

The 2025 IEEE Cybermatics Congress

The 25th International Conference on Algorithms and Architectures for Parallel Processing

The 8th IEEE International Conference on Blockchain

The 11th IEEE International Conference on Smart Data

The 18th IEEE International Conference on Cyber, Physical and Social Computing

The 18th IEEE International Conference on Internet of Things

The 21st IEEE International Conference on Green Computing and Communications

ICA3PP/Blockchain/SmartData/CPSSCom/iThings/GreenCom-2025

Oct 30-Nov 02, 2025, Zhengzhou, Henan, China

<https://ieee-cybermatics.org/2025/>

Conference Programs and Information Booklet



Organized by



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Zhengzhou University



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Registration Desk

The Registration Desk will be open at the **JW Marriott Hotel** to assist you at the following times:

- Wednesday, October 29, 2025, 13:00 – 20:00
- Thursday, October 30, 2025, 8:00 – 20:00
- Friday, October 31, 2025, 8:00 – 20:00
- Saturday, November 01, 2025, 8:00 – 13:00

Name Badges and Meal Tickets

All delegates, sponsors and speakers of the IEEE ICA3PP/Blockchain/SmartData/CPSCoM/iThings/GreenCom-2025 will be provided with a name badge to be collected upon registration. This badge must be worn at all times as it is your official pass to all technical sessions of the conferences and morning and afternoon coffee breaks.

There are different meal tickets for the welcome reception on October 31, the three lunches on October 30 - November 01, and the banquet on November 01, respectively.

Presentation Guidelines

Conference Date

The conference is to be held from October 30 - November 02, 2025. The time for the conference program is based on CST, China Standard Time.

Language

The presentation language of the IEEE ICA3PP/Blockchain/SmartData/CPSCoM/iThings/GreenCom-2025 is English.

For Session Chairs

Session Chairs are requested to join the room at least 10 minutes before their sessions.

For Authors

For the authors of **Regular Paper, Research Paper and Workshop Paper**, you are strongly encouraged to join the room during your presentation and Q&A. Please confirm your attendance with the Session Chair at least 10 minutes before the session.

Timing

Please check the program for the exact time of your session and where your paper falls within the session.

For the authors of **Regular Paper, Research Paper and Workshop Paper**, it is recommended that all IEEE ICA3PP/Blockchain/Smart Data/CPSCoM/iThings/GreenCom-2025 presentations use **12 minutes presentation time plus 5 minutes question time**. However, the Session Chairs will determine the exact presentation time for each paper, based on the number of presentations in each session. The Session Chairs will ensure that you do not overrun the time allocated.

Proceedings

If you are interested in reading papers during the presentations, here are the proceedings:

ICA3PP 2025: <https://link.springer.com/conference/ica3pp>

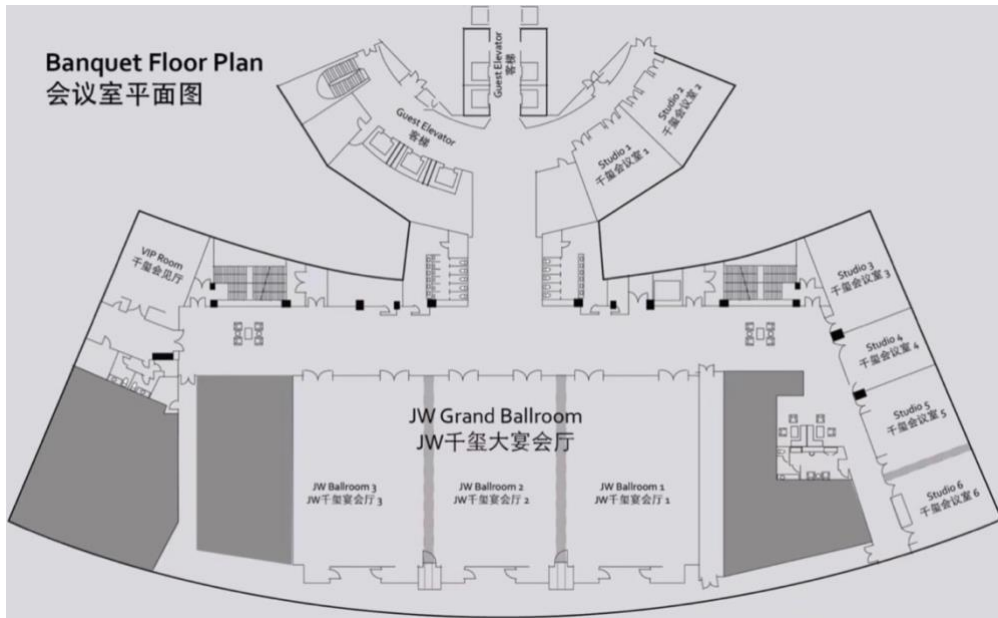
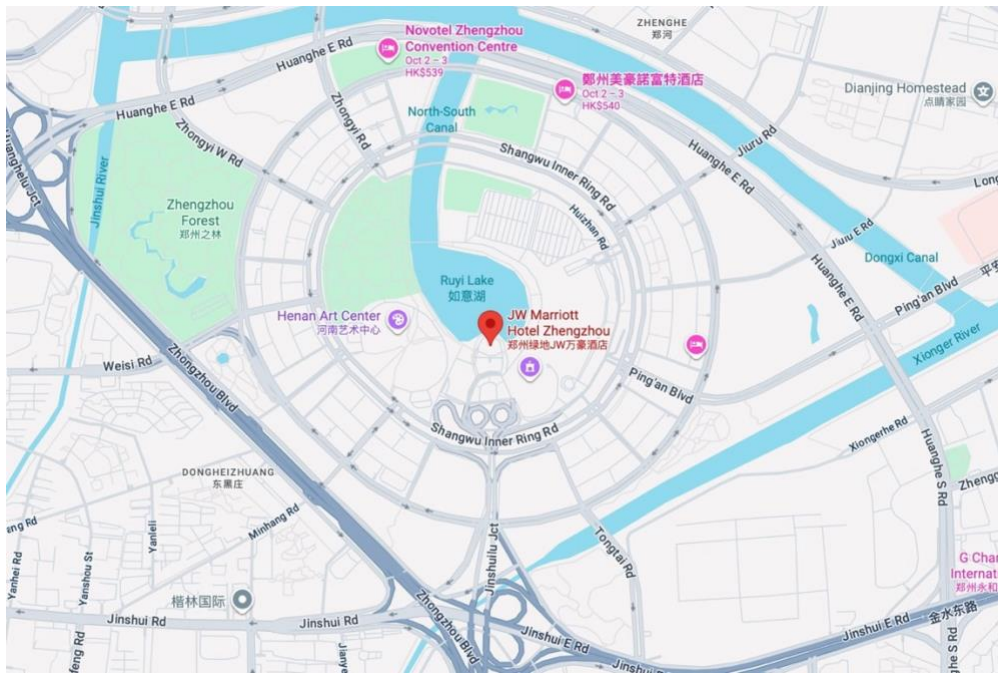
Blockchain 2025: <https://conferences.computer.org/blockchainpub25>, Username: blockchainpub25

The username and password will be sent to all fully registered participants at the conference, respectively.

Conference Venue

JW Marriott Hotel / 郑州绿地 JW 万豪酒店

Locations	Rooms	Activities
Studio 1 (千玺会议室 1)	Room 1	Oral Presentation
Studio 2 (千玺会议室 2)	Room 2	Oral Presentation
Studio 3 (千玺会议室 3)	Room 3	Oral Presentation
Studio 4 (千玺会议室 4)	Room 4	Oral Presentation
Studio 5 (千玺会议室 5)	Room 5	Oral Presentation
Studio 6 (千玺会议室 6)	Room 6	Oral Presentation
VIP Room (千玺会见厅)	Room 7	Oral Presentation
JW Grand Ballroom (JW 千玺大宴会厅)	Room 8	Opening/Keynote/Reception/Banquet



Welcome Message from the Congress Steering Chair

Welcome to the 2025 IEEE Cybermatics Congress which includes the 25th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP-2025); the 8th IEEE International Conference on Blockchain (Blockchain-2025); the 11th IEEE International Conference on Smart Data (SmartData-2025); the 18th IEEE International Conference on Cyber, Physical and Social Computing (CPSCoM-2025); the 18th IEEE International Conference on Internet of Things (IoT-2025); the 21st IEEE International Conference on Green Computing and Communications (GreenCom-2025).

Advances in computers, information and networks are bringing a digital cyber world to our daily lives. Numerous digital things or cyber entities are generated and will reside in the cyber world. Meanwhile, countless real things in the conventional physical, social and mental worlds will possess cyber mappings or cyber components, to have a cyber existence in the cyber world. Cyberization is an emerging trend forming the new cyber world and reforming conventional worlds towards cyber-enabled hyper worlds. Cybermatics is to build systematic knowledge about new phenomena, behaviors, properties and practices in cyberspace, cyberization and cyber-enabled hyper worlds. Cybermatics is characterized by not only catching up with human intelligence (e.g., intelligent sensing, making decisions and control, etc), but also learn from the nature-inspired attributes (e.g., dynamics, self-adaptability, energy saving).

Here, we would like to sincerely thank all organizing committee members, program committee members, and reviewers for their hard work and valuable contributions. Without your help, these conferences would not have been possible. We greatly appreciate the sponsorship from the IEEE, IEEE Computer Society, IEEE Technical Committee on Scalable Computing, IEEE SC Technical Committee on Hyper-Intelligence, IEEE CIS Cyber-Physical-Social Systems Task Force, ACM China Council, and International Engineering and Technology Institute. We are very grateful to the keynote speakers for their authoritative speeches. We thank all authors and conference participants for using this forum to communicate their excellent work.

The conferences are planned to be held in October 30 - November 02, 2025, Zhengzhou, Henan, China.

We hope you find the conferences a stimulating and exciting forum.



