjing He, Yujie Wang, Yisheng Li, and Zhichao Lian

25. SGF: Secure Game-theoretic Framework for IoT Data Pricing with Trustzone and Blockchain

Authors: Aorigele, Leixiao Li, and Jinze Du

26. Efficient Incremental Backup Chunking Algorithm Based on Historical Chunk Reuse and Boundary Stability Optimization

Authors: Kun Meng, Mingxing Li, Huachun Zhou, and Lei Cao

27. An Enhanced Collaborative Forest Semi-Supervised Software Defect Prediction Method Based on Heterogeneous Integration

Authors: Fanqi Meng, Huimin Li, and Yongjun Li

28. An Efficient Online AlltoAll Scheduling Framework for Mixture-of-Experts

Authors: Junkai Huang and Yiling Yang

29. Priority-Based Resource Scheduling for Containerized Environments

Authors: Tonglin Fu, Jing Chen, Chuanfu Zhang, Mingchao Ji, Tianxiang Zhang, Taian Bei, and Shengnan Li

30. The Workflow Scheduling Method of Computing Power Network based on Load Balance of Voting Mechanism

Authors: Jing Chen, Yudong Geng, Tonglin Fu, Mingchao Ji, Tianxiang Zhang, and Meng Yuan

31. AquaVLM: A Domain-Specific Vision-Language Model for Structured Understanding of Oceanarium Scenes

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