Laurence T. Yang, FCAE, FEIC, MAE, MRAE, MNAAI, FIEEE
Steering Chair, IEEE CS TC on Scalable Computing
Chair, IEEE SMC TC on Cybermatics
Chair, IEEE SC TC on Hyper-Intelligence
Academic Vice-president and Dean, Zhengzhou University, China
Congress Steering Chair



Jianhua Ma
Chair, IEEE SMC TC on Cybermatics
Chair, IEEE CIS TC on Smart World
Chair, IEEE SC TC on Hyper-Intelligence
Professor, Hosei University, Japan
Congress Steering Chair

Congress Keynotes

Keynote 1: M. Jamal Deen, McMaster University, Canada

Integrating AI, Smart Sensors and Gait Towards Ubiquitous Healthcare

Keynote 2: Dacheng Tao, Nanyang Technological University, Singapore

Deep Model Fusion

Keynote 3: Max Q.-H. Meng, Southern University of Science and Technology, China

In the AI Era, Surgical Robots or Robotic Surgeries?

Keynote 4: Ljiljana Trajkovic, Simon Fraser University, Canada

Data Mining and Machine Learning for Analysis of Network Traffic

Keynote 5: Toshiaki Miyazaki, Aizu University, Japan

Demand-Addressable Sensor Network: Toward Flexible Acquisition of Desired Sensed Data in a Million Class Sensor Network

Keynote 6: Bin Hu, Beijing Institute of Technology, China

Computational Psychophysiology and Mental Health

Keynote 7: Kim Fung Tsang, City University of Hong Kong, China

Sustainability Driving Internet of Things and Standards

Keynote 8: Erol Gelenbe, Université Côte d'Azur, France

AI and Queueing Theory Combine Forces for the Detection and Mitigation of Cyberattacks

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Keynote 1: Integrating AI, Smart Sensors and Gait Towards Ubiquitous Healthcare

M. Jamal Deen, McMaster University, Canada

About the Keynote Speaker



M. Jamal Deen is Distinguished University Professor and Director of the Micro- and Nano-Systems Laboratory at McMaster University. His current research interests are nanoelectronics, optoelectronics, nanotechnology, data analytics and their emerging applications to health and environmental sciences. As an educator, he won the Ham Education Medal from IEEE Canada, the McMaster University President's Award for Excellence in Graduate Supervision, and the MSU Macademics' Lifetime Achievement Award (highest award at McMaster University voted by the students) for his exceptional dedication to teaching and significant contribution to student life, academia, and the community at large. Recently (2024), he was the inaugural winner of the SM Sze Education Award from the IEEE Electron Devices Society "For impact leadership and global dissemination of biosensor education in underprivileged regions."

As an undergraduate student at the University of Guyana, Dr. Deen was the top ranked mathematics and physics student and the second ranked student at the university, winning the Chancellor's gold medal and the Irving Adler prize. As a graduate student, he was a Fulbright-Laspau Scholar and an American Vacuum Society Scholar. His awards and honors include the Callinan Award as well as the Electronics and Photonics Award from the Electrochemical Society; a Humboldt Research Award from the Alexander von Humboldt Foundation; the Eadie Medal from the Royal Society of Canada; and the McNaughton Gold Medal, the Fessenden Medal and the Gotlieb Computer Medal, all from IEEE Canada. In addition, he was awarded the five honorary doctorate degrees in recognition of his exceptional research, scholarly and education accomplishments, exemplary professionalism and valued services.

Dr. Deen has been elected by his peers as Fellow/Academician of thirteen national academies and professional societies including The Royal Society of Canada - The Academies of Arts, Humanities and Sciences (the highest honor for academics, scholars and artists in Canada), the Chinese Academy of Sciences (China's highest national honor in the area of science and technology and highest academic title), , the National Academy of Sciences India, the Canadian Academy of Engineering, IEEE, APS (American Physical Society) and ECS (Electrochemical Society). He served as the elected President of the Academy of Science, The Royal Society of Canada in 2015-2017. Recently, he was elected the inaugural Vice President (North) of The World Academy of Sciences, representing the developed countries. He was also elected to the Order of Canada, the highest civilian honor awarded by the Government of Canada.

Summary: The convergence of artificial intelligence (AI) and smart sensor technologies is revolutionizing healthcare by enabling real-time monitoring, personalized health interventions, and ambient assisted living. In this talk, I will present a comprehensive overview of AI-enabled smart systems across the domains of mobility analysis, smart medical homes, wearable telehealth platforms, and lifestyle management tools. I will then discuss a holistic view of a smart medical home ecosystem driven by sensor fusion, edge computing, and AI analytics that form the core of next-generation aging-in-place and daily activity monitoring. Central to this is the concept of a "brain" or an autonomic decision-making system that orchestrates data flow, interprets contextual information, and delivers intelligent outputs. A key focus of the talk will be our mobility and walking pattern analyzer, a multi-sensor AI-based system that assesses gait and mobility patterns in real-time, empowering early gait diagnostics and rehabilitation tracking. I will also introduce the smart living diary, a multi-modal interface aggregating activity, nutrition, and sleep data to promote healthy lifestyle. Next, I will highlight the growing role of wearable telehealth devices and how AI augments their predictive and diagnostic capabilities. Trends in ubiquitous healthcare and sensor performance will be discussed, alongside ethical and interoperability challenges. The presentation will conclude with a forward-looking perspective on the future of AI-enabled healthcare, emphasizing the need for standardized frameworks, inclusive design, robust privacy-preserving mechanisms and future pathways for research and implementation in smart healthcare system.

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Keynote 2: Deep Model Fusion

Dacheng Tao, Nanyang Technological University, Singapore

About the Keynote Speaker



Dacheng Tao is currently a Distinguished University Professor and the Inaugural Director of the Generative AI Lab in the College of Computing and Data Science at Nanyang Technological University. He was an Australian Laureate Fellow and the founding director of the Sydney AI Centre at the University of Sydney, the inaugural director of JD Explore Academy and senior vice president at JD.com, and the chief AI scientist at UBTECH Robotics. He mainly applies statistics and mathematics to artificial intelligence, and his research is detailed in one monograph and over 300 publications. His publications have been cited over 140K times and he has an h-index 180+ in Google Scholar. He received the 2015 and 2020 Australian Eureka Prize, the 2018 IEEE ICDM Research Contributions Award, 2020 research super star by The Australian, the 2019 Diploma of The Polish Neural Network Society, and the 2021 IEEE Computer Society McCluskey Technical Achievement Award. He is a Fellow of the Australian Academy of Science, ACM and IEEE.

Summary: In recent years, we have witnessed a profound transformation in the learning paradigm of deep neural networks, especially in the applications of large language models and other foundation models. While conventional deep learning methodologies maintain their significance, they are now augmented by emergent model-centric approaches such as transferring knowledge, editing models, fusing models, or leveraging unlabeled data to tune models. Among these advances, deep model fusion techniques have demonstrated particular efficacy in boosting model performance, accelerating training, and mitigating the dependency on annotated datasets. Nevertheless, substantial challenges persist in the research and application of effective fusion methodologies and their scalability to large-scale foundation models. In this talk, we systematically present the recent advances in deep model fusion techniques. We provide a comprehensive taxonomical framework for categorizing existing model fusion approaches, and introduce our recent developments, including (1) weight learning-based model fusion and data-adaptive MoE upscaling, (2) subspace learning approaches to model fusion, and (3) enhanced multi-task model fusion incorporating pre- and post-finetuning to minimize representation bias between the merged model and task-specific models.

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Keynote 3: In the AI Era, Surgical Robots or Robotic Surgeries?

Max Q.-H. Meng, Southern University of Science and Technology, China

About the Keynote Speaker



Max Q.-H. Meng, Chair Professor and Head of the Department of Electronic and Electrical Engineering at SUSTech, is a Fellow of the Canadian Academy of Engineering and a Fellow of IEEE. He previously served as a tenured full professor at the University of Alberta in Canada, as well as a professor and department head in the Department of Electronic Engineering at the Chinese University of Hong Kong. His research focuses on robotics perception and intelligence, with multiple research topics leading internationally. He has been ranked among the world's top 2% of scientists by Stanford University for both his lifetime impact and 2024 annual impact. He has published over 1,000 academic papers, held over 40 patents, and delivered more than 200 plenary speeches at major international conferences. He has led over 60 research projects to completion with a total funding of some 100 million RMB, and has received more than 30 international and domestic awards and recognitions.

Prof. Meng serves as editor-in-chief or editorial board member for several leading journals, including being the founding Editor-in-Chief of the first-quartile English journal *Biomimetic Intelligence and Robotics* published by Elsevier. He has also chaired numerous international academic conferences, including serving as the General Chair for flagship conferences in robotics and automation: IEEE/RSJ IROS 2005 and IEEE ICRA 2021. He is the Chief Scientist of RPAI Tech (Shenzhen) Co., Ltd., a unicorn company in the field of specialized surgical robotics.

Summary: Artificial intelligence and robotics are becoming an integral part of human life, and getting unparalleled attention recently. In this talk, we will discuss what is scenario intelligence in robotics based on our team's exploration and research, accumulation and practical applications in the field of AI and robotics in the past few decades. The topics discussed involves AI, humanoid robots and surgical robotics. Finally, a personal view of the future development of medical intelligence and surgical robotics is put forward, which leads to more creative perspectives and exploration directions.

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Keynote 4: Data Mining and Machine Learning for Analysis of Network Traffic

Ljiljana Trajkovic, Simon Fraser University, Canada

About the Keynote Speaker



Prof. Ljiljana Trajkovic received the Dipl. Ing. degree from University of Pristina, Yugoslavia, the M.Sc. degrees in electrical engineering and computer engineering from Syracuse University, Syracuse, NY, and the Ph.D. degree in electrical engineering from University of California at Los Angeles. She is currently a professor in the School of Engineering Science, Simon Fraser University, Burnaby, British Columbia, Canada. Her research interests include communication networks and dynamical systems. Dr. Trajkovic served as IEEE Division X Delegate/Director, President of the IEEE Systems, Man, and Cybernetics Society, and President of the IEEE Circuits and Systems Society. She serves as Editor-in-Chief of the IEEE Transactions on Human-Machine Systems. She is a Distinguished Lecturer of the IEEE Systems, Man, and Cybernetics Society and was a Distinguished Lecturer of the IEEE Circuits and System Society. She is a Fellow of the IEEE.

Summary: Collection and analysis of data from deployed networks is essential for understanding communication networks. Hence, data mining and statistical analysis of network data have been employed to determine traffic loads, analyze patterns of users' behavior, predict future network traffic, and detect traffic anomalies. The Internet has historically been prone to failures and attacks that significantly degrade its performance, affect the Internet connectivity, and cause routing disconnections. Frequent cases of various cyber threats have been encountered over the years and, hence, detection of anomalous behavior is a topic of great interest in cybersecurity. In described case studies, traffic traces collected by various collection sites are used to classify network anomalies. Various anomaly and intrusion detection approaches based on machine learning have been employed to analyze collected data. Deep learning, broad learning, gradient boosted decision trees, and reservoir computing algorithms were used to develop models based on collected datasets that contain Internet worms, viruses, power outages, ransomware events, router misconfigurations, Internet Protocol hijacks, and infrastructure failures in times of conflict. The reported results indicate that while performance of machine learning models greatly depends on the used datasets, they are viable tools for detecting the Internet anomalies.

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Keynote 5: Demand-Addressable Sensor Network: Toward Flexible Acquisition of Desired Sensed Data in a Million-Class Sensor Network

Toshiaki Miyazaki, Aizu University, Japan

About the Keynote Speaker



Toshiaki Miyazaki is Former Chair of the Board of Executives and President of the University of Aizu, Fukushima, Japan (2020.4-2023.7). He held the following positions in the University of Aizu previously: Dean of the Undergraduate School of Computer Science and Engineering (2014.4-2020.3), Chair of Graduate Department of Computer and Information Systems (2008.4-2014.3), Director of Research Center for Advanced Information Science and Technology (CAIST) (2013.4-2014.3), Deputy Director of CAIST (2012.4-2013.3), and Deputy Director of the Revitalization Center (2013.4-2014.3). His research interests are in reconfigurable hardware systems, adaptive networking technologies, and autonomous systems. He received the B.E. and M.E. degrees in applied electronic engineering from the University of Electro-Communications, Tokyo, Japan in 1981 and 1983, and Ph.D. degree in electronic engineering from Tokyo Institute of Technology in 1994. Before joining the University of Aizu, he has been worked for NTT Laboratories for 22 years, and engaged in research

on VLSI CAD systems, telecommunications-oriented FPGAs (Field Programmable Gate Arrays) and their applications, active networks, peer-to-peer communications, and ubiquitous network environments. Dr. Miyazaki was a visiting professor of the graduate school, Niigata University in 2004, and a part-time lecturer of the Tokyo University of Agriculture and Technology in 2003-2007. He published more than 400 technical papers and has 52 patents. He is a member of the Engineering Academy of Japan, and a senior member of IEEE, IPSJ, and IEICE.

Summary: A new type of sensor network called the demand-addressable sensor network (DASN) is introduced. The DASN actively acquires the desired information by addressing user demands and delivers the information to appropriate destinations. This is in contrast to the conventional sensor networks that simply send sensed data to users. The DASN is useful for finding the desired information in a short duration of time from a large amount of sensed data generated by a large-scale sensor network. The DASN is constructed with a demand-addressable network that integrates many reconfigurable wireless sensor networks (RWSN) and scalable database system that can integrate one million of sensors. In addition, it has a mashup mechanism to combine other existing ICT systems or services, such as Google Maps and Twitter (now, X). The functions of the RWSN can be dynamically customized by injecting roles specified by the user. Thus, the user can actively get the desired information by customizing the sensor network function. The main application of the DASN is a wide-area disaster site monitoring, for which the DASN features outlined above are suitable. In this talk, the concept underlying the DASN, its architecture and implementation, and experimental results are presented.

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Keynote 6: Computational Psychophysiology and Mental Health

Bin Hu, Beijing Institute of Technology, China

About the Keynote Speaker



Bin Hu is a (Full) Professor and the Dean of the School of Medical Technology at Beijing Institute of Technology, China. He is a National Distinguished Expert, Chief Scientist of 973 as well as National Advanced Worker in 2020. He is a Fellow of IEEE/IET/AAIA and IET Fellow Assessor & Fellowship Advisor. He serves as the Editor-in-Chief for the IEEE Transactions on Computational Social Systems and an Associate Editor for IEEE Transactions on Affective Computing. He is one of Clarivate Highly Cited Researchers, World's Top 2% Scientists and 0.05% Highly Ranked Scholar from ScholarGPS.

Summary: In recent years, mental health issues have become increasingly prominent all over the world. According to the report from the World Health Organization, approximately 970 million people suffer from mental disorders, accounting for 13% of the global population. Currently, the diagnosis of mental illnesses primarily relies on physician interviews and Brief Psychiatric Rating Scale (BPRS), lacking objective and quantifiable diagnostic indicators. Besides, the common treatment of mental disorders is pharmacotherapy, which is often associated with significant side effects. The rapid advancement of cutting-edge artificial intelligence and big data technologies offers new opportunities for the diagnosis and treatment of mental disorders. These technologies are shifting the approach to data driven screening and treatment, offering more precise, personalized, and effective solutions. This report will introduce the opportunities and challenges in the field of medical electronics and computational methodologies for the diagnosis and treatment of mental disorders.

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Keynote 7: Sustainability Driving Internet of Things and Standards

Kim Fung Tsang, City University of Hong Kong, China

About the Keynote Speaker



Kim Fung Tsang is a Chief Scientist and Professor at the Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, PRC. Renowned for his expertise in AIoT (Artificial Intelligence of Things) and smart technology applications, he has received prestigious accolades, including the IoT Heroes Award (2016) and the IEEE Product Safety Engineering Society Outstanding Achievement Award (2021). KF plays a key role in shaping IoT standards and best practices and serves as a consultant to the Hong Kong Government. He is the architect of IEEE Standard 2668 Maturity Index for IoT (IDex), a novel IoT framework approved by IEEE in December 2022. Since its establishment, he has been actively assisting industries in adopting IDex, particularly through his collaboration with the Electrical and Mechanical Services Department (EMSD) to integrate IEEE 2668 into the government's GWIN system. His ultimate goal is to develop and proliferate IoT Best Practices globally. Additionally, he contributes to quality assurance in IoT systems by serving as an assessor for the Hong Kong Laboratory Accreditation Scheme (HOKLAS).

In alignment with IoT standardization, KF chairs several key IEEE standards workgroups: IEEE 2668 Maturity Index for Internet of Things; IEEE P1451.5.5 LoRa Smart Sensor Interface; IEEE P1451.5.6 SigFox Smart Sensor Interface; IEEE P1451.5.10 NB IoT Smart Sensor Interface. KF also manages about 100 IEEE standards in the capacity as Chairman of Standards Committee, IEEE Consumer Technology Society. Beyond his contributions to IoT and standards development, TSANG holds numerous roles, including: Vice Chairman of IEEE Fellow Evaluation Committee (FEC) of IEEE Consumer Technology Society; IEEE Fellow Evaluator of IEEE Product Safety Engineering Society; Editor-in-Chief of the IEEE Transactions on Consumer Electronics; Chairman of the Standards Committee, IEEE Consumer Electronics Society; Associate Editor of the IEEE Transactions on Industrial Informatics; Associate Editor of the IEEE Transactions on Industrial Electronics; Associate Editor of the IEEE Industrial Electronics Magazine; AdCom member of IEEE Systems Council; President of Asia-Pacific Association of Cognitive Intelligence; Council Member of The Hong Kong Institution of Engineers (HKIE).

Summary: To advance sustainable urban development, a High Traffic Smart Metering architecture has been developed to address the increasing complexity of data management in densely populated city environments. As urban populations grow and energy demands intensify, smart metering presents a resource-efficient solution for accurately capturing, processing, and analyzing consumption data. This presentation traces the evolution of ZigBee architecture, emphasizing its progression toward Internet of Things (IoT) standards—particularly the Maturity Index for IoT (IDex). IDex offers globally recognized benchmarks for scalability, cybersecurity, and energy efficiency, guiding cities in deploying digital infrastructure that reduces environmental impact. By aligning with IDex, urban systems are empowered to proliferate data-driven decisions that support climate resilience, optimize resource use, and promote sustainable living.

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Keynote 8: AI and Queueing Theory Combine Forces for the Detection and Mitigation of Cyberattacks

Erol Gelenbe, Université Côte d'Azur, France

About the Keynote Speaker



Prof. Erol Gelenbe is a Fellow of IEEE, ACM, IFIP, the Royal Statistical Society, the Institution of Engineering and Technology and other organizations. He graduated from METU (Ankara), received his PhD from the Tandon School of Engineering at New York University, and the Doctor of Science degree from Sorbonne University (Paris). He is an expert on System and Network Performance, Cybersecurity and AI. He proved basic mathematical performance results on page fault rates, random access channels, multi-path communications, and optimum database checkpoints, and was involved in the development of commercial performance tools such as QNAP2 and Flexsim. He invented G-Networks with product form solutions, the Random Neural Network, and introduced diffusion approximations for queueing systems with reflecting boundaries. A Professor at the Institute of Theoretical and Applied Informatics, Polish Academy of Sciences, he graduated over 90 PhDs and was awarded the honours of Chevalier de la Légion d'Honneur, Commander of Merit of France and

Italy, Commander of the Order of the Crown of Belgium, and Officer of the Order of Merit of Poland. A Fellow of the National Academy of Technologies of France, of the Science Academies of Belgium, Poland and Turkey, Honorary Fellow of the Hungarian Academy of Sciences (Budapest) and the Islamic Academy of Sciences (Amman), he currently Chairs the Informatics Section of Academia Europaea. He won the ACM SIGMETRICS Lifetime Award, the Mustafa Prize, the Grand Prix France-Télécom of the French Science Academy, the IET Innovation Award (Oliver Lodge Medal), and other prizes, and was awarded Honoris Causa PhDs from the University of Rome II, the University of Liège, and the University of Bogaziçi in Istanbul. He is an Honorary Professor of the University of Electronic Science and Technology of China.

Summary: Gateway Servers for the Internet of Things, used in critical application areas such as the Internet of Vehicles and health monitoring, must meet stringent Security and Quality of Service (QoS) requirements, offering cyberattack protection with fast response and minimal loss of benign data. Therefore, it is vital to protect these systems with effective traffic shaping, accurate Attack Detection (AD) and Mitigation mechanisms. We will first demonstrate online and federated learning techniques that accurately detect attacks. Measurements of packet floods that convey a cyberattack will be shown to impair the QoS at the Gateways and impede their capability to carry out AD. Using Queueing Theory, we will show that the novel traffic shaping method QDTP will ensure that a Gateway can allow AD to operate promptly during an attack. A new Adaptive Attack Mitigation (AAM) system will be introduced to sample the incoming packet stream, determine whether an attack is ongoing, and dynamically drop batches of packets at the input to reduce the effects of the attack, and minimise the AD overhead and the cost of lost benign packets.

References: Our papers related to this talk appear in the IEEE Internet of Things Journal (2025), Internet of Things (Elsevier, 2024), Information Fusion (Elsevier, 2025), Computers and Industrial Engineering (Elsevier, 2024), Performance Evaluation (Elsevier, 2024), IEEE Trans. on Security and Information Forensics (2024), and IEEE Network (Online 2024, and 2025), IEEE Access 2022, 2023.

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Panel 1: Ethical AI Integration in Research

The revolutionary advancements of AI capabilities, especially in large-scale generative models, advanced learning frameworks, and automated data mining pipelines, are catalyzing a fundamental transformation in how knowledge is produced, validated, and shared across disciplines. AI is now reshaping the conduct of research, from accelerating literature reviews and data processing to inspiring new ideas and supporting manuscript preparation. However, this transformation also raises profound ethical and methodological concerns, including issues of transparency, reproducibility, accountability, and fairness in human-AI collaborations. Questions surrounding data generation, algorithmic bias, authorship recognition, and the ethical accountability of AI-assisted results have become essential to the integrity of research practices. These emerging challenges demand a dedicated forum for the research community to examine both the opportunities and the ethical risks inherent in embedding AI within academic workflows.

This panel brings together researchers who have incorporated AI into their scholarly practices and those responsible for guiding publication processes while maintaining research integrity. The objectives are threefold:

- To analyze the application of AI tools in tasks such as manuscript drafting, data manipulation, and project coordination and identify the ethical implications of their deployment.
- To assess the ethical and procedural challenges introduced by AI tools across the research lifecycle, from conceptual design and data analysis to publication, peer review, and post-publication evaluation.
- To develop institutional recommendations for integrating ethical oversight, training, and accountability mechanisms into AI-assisted research processes, ensuring that policies on authorship, integrity, and compliance standards adapt to emerging technologies.

Through case-study presentations, interactive demonstrations, and structured discussions, panelists will share insights on balancing innovation with ethical responsibility in the evolving research environment. They will further address questions of trust, authorship ethics, and the governance of AI-mediated research outputs.

By the end of this panel, attendees will have contributed to a practical blueprint for integrating ethical principles into AI-assisted research. They are expected to leave with a clearer understanding of how to ensure transparency, accountability, and fairness in the use of AI tools, as well as practical strategies for managing risks related to bias, authorship, and data integrity. This panel seeks to position AI ethics not as a constraint on innovation but as its necessary foundation for sustaining trust in scholarly work.

About the Panel Chair



Xiaokang Wang, Professor
Zhengzhou University, China

Biography: Xiaokang Wang is a professor with School of Computer Science and Artificial Intelligence, Zhengzhou University, China. He got his Ph. D degree in Computer Architecture from Huazhong University of Science and Technology, China, in 2017. From 2018 January to 2022 January, he was a researcher with the Department of Computer Science, St. Francis Xavier University, Canada. His research interests include Cyber-Physical-Social Intelligence, Parallel and Distributed Computing, Industrial Internet-of-Things, and Tensor Decomposition. Dr. Wang authored more than 60 papers published in many high-quality journals including IEEE Transactions on Computers, IEEE

Transactions on Neural Networks and Learning Systems, IEEE Transactions on Big Data, IEEE Transactions on Computational Social Systems, IEEE Transactions on Industrial Informatics, IEEE Communications Magazine, IEEE Transactions on Sustainable Computing, and IEEE Network, in which there are three top 0.1% highly-cited ESI papers and 11 top 1% highly-cited ESI papers, respectively. He is the recipient of 2017 IEEE TCSC Outstanding Ph. D Dissertation Award, 2019 IEEE SCSTC Raising Star Award, 2021 IEEE TCSC Early Career Award and 2023 IEEE HITC Early Career

Award. He is the winner of the 2021 Best Paper Award of IEEE Transactions on Sustainable Computing. Dr. Wang is selected as 2021-2025 Stanford University World's Top 2% Scientists.

He serves as the Program Chair or Executive Chair of the 2025 IEEE International Conference on Ubiquitous Intelligence and Computing (UIC 2025, CCF C), 2024 IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA 2024, CCF C), 2023 IEEE International Conference on Parallel and Distributed Systems (ICPADS 2023, CCF C), the 2022 IEEE International Conference on Ubiquitous Intelligence and Computing (UIC 2022, CCF C), 2022/2020 IEEE International Conference on High Performance Computing and Communications (HPCC 2022/2020, CCF C), and the 2020/2019/2018 IEEE International Conference on Cyber, Physical and Social Computing (CPSCoM 2020/2019/2018). He also serves as the guest editor of international journals such as IEEE Transactions on Industrial Informatics, Concurrency and Computation Practice and Experience, Journal of Systems Architecture, and Neurocomputing.

About the Panel Speakers



Kim Fung Tsang, Professor
City University of Hong Kong, China

Biography: Kim Fung Tsang is a Chief Scientist and Professor at the Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, PRC. Renowned for his expertise in AIoT (Artificial Intelligence of Things) and smart technology applications, he has received prestigious accolades, including the IoT Heroes Award (2016) and the IEEE Product Safety Engineering Society Outstanding Achievement Award (2021). KF plays a key role in shaping IoT standards and best practices and serves as a consultant to the Hong Kong Government. He is the architect of IEEE Standard 2668 Maturity Index for IoT (IDex), a novel IoT framework approved by IEEE in December

2022. Since its establishment, he has been actively assisting industries in adopting IDex, particularly through his collaboration with the Electrical and Mechanical Services Department (EMSD) to integrate IEEE 2668 into the government's GWIN system. His ultimate goal is to develop and proliferate IoT Best Practices globally. Additionally, he contributes to quality assurance in IoT systems by serving as an assessor for the Hong Kong Laboratory Accreditation Scheme (HOKLAS).

In alignment with IoT standardization, KF chairs several key IEEE standards workgroups: IEEE 2668 Maturity Index for Internet of Things; IEEE P1451.5.5 LoRa Smart Sensor Interface; IEEE P1451.5.6 SigFox Smart Sensor Interface; IEEE P1451.5.10 NB IoT Smart Sensor Interface. KF also manages about 100 IEEE standards in the capacity as Chairman of Standards Committee, IEEE Consumer Technology Society. Beyond his contributions to IoT and standards development, TSANG holds numerous roles, including: Vice Chairman of IEEE Fellow Evaluation Committee (FEC) of IEEE Consumer Technology Society; IEEE Fellow Evaluator of IEEE Product Safety Engineering Society; Editor-in-Chief of the IEEE Transactions on Consumer Electronics; Chairman of the Standards Committee, IEEE Consumer Electronics Society; Associate Editor of the IEEE Transactions on Industrial Informatics; Associate Editor of the IEEE Transactions on Industrial Electronics; Associate Editor of the IEEE Industrial Electronics Magazine; AdCom member of IEEE Systems Council; President of Asia-Pacific Association of Cognitive Intelligence; Council Member of The Hong Kong Institution of Engineers (HKIE).



Li Zhang, Director of the Journal Center
Tsinghua University Press, China

Biography: Zhang Li is an editor and director of the Journal Center at Tsinghua University Press. She is also Vice President of the 9th Council of the China Association of University Science and Technology Journals. She specializes in publishing English-language scientific journals and developing digital publishing platforms.



Hao Wang, Professor
Xidian University, China

Biography: Hao Wang (Senior Member, IEEE) is a Distinguished Professor at the School of Cyber Engineering of Xidian University. Prior to that, he was an Associate Professor with Norwegian University of Science and Technology. He received his Ph.D. degree and a B.Eng. degree, both in computer science and engineering, from South China University of Technology in 2006 and 2000, respectively. His research interests include Trustworthy AI, Edge Intelligence and Human computer interaction, especially in the context of safety-critical systems. He is a senior member of IEEE and a member of ACM.



Jing Liang, Professor
Henan Institute of Technology / Zhengzhou University, China

Biography: Jing Liang is the deputy Party secretary and vice-president at Henan Institute of Technology and Deputy Director of the National Key Laboratory of Intelligent Agricultural Power Equipment. She has obtained the NSFC Outstanding Youth Science Fund Project. She won the IEEE CIS Outstanding Ph.D. Dissertation Award, the Second prize of Natural Science Award of Ministry of Education, Highly Cited Chinese Researcher (Scopus ELSEVIER), Outstanding Young Science and Technology Experts in Henan Province, High-Level Talents in Henan Province, and IEEE Transactions on Evolutionary Computation (TEVC) Outstanding Associate Editor. She is dedicated to the research of swarm intelligence algorithms and applications. The benchmark test problem set she proposed is widely used in the world. Her total Google Scholar citations are over 29000 times, with an h-index of 67. She had been selected as one of the top 2% scientists in the world and had been awarded the title of Elsevier China Highly Cited Scholar.



Joey Tianyi Zhou, Professor
Nanyang Technological University, Singapore

Biography: Tianyi Zhou obtained his Ph.D. from Nanyang Technological University (NTU), SG, in 2015. He was a senior research engineer at Sony US Research Center, San Jose, USA, and the Deputy Director, Principal Scientist II, and Investigator with the A*STAR Centre for Frontier AI Research (CFAR), Singapore. In CFAR, he leads his research team focusing on fundamental AI research. Concurrently, he is holding a joint appointment as the Principal Scientist in the Centre for Advanced Technologies in Online Safety (CATOS). In CATOS, he leads the "attack team" focused on generating Deepfake and AIGC Videos to fool human users and machine detectors. He is also an adjunct faculty member at the National University of Singapore (NUS). His research focus is on how to enhance AI Efficiency and Robustness from a data perspective. An ideal machine learning model shall be resource-efficient for both inference and training, including computational-efficient and data-efficient, and safe to various perturbations, distribution shifts, and adversarial attacks.



Xiulong Liu, Professor
Tianjin University, China

Biography: Xiulong Liu is a professor, vice-dean in the School of Cybersecurity, Tianjin University, China. Before that, he received the B.E. and Ph.D. degrees from Dalian University of Technology (China) in 2010 and 2016, respectively. He also worked as a visiting researcher in Aizu University, Japan; a postdoctoral fellow in The Hong Kong Polytechnic University, Hong Kong; and a postdoctoral fellow in the School of Computing Science, Simon Fraser University, Canada. His research interests include blockchain systems and IoT sensing, etc. His research papers were published in many prestigious journals and conferences including NSDI, Mobicom, TON, TMC, TC, TPDS, IMWUT, INFOCOM, etc.

The 2025 IEEE Cybermatics Congress

Panel 2: Cybermatics - Science for Harmonizing the World

Cyberspace is a virtual space realized using digital technologies for approximating the physical world. Cyber-physical systems, digital twins, and metaverse are well-known examples of cyberspace-related technologies. The main purposes of existing technologies are:

- Simulate or emulate the physical world so that complicated or even dangerous systems can be investigated before physically realized;
- Digitalize physical systems such as social infrastructures like transportation and electricity networks; or industrial production lines to manage them more efficiently, effectively, and safely.
- Simplify the physical world to reduce some physical limitations and improve efficiency for between human or between machine communication or information exchange.

Cybermatics is a new term produced by a group of scholars when they established the Technical Committee on Cyber-Enabled World under the umbrella of IEEE SMC Society (<https://www.ieeesmc.org/technical-activities/cybernetics/cybermatics/>). The purpose of this TC is to study both technically and scientifically all sort of “cyber-enabled worlds” (i.e., cyberspaces) to ensure the prosperity and safety of human world. Especially, with the rapid progress in AI technology, cyberspace is becoming a world in which AIs, AI agents (including NPCs), and human avatars live, acquire knowledge, and create knowledge. Equipped with and empowered by various AIs, a cyber-enabled world can be more benefit for human society and can even accelerate the process of scientific research. However, such a cyber-enabled world can be a double-edged sword: it may also become a threat for human if we do not know or do not make proper “laws” to operate or manage this world. Roughly speaking, we may have the following “worlds”:

- The one that can be observed and understood by HUMAN;
- The one that may not be understood by HUMAN directly but can be with the help of AI;
- The one that may not be understood by HUMAN but can be understood by AI; and
- The “Natural” world.

In this panel, we are going to discuss topics related to rules, laws, regulations, theories, methodologies, etc., to harmonize the “worlds” and to make them “beneficial” to human society. We will also discuss the so-called cognitive boundary of human, the possibility of emerging a world untouchable and/or uncontrollable by human, the possibility of emerging “out of control” AI in such a world, and the possibility to avoid these to happen.

About the Panel Chair



Qiangfu Zhao, Professor
University of Aizu, Japan

Biography: Qiangfu Zhao graduated from Tohoku University with a Doctor of Engineering degree in Electronic Engineering in 1988. From 1991 to 1993, he was an associate professor at Beijing Institute of Technology; from 1993 to 1995, he was an associate professor at Tohoku University (Japan); from 1995 to 1999, he was an associate professor at the University of Aizu (Japan); since 1999, he has been a tenured full professor at the University of Aizu. Professor Zhao published more than 200 academic papers related to optimal linear system design, signal/image processing/recognition, neural computing, evolutionary computing, perceptual computing, and machine learning in international journals and international conferences.

About the Panel Speakers



Stephen S. Yau, Professor
Arizona State University, USA

Biography: Stephen S. Yau is Professor of Computer Science and Engineering, School of Computing and Augmented Intelligence at Arizona State University (ASU). He served as the chair of the Department of Computer Science and Engineering in 1994 - 2001, and later as the director of the Information Assurance Center at ASU. Previously, he was on the faculties of Northwestern University, Evanston, Illinois, and University of Florida, Gainesville. He served as the president of the IEEE Computer Society and the editor-in-chief of IEEE COMPUTER magazine. He served as the president of American Federation of Information Processing Societies, and the chair of the

Organizing Committee of the World Computer Congress in 1989 sponsored by the International Federation for Information Processing. His current research interests include services and cloud computing, cybersecurity, software engineering, IoT and applications of blockchain and artificial intelligence. He is a Fellow of the IEEE and the American Association for the Advancement of Science. He received the BS degree from National Taiwan University, the MS and PhD. degrees from the University of Illinois, Urbana, all in electrical engineering.



Jianhua Ma, Professor
Hosei University, Japan

Biography: Jianhua Ma is a professor in the Faculty of Computer and Information Sciences and a director in the Institute of Integrated Science and Technology (IIST), Hosei University, Japan. He is one of pioneers in research on Hyper World and Cyber World (CW) since 1996. He first proposed Ubiquitous Intelligence (UI) towards Smart World (SW), which he envisioned in 2004, and was featured in the European ID People Magazine in 2005. He has conducted several unique CW-related projects including the Cyber Individual (Cyber-I), which was highlighted on the IEEE Computing Now in 2011. He has founded IEEE Conferences on Ubiquitous Intelligence and Computing (UIC), Pervasive Intelligence and Computing (PICom), Cyber Physical and Social Computing (CPSCom), Internet of Things (iThings), and Internet of People (IoP). He is a chair of IEEE SC Technical Committee on Hyper-Intelligence, a co-chair of IEEE SMC Technical Committee on Cybermatics, and a founder of IEEE CIS Technical Committee on Smart World.



Toshiaki Miyazaki, Professor
Aizu University, Japan

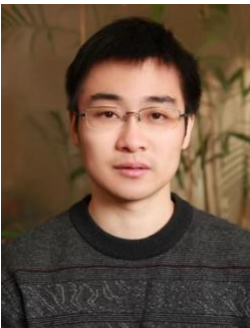
Biography: Dr. Toshiaki Miyazaki is Former Chair of the Board of Executives and President of the University of Aizu, Fukushima, Japan (2020.4-2023.7). He held the following positions in the University of Aizu previously: Dean of the Undergraduate School of Computer Science and Engineering (2014.4-2020.3), Chair of Graduate Department of Computer and Information Systems (2008.4-2014.3), Director of Research Center for Advanced Information Science and Technology (CAIST) (2013.4-2014.3), Deputy Director of CAIST (2012.4-2013.3), and Deputy Director of the Revitalization Center (2013.4-2014.3). His research interests are in reconfigurable

hardware systems, adaptive networking technologies, and autonomous systems. He received the B.E. and M.E. degrees in applied electronic engineering from the University of Electro-Communications, Tokyo, Japan in 1981 and 1983, and Ph.D. degree in electronic engineering from Tokyo Institute of Technology in 1994. Before joining the University of Aizu, he has been worked for NTT Laboratories for 22 years, and engaged in research on VLSI CAD systems, telecommunications-oriented FPGAs (Field Programmable Gate Arrays) and their applications, active networks, peer-to-peer communications, and ubiquitous network environments. Dr. Miyazaki was a visiting professor of the graduate school, Niigata University in 2004, and a part-time lecturer of the Tokyo University of Agriculture and Technology in 2003-2007. He published more than 400 technical papers and has 52 patents. He is a member of the Engineering Academy of Japan, and a senior member of IEEE, IPSJ, and IEICE.



**Aniello Castiglione, Associate Professor
University of Salerno, Italy**

Biography: Aniello Castiglione received the Ph.D. degree in Computer Science from the University of Salerno, Italy. He is currently an Associate Professor at the Department of Management & Innovation Systems at the University of Salerno, Italy. He received the Italian national qualification as a Full Professor of Computer Science in 2021. He published more than 290 papers in international journals and conferences. Considering his journal papers, more than 120 of them are ranked Q1 in Scopus/Scimago classification and more than 110 of them are ranked Q1 in the Clarivate Analytics/ISI-WoS classification. The international academic profile of Dr. Castiglione is spread among more than 95 international co-authors who belong to more than 80 different institutions located in more than 22 countries. He served in the organization (mainly as the program chair and a TPC member) in around 290 international conferences (some of them are ranked A+/A/A- in the CORE, LiveSHINE and Microsoft Academic international classifications). Currently, he is Managing Editor for the Elsevier journal "Image and Vision Computing" and up to 2024 was the Editor-in-Chief for the Special Issues for the Journal of Ambient Intelligence and Humanized Computing (edited by Springer). He served as the Managing Editor for two ISI-ranked international journals and as a Reviewer in around 140 international journals. In addition, served as a Guest Editor for around 30 Special Issues and served as an Editor on more than 10 Editorial Boards of international journals such as IEEE Transactions on Sustainable Computing, IEEE Access, IET Image Processing (IET), Journal of Ambient Intelligence and Humanized Computing (Springer), Multimedia Tools and Applications (Springer), Cyber Security and Applications (Elsevier), IET Intelligent Transport Systems (Wiley), Sustainability (MDPI), Smart Cities (MDPI), Future Internet (MDPI), Electronics (MDPI). One of his papers (published in the IEEE Transactions on Dependable and Secure Computing) was selected as "Featured Article" in the "IEEE Cybersecurity Initiative" in 2014. In 2018, another paper (published in the IEEE Cloud Computing magazine) was selected as "Featured Article" in the "IEEE Cloud Computing Initiative". Currently, and from October 2019 (for 6 years in a row), he has been included into the ranking of the top 100,000 most influential scientists for the years 2019, 2020, 2021, 2022, 2023 and 2024 redacted by the Stanford University using the performance data provided by Scopus. In March 2022 and up today, it has been ranked among the Italian Computer Science Top Scientists for 2022, 2023, 2024, 2025 by the academic platform Research.com. According to the Web of Science Essential Science Indicators (published by Web of Science / Clarivate Analytics), two of his papers published on IEEE Transactions on Computers and on Future Generation Computer Systems received the award of "Highly Cited Paper" and "Research Front paper" since both were collocated into the top 1% of all publications in the "Computer Science" subject area in the years 2017 and 2022, respectively. His current research interests include Information Forensics, Digital Forensics, Security and Privacy on Cloud, Communication Networks, Post-Quantum Cryptography, Quantum Computing, Applied Cryptography, Steganography and Sustainable Computing. He is a member of IEEE and ACM.



**Xiaokang Zhou, Associate Professor
Kansai University, Japan**

Biography: Xiaokang Zhou received the Ph.D. degree in human sciences from Waseda University, Japan, in 2014. He is currently an associate professor with the Faculty of Business Data Science, Kansai University, Japan. Dr. Zhou has published more than 240 refereed papers in prestigious academic journals and leading international conferences, including THMS, TLT, TCSS, TETC, IoTJ, TSC, TBD, TII, TCBB, TNSE, TVT, TOMM, T-ITS, TIA, TOSN, JSAC, WCM, TOIT, TASE, TCE, TIV, INS, INF, TNNLS, TFS, TAI, TCCN, TIT, TIST, TAAS, TMC, etc. Dr. Zhou is selected as 2022-2025 Stanford University World's Top 2% Scientists ("single recent year" from 2022, "career-long" from 2025), 2024-2025 Scilit Top Cited Scholars, 2024 ScholarGPS World's Top 0.05% Highly Ranked Scholar. He is the recipient of 2025, 2023, 2020 IEEE SMC Society Andrew P. Sage Best Transactions Paper Award, 2023 IEEE Industrial Electronics Society TC-II Best Paper, 2022 IEEE HITC Award for Excellence in Hyper-Intelligence (Early Career Researcher), 2021 Shiga University President Award, and 2020 IEEE TCSC Award for Excellence for Early Career Researchers. Dr. Zhou has served as area editor for AIHC, associate editor for IoTJ, Connection Science, and guest editor for several reputable scientific journals, including TCSS, Computer Communications, TCE, Applied Energy, JSA, IoTJ, TOSN, TCBB, BAE, IEM, INF, BDR, CAEE, WWW, Ad Hoc Networks, MTAP, JPDC, and FGCS. He is currently serving as associate editor for TCSS, TCE, Big Data Mining and Analytics, JCSC, CAEE, and HCIS. His research interests include ubiquitous computing, big data, machine learning, behavior and cognitive informatics, cyber-physical-social systems, and cyber intelligence and security. Dr. Zhou is a member of the IEEE CS, and ACM, USA, IPSJ, and JSAI, Japan, and CCF, China.

The 2025 IEEE Cybermatics Congress Program

IEEE ICA3PP/Blockchain/SmartData/CPSCoM/iThings/GreenCom-2025

Thursday, October 30, 2025 (China Standard Time CST, UTC+8)

Room	Room 1 (Studio 1)	Room 2 (Studio 2)	Room 3 (Studio 3)	Room 4 (Studio 4)	Room 5 (Studio 5)	Room 6 (Studio 6)	Room 7 (VIP Room)
8:00-10:00	ICA3PP-1	ICA3PP-5	Blockchain-1	ICA3PP-11	ICA3PP-15	ICA3PP-19	ICA3PP-23
10:00-10:20	Coffee Break						
10:20-12:20	ICA3PP-2	ICA3PP-6	Blockchain-2	ICA3PP-12	ICA3PP-16	ICA3PP-20	ICA3PP-24
12:20-14:00	Lunch						
14:00-16:00	ICA3PP-3	ICA3PP-7	ICA3PP-9	ICA3PP-13	ICA3PP-17	ICA3PP-21	ICA3PP-25
16:00-16:20	Coffee Break						
16:20-18:20	ICA3PP-4	ICA3PP-8	ICA3PP-10	ICA3PP-14	ICA3PP-18	ICA3PP-22	ICA3PP-26

Friday, October 31, 2025 (Room 8, China Standard Time CST, UTC+8)

8:50-9:40	Opening Ceremony and Group Photo
9:40-10:20	Keynote 1: Integrating AI, Smart Sensors and Gait Towards Ubiquitous Healthcare M. Jamal Deen , McMaster University, Canada Chaired by: Jianhua Ma, Hosei University, Japan
10:20-11:00	Keynote 2: Deep Model Fusion Dacheng Tao , Nanyang Technological University, Singapore Chaired by: M. Jamal Deen, McMaster University, Canada
11:00-11:20	Coffee Break
11:20-12:00	Keynote 3: In the AI Era, Surgical Robots or Robotic Surgeries? Max Q.-H. Meng , Southern University of Science and Technology, China Chaired by: Aniello Castiglione, University of Salerno, Italy
12:00-14:00	Lunch
14:00-14:40	Keynote 4: Data Mining and Machine Learning for Analysis of Network Traffic Ljiljana Trajkovic , Simon Fraser University, Canada Chaired by: Xiaokang Wang, Zhengzhou University, China
14:40-15:20	Keynote 5: Demand-Addressable Sensor Network: Toward Flexible Acquisition of Desired Sensed Data in a Million Class Sensor Network Toshiaki Miyazaki , Aizu University, Japan Chaired by: Qiangfu Zhao, University of Aizu, Japan
15:20-15:40	Coffee Break
15:40-16:20	Keynote 6: Computational Psychophysiology and Mental Health Bin Hu , Beijing Institute of Technology, China Chaired by: Antonio Puliafito, University of Messina, Italy
16:20-17:00	Keynote 7: Sustainability Driving Internet of Things and Standards Kim Fung Tsang , City University of Hong Kong, China Chaired by: Xiaokang Zhou, Kansai University, Japan
17:00-17:20	Coffee Break
17:20-18:00	Keynote 8: AI and Queueing Theory Combine Forces for the Detection and Mitigation of Cyberattacks Erol Gelenbe , Université Côte d'Azur, France Chaired by: Benoit Piranda, Marie et Louis Pasteur University, France
19:00-20:00	Reception (JW Grand Ballroom)

Saturday, November 01, 2025 (China Standard Time CST, UTC+8)

Room	Room 1 (Studio 1)	Room 2 (Studio 2)	Room 3 (Studio 3)	Room 4 (Studio 4)	Room 5 (Studio 5)	Room 6 (Studio 6)	Room 7 (VIP Room)
8:00-10:00	ICA3PP-27	ICA3PP-31	Blockchain-3	SmartData-1	CPSCom-1	iThings-1	GreenCom-1
10:00-10:20	Coffee Break						
10:20-12:20	ICA3PP-28	ICA3PP-32	Blockchain-4	ICA3PP-36	ICA3PP-39	ICA3PP-40	ICA3PP-41
12:20-14:00	Lunch						
14:00-16:00	ICA3PP-29	ICA3PP-33	Blockchain-5	ICA3PP-37	Panel 1 and Panel 2		ICA3PP-42
16:00-16:20	Coffee Break						
16:20-18:20	ICA3PP-30	ICA3PP-34	ICA3PP-35	ICA3PP-38	CPSS Seminar		ICA3PP-43
19:30-21:30	Banquet (JW Grand Ballroom)						

The ICA3PP 2025 Presentation Program

ICA3PP-1: Parallel and Distributed Architectures (I)

Session Chair: Miao Cai (miaocai@nuaa.edu.cn), Nanjing University of Aeronautics and Astronautics, China

Streamline: A High-Parallelized BFT Consensus Protocol for Blockchain

Guoze Li, Yuchao Zhang, Xiaofeng He, Xiaotian Wang

PliKOS: Pre-Warming Serverless Functions Under Pulsed Loads

Tengtao Xiao, Zhengong Cai, Chi Zhang, Pu Zhang, Bowei Yang

VPFU: A Bit-Serial Architecture for Energy-Efficient Acceleration of Ultra-Low Precision DNNs

Cheng Xu, Yibai He, Lu Wang

3D-DP: A Practical DRL-Based Data Prefetcher with a Dynamic Prefetch Degree and Direction

Yafei Zhao, Jizeng Wei, Shuangsheng Li, Yaogong Yang

HRE-Store: a Hierarchical and Scalable Storage Architecture for Permissioned Blockchains

Yang Liu, Xiangyu Cui, Fangchao Tian, Feng Wang, Han Li, Min Zhang

Reputation-Based Secure Node Allocation and Dynamic Monitoring for Blockchain Sharding

Linlin Zhang, Shengrong Deng, Wenshou Wu, Xuehua Bi, Kai Zhao

A Parallel Implementation of ChaCha20 on MT-3000 Heterogeneous Multi-Zone Processor

Yongtao Luo, Jie Liu, Tun Li, Chunye Gong

ICA3PP-2: Parallel and Distributed Architectures (II)

Session Chair: Hengshan Yue (yuehs@jlu.edu.cn), Jilin University, China

INF-DRAM: An In-Memory Prefetching DRAM Architecture

Hairui Zhu, Haitao Du, Zhongguang Xu, Yi Kang

PQIns: Pipeline-Driven Application-Specific Instruction-Set Architecture for Hybrid Post-Quantum Cryptography Acceleration

Danni Wang, Sibo Gong, Sizhao Li, Guisheng Yin, Hechang Chen, Yue Cao

Federated Incremental Learning Method Based on Memory Replay and Self-Distillation Technology

Guizhi Miao, Haimin Hong, Yiyang Zhang, Xiaoliang Mo, Yeshe He

SpikeEAR: Low-Power Neuromorphic Auditory System for Real-Time Scene Analysis on FPGA

Yiwei Si, Hao Yu, Yuhang Zhu, Sizhao Li, Zechao Liu, Yongrui Zhang, Di Gao

KiRa: A Unified Memory Architecture for Efficient Post-Quantum Cryptographic Algorithms

Zhiming Hu, Tianlin Liu, Xinhua Wang, Sizhao Li, Xiaojing Fu, Qiuliang Li

A GCN Accelerator with Unified Architecture

Meng Wu, Mingyu Yan, Lei Deng, Wenming Li, Zhimin Zhang, Xiaochun Ye, Dongrui Fan

ACIM: Approximate Computing based Ising Machine with Dynamic-ratio Parallel Annealing

Yingzhe Luo, Zhi Wang, Wenya Deng, Xuhui Li, Yi Liu, Yang Guo

ICA3PP-3: Parallel and Distributed Architectures (III)

Session Chair: Miao Cai (miaocai@nuaa.edu.cn), Nanjing University of Aeronautics and Astronautics, China

Jarm: Automated Remote Memory System for Java Applications

Jiawen Shen, Wenxin Li, Linxuan Zhong, Yulong Li

Distributed Energy-Efficient Trajectory Optimization for Multi-UAV based Agricultural Field Sensing
Puqin Han; Zhiqiang Liu; Xu Zhang; Wenjing Li

Chameleon Hash-Based Redactable Blockchains: A Systematic Literature Review
Weilong Lyu; Shanshan Li; He Zhang; Jingyue Li; Zhe Huang; Feng Lin

GP-BFT: A Low-Latency BFT Protocol Under Grouped Multi-Committee Parallel Consensus
Changsong Yang; Shukang Wei; Yujue Wang; Hai Liang; Donglin Yao

EncloPC: Power Control for Server Enclosures with Heterogeneous Workloads at Power Peaks
Wenli Zheng; Xiaorui Wang

Updatable Verifiable Credential Sharing with Selective Disclosure
Juiyung Lin; Xingfu Yan; Wing W. Y. Ng; Zheng Gong; Ying Gao

SecureIMR: A Plausibly Deniable Storage System for Interlaced Magnetic Recording
Jinhua Cui; Lu Li; Canghao Wen; Shiqiang Nie

ICA3PP-4: Parallel and Distributed Architectures (IV)

Session Chair: Lijie Xu (lijie@njupt.edu.cn), Nanjing University of Posts and Telecommunications, China

Heterogeneous Parallel Optimization Research of Plasma Guiding Center Orbit Simulation
Xianqian Meng; Tao Liu; Baofeng Gao; Ying Guo; Jingshan Pan; Dawei Zhao; Xiaoming Wu

Facess: a Fast Access Method for Shared Data Among Multi-Cores in Parallel Programs
Junhui Wang; Jierong Tang; Shiyuan Wang; Yijing Peng; Hongwei Zhou; Feng Quanyou; Huang Libo; Yongwen Wang

A Mapping Strategy Optimization Framework for Systolic Array Accelerators
Xin Yuan; Chenyang Wang; Qi Wu; Hengshan Yue; Xiaohui Wei

LFBC: A Lifecycle-Managed False Bubble Flow Control Scheme for Torus Networks
Haofei Zhang; Youmeng Li

Z-STREAM: A Transparent Reordering Engine for High-Performance Zoned Namespace SSDs
Canghao Wen; Jinhua Cui; Xuanxuan Fu; Laurence Tianruo Yang

Weight-and-Load-Driven Approximation Methodology for Energy-Efficient Neural Network Accelerators
Zhiqiang Wen, Wzq; Jianmin Zhang; Yan Sun; Shangshang Yao

HT-DLC: A Data Layout and Computing Design for Logic-in-Memory Convolution with High Throughput
Ziyi Bo; Nuo Xu; Kang Liu; Anning Zhao; Chenghao Tan; Huang Libo

Low-Cost Approximate Floating-Point Multiplier Design Based on SSA and Sparse Processing
Xin Peng; Pengcheng Li; Gang Chen; Lai Mingche; Lin Deng; Qianming Yang; Yongwen Wang; Huang Libo

ICA3PP-5: Software Systems and Programming Models (I)

Session Chair: Shunmei Meng (mengshunmei@njust.edu.cn), Nanjing University of Science and Technology, China

GRIS: A Graph Neural Network-Based Reinforcement Learning Approach for Instruction Scheduling
Qijun Zheng; Youmeng Li

Tiling-Aware Vectorization Framework for Perfect Loop Nests in MLIR
Chenchen Hong; Zhong Liu; Hongli Zhong; Hongbin Zhang

MLog: Achieving Low-Latency, Scalable Shared Log Writes via RDMA Multicast Protocol
Yanan Tao; Miao Cai; Baoliu Ye

Sumeru: An Efficient Hybrid-Granularity Cache Management Scheme for CXL-SSDs
Junjie Li; Xuchao Xie; Xinyu Xu; Qiulin Wu; Qi Xingyun; Zhenlong Song

Pre-Tiering Matters: Proactive CXL Memory Tiering for Ephemeral Serverless Functions
Fengze Liu; Zhiyuan Su; Guowei Liu; Hanwen Liu; Kaiyuan Qi; Laiping Zhao

Domainsgraph: a Type-Safe, Incremental Task Graph Programming Framework
Lingwei Yan; Gang Chen; Ran Wang

Data Replica Placement Approach in Scientific Cloud Applications
Jie Li; Qinchun Ke; Yuhui Deng; Hao Feng; Lijun Chen

Exploring the Capability of LLMs for Vulnerability Knowledge Management
Yifan Li; Jiahe Lan; Zheng Yan

ICA3PP-6: Parallel and Distributed Algorithms and Applications (I)
Session Chair: Ren Li (renli@hainanu.edu.cn), Hainan University, China

Fossil: A Cost-effective and Fault-tolerant Task Placement Scheme for Geo-Distributed Clouds
Chun Huang; Gongming Zhao; Baoqing Wang; Jiawei Liu; Hongli Xu; Gangyi Luo; Chu Xu

Towards Privacy-Preserving Collaborative Detection of DDoS with Secure Multi-Party Computation
Kun Zhu; Yang Du; He Huang; Yu-E Sun

FedCKD-ALDP: A Dual-Optimization Framework for Non-IID Federated Learning via Clustered Knowledge Distillation and Adaptive Local Differential Privacy
Shiwen Hu; Changji Wang; Yuan Li

FMQ-ZNS: Enhancing ZNS-Aware Fairness and Performance through Multi-Queue I/O Scheduling
Yachun Liu; Dan Feng; Jianxi Chen

More Resistant and Less Waiting: Parallel Federated Split Learning for Object Detection Missions of UAV Cluster
Yanxi Yang; Yinan Chen; Xingyu Li; Linfeng Liu

Multi-Distances Weighted Adaptive Fuzzy K-Nearest Neighbors Algorithm
Bo Li; Xiaoqin Pan; Lei Zhou

EAHP: An Efficient Automatic Hybrid Parallelism Approach with Genetic Algorithm
Yichen Gu; Zhiquan Lai; Weijie Liu; Yinghui Gao

ICA3PP-7: Parallel and Distributed Algorithms and Applications (II)
Session Chair: Ren Li (renli@hainanu.edu.cn), Hainan University, China

Shadow: Research on Asynchronous DAG Consensus Mechanism Based on Dynamic Privacy Address Selection
Yang Liu; Tantan Yang; Feng Wang; Fangchao Tian

GIT: Accelerating Distributed DNN Training via Similar Gradient Filtering
Yinan Yao; Ming Li; Yulong Li; Wenxin Li; Keqiu Li; Dehan Wen

A Lightweight Framework for Energy-Aware Prediction and Scheduling in Heterogeneous HPC Clusters
Hailong Shan; Xiangyu Bai; Haoran Cheng

Hybrid-SAIME: Accelerating Surface and Interbed Multiple Elimination Method via 3-Stage Pipeline Parallel and Load Balancing on CPU-GPU Platforms

Chengfan Yuan; Taoran Liu; Hongyu Li; Guiren Xue; Yuzhu Wang

HETER-GSD: Accelerating Heterogeneous Edge GNN Inference

Heng Mao; Yong Guo; Yi Ren; Yiqi Wang; Bao Li; Jianfeng Zhang; Xiaochuan Wang

SHPTA: Stable Hybrid Parallel Distributed Training Architecture in Dual-Heterogeneous Environments

Yuxin Wang; Chuantao Li; Chunxiao Wang; Fulai Liu; Zhigang Zhao; Jintao Li; Guangdong Zhang

DeFragS: Mitigating Resource Fragmentation in GPU Clusters through Spatial-Temporal Scheduling

Haifeng Ni; Bowen Zhang; Zhuozhao Li

ICA3PP-8: Parallel and Distributed Algorithms and Applications (III)

Session Chair: Ren Li (renli@hainanu.edu.cn), Hainan University, China

OA-WGAN: A Clustering-Guided GAN for Disk Fault Augmentation

Yubin Li; Shaohua Dong; Bing Wei; Ming Zhong

Dynamic Adaptive Fault-Tolerance in Stream Computing Systems under Resource Constraints

Zhaojun Wang; Dawei Sun; Xuan Zang; Atul Sajjanhar; Rajkumar Buyya

Auto-CLOUDSC: An Auto-generation Framework for Vectorization and Optimization of Cloud Microphysics Parameterization on ARM CPUs

Tun Chen; Jianping Wu; Yuntian Zheng; Yingjie Wang; Fukang Yin; Jinhui Yang; Juan Zhao; XiaoLi Ren

Coalition Formation-Based Auction for Deep Neural Network Inference in Vehicular Edge Computing

Zhibin Fang; Yalan Wu; Jiale Huang; Jigang Wu

FedCSAD: Federated Learning with Contextual Client Selection and Confidence-weighted Multi-teacher Knowledge Distillation in Power Equipment Inspection

Tianyang Lu; Lihua Sun; Chaolin Han; Yubing Bao; Bingzhuo Yu; Zhen Wang; Di Zhang; Wei Liu

MPPTS: Multi-factor Predictive Priority Task Scheduling Algorithm for Heterogeneous Systems

Luyao Jiao; Hamza Djigal; Abdoul Fatakhou Ba; Abdullahi Uwaisu Muhammad

FPAMM: Fine-Grained Pipeline Architecture Accelerator for the Novel Transformer Architecture - Monarch Mixer

Hanyuan Li; Mingche Lai; Xingyun Qi; Puguang Liu; Qiang Wang; Zhenqi Li; Yihang Lu, and Yuan Li

ICA3PP-9: Parallel and Distributed Algorithms and Applications (IV)

Session Chair: JingGuo (jingguo@hainanu.edu.cn), Hainan University, China

Ly-MAPPO: Enhancing Dynamic V2V Communication via Lyapunov-Based MAPPO Under Multi-Dimensional Constraints

Xinyan Zhao; Chaokun Zhang; Feng Li

A Multi-Strategy Communication Optimization and Adaptive Model Splitting Scheme for Federated Split Learning

Juan Fang; Jiabao Li; Ziyi Teng; Yaqi Liu; Xiaoning Zhai

Multi-Modal Parallelism Scheduling for Heterogeneous Multicore Computing Systems

Lei Gao; Jingfei Jiang; Jinwei Xu

A Lightweight Semantic RGB-D vSLAM for Environments with Dynamic Rigid Objects

Nan Wang; Haoyan Zheng; Longlong Xie; Zhiyuan Ma; Qun Chao

RAFL-DSV: Robustness-Driven Adaptive Federated Learning with Dynamic Shapley Value
Jiawen Wu; Geming Xia; Chaodong Yu; Yuze Zhang; Hongwei Huang; Hongfeng Li

MVDR: Enabling Transaction Dependency Repair in Interactive Transaction Processing
Wanqiang Zeng; Xinyuan Wang; Hejiao Huang

Vectorized Optimization Implementation of Multi-Scalar Multiplication Based on Heterogeneous Digital Signal Processor
Dingxing Xie, Dx. Xie; Qinglin Wang; Lin Peng; Peng Zhang; Zhicheng Wang; Jie Liu

ICA3PP-10: Parallel and Distributed Algorithms and Applications (V)
Session Chair: JingGuo (jingguo@hainanu.edu.cn), Hainan University, China

Optimizing Large-Scale Pollutant Transport Simulations: a GPU-Based SPH Framework
Kun Yang; Yixuan Wang; Qingzhi Hou; Jiajun Lu

DisDiffAD: A Distributed Diffusion-Based Framework for Efficient Time Series Anomaly Detection in Edge-Cloud Environment
Siyu Teng; Lanlan Chen; Milos Stojmenovic; Chao Ma

Parallel Optimization of Tokamak Guiding-Center Drift-Orbit Integration on the Sunway BlueLight II Supercomputer
Meng Song; Tao Liu; Baofeng Gao; Ying Guo; Jingshan Pan; Dawei Zhao; Xiaoming Wu

Accelerating Graph Sampling in GNN Systems Through Accuracy-Aware Data Reuse
Yuchun Wang; Nan Jiang; Qi Wu; Hengshan Yue; Xiaohui Wei

Scalable Distributed Index Construction for Large-Scale Graph-Based ANNS
Xiangyu Liu; Meiling Wang; Yiming Zhang

Scalable and Contention-Resilient Concurrent Interval Tree
Kapil Kumar Attinagaramu; Praveen Alapati

DRL-Based Collaborative Caching Strategy Considering User Preference Prediction in UAV-Assisted Vehicular Edge Computing
Kaixuan Luo; Chuanxiang Ma

ICA3PP-11: Parallel and Distributed Algorithms and Applications (VI)
Session Chair: Shaojie Liu (shaojie@hainanu.edu.cn), Hainan University, China

A Resource Allocation Method of Blockchain Network Based on Edge Computing
Qian Su; Longfei Bai; Xiang Zhang; Guangqin Hu; Xuejie Zhang

A Structure-Aware Irregular Blocking Method for Sparse LU Factorization
Zhen Hu; Dongliang Xiong; Kai Huang; Changjun Wu; Xiaowen Jiang

A Deep Reinforcement Learning Algorithm with Ordered Action Space for Budget-Aware Workflow Scheduling in Heterogeneous Clouds
Yanfen Zhang; Longxin Zhang; Lili Du; Zhihua Wen; Buqing Cao; Sheng Lin; Jianguo Chen

STM-WFBP: Selective Tensor Merging Method in Distributed Learning
Pingping Dong; Qingfen Q Yi; Lianming Zhang; Wensheng Tang

EACC: Efficient Agent Context Cache Sharing for Multi-Agent Systems
Sihao Cheng; Yunfei Gu; Chentao Wu; Jie Meng

Kubernetes Scheduling Algorithm Based on an Improved Ant Colony Optimization Algorithm
Chanchan Zhao; LiBin Liu; Bao Shi; Xiaocan Yue; Yan Li

AccuGraph: Memory-Efficient Full-Graph GNN Training on a Single GPU via Subgraph Accumulation
Liyang Wu; Menghan Jia; Lizhi Zhang; Yahui Wu; Gongqingjian Jiang; Jiezhong He; Chunye Gong; Yinghui Gao

ICA3PP-12: Service Dependability and Security in Distributed and Parallel Systems (I)

Session Chair: Shaojie Liu (shaojie@hainanu.edu.cn), Hainan University, China

M2C: A Blockchain-Based Certificate Batching Architecture for Software-Defined Networks
Jiaqin Liu; Qi Xia; Xuyang Li; Jianbin Gao; Isaac Obiri; Grace Mupoyi Ntuala; Hu Xia

PacketMorph: Generation of Recoverable Adversarial Packets Against Encrypted Traffic Classification via Class-wise Universal Perturbation
Yuanyuan Xu; Yuwei Xu; Yunpeng Bai; Jie Cao; Kehui Song; Guang Cheng

DecFLLM: A Privacy-Preserving Fine-Tuning Framework for Federated Large Language Models via Adapter Decomposition
Maojiang Wang; Silong Chen; Xu Yang; Zhenyu Qiu; Yingwen Chen; Yuchuan Luo; Shaojing Fu

Reinforcement Learning-Based Autonomous Collision Avoidance for Ships in Realistic Physical Environments
Ying Ding; Weizhi Meng; Shaoming He; Yu-an Tan; Wenjuan Li

IDSF: A Cross-Domain Data Trustworthy Sharing Framework for Large-Scale IIoT with Integrated DID and Enhanced PBFT Algorithm
Meng Ren; Ruizhi Sun; Xuefeng Du; Yingjie Zhao; Fengqi Li

TriDA: Triangular Fuzzy Double Auction for Efficient and Accurate Task-Worker Matching in Blockchain-Based Crowdsourcing
Xueqin Liang; Guozhen Zhang; Jingwen Shao; Panpan Han; Zheng Yan

Multi-Task Learning for HDD Failure Prediction in Heterogeneous Storage Systems
Jixing Zhu; Jiabao Zhao; Fan Liu

ICA3PP-13: Service Dependability and Security in Distributed and Parallel Systems (II)

Session Chair: Xiaoxue Yin (yxx@hainanu.edu.cn), Hainan University, China

A Dual Personalized Clustering-Based Defense Against Composite Poisoning Attacks in Federated Learning
He Wang; Zhen Xu; Qian Tan; Yan Zhang

Index-Free Searchable Symmetric Encryption for Full-Text Substring Search
Qianbei Zang; Gang Shi

A Weakly Centralized Hierarchical Sensitive Data Sharing Scheme Based on Edge Computing
Lifeng Ma; Deve Kav Zheng

A Lightweight E-Health Data Access Control Scheme in Fog Computing
Pengxiang Li; Guanxiong Ha; Rongxi Wang; Chunfu Jia

Hawk: Saturation Attack Detection Based on Structured Spatial Interactions and Temporal Dependencies-Guided Graph Learning in SDN
Longwen Ran; Qing Qian; Yunhe Cui; Ruixue Tang

RoboClarify: Clarifying Ambiguous Instructions Through Scenario-Guided Risk Assessment for Home Embodied Agents
Ying Liang; Zhihui Zhao; Yaowen Zheng; Zhen Dai; Yongle Chen; Limin Sun

Pistis: Enabling Secure Interoperability Across Unobservable Permissioned Blockchains
Mingming Huang; Xiaodan Zhang; Wei Mi; Huimei Liao; Yi Sun

ICA3PP-14: Service Dependability and Security in Distributed and Parallel Systems (III)
Session Chair: Xiaoxue Yin (yxx@hainanu.edu.cn), Hainan University, China

HBCA: Healthcare-Oriented Blockchain-Assisted Cross-Domain Authentication
Shuhui Zhang; Xiaochen Wang; Lianhai Wang; Shujiang Xu; Wei Shao; Qizheng Wang

HeRF-AD: Robust Anomaly Detection for Software Systems via Heterogeneous Representation Fusion
Xiaoman Tan; Bin Li; Siyang Lu; Wu Chen; Dongdong Wang

Defending Backdoor Attacks in Visual Pre-Trained Models with Group L1/2 Regularization and Knowledge Distillation
Wenbo Du; Junxing Zhang

LIME-Enhanced Insider Threat Detection for Distributed Security Systems
Raddad H Faqih; Priyadarsi Nanda; Manoranjan Mohanty; Saleh Alqahtani; Bashair Alrashed

Graph Representation Learning via Generative-Contrastive Fusion for Advanced Persistent Threat Detection
Jun Jiang; Yijiao Jiang; Fangming Dong; Zhengwei Jiang; Tianming Zheng; Baoxu Liu; Liling Xin

zkGCN: Zero-Knowledge Based Verifiable Inference for Graph Convolutional Networks
Hongfa Ding; Linjiang Wu; Yingxuan Luo; Heling Jiang

ICA3PP-15: Service Dependability and Security in Distributed and Parallel Systems (IV)
Session Chair: Ren Li (renli@hainanu.edu.cn), Hainan University, China

EPOMTA: Efficient and Privacy-Preserving Online Multi-Task Allocation in Mobile Crowdsourcing
JiaShuang Xu; Xingfu Yan; Wing W. Y. Ng; Zheng Gong

Multiscale Deep Neural Network Intrusion Detection Model Based on Denoising Feature Selection with EQLv2
Yong Ma; Chao Wang; Jiuzhen Zeng

Are Relay Chains Practically Deployable? Trusted Behavior Dynamics via Evolutionary Games
Xueqin Liang; Ruoyu Yin; Panpan Han; Zheng Yan

An Anonymous, Certificateless, and Multi-Receiver Aggregate Signcryption Scheme Without Secure Channel in VANETs
Yingfu Xu; Feng Zhao; Yujue Wang; Zhaoyu Su; Chunhai Li; Zixin Wang

A GAN-Integrated Framework for Fileless Attack Provenance
Jian Jiao; Xiaoran Ding; Shecun Xu

HOFT: A New Fault-Tolerant Routing Algorithm for Network-on-Chip
Shuaikang Zhou; Ping Lv; Qinrang Liu; Peijie Li; Wei Guo; Wenbo Zhang; Zhengyu Liu

Integrated Voronoi Diagram and Stay Point Detection for Trajectory Privacy Preservation in Edge Computing
Chanchan Zhao; Yan Li; Bao Shi; Libin Liu; Xiaocan Yue

ICA3PP-16: Network Architectures and Algorithms (I)
Session Chair: Yan Li (liyan@mail.hnust.edu.cn), Hunan University of Science and Technology, China

Ditto: A Flexible Transmission Control Mechanism for Diverse User Demands and Network Conditions
Qingnan Wang; Jinnuo Du; Fangzhou Chen; Danfeng Shan

Decentralized Multi-UAV Trajectory Optimization for Cooperation in Wireless Charging Networks
Yundi Wang; Xiaoyu Wang; He Huang; Haipeng Dai

Mitigating Hash Polarization with Flow-Level Load Balancing in Leaf-Spine Data Center Network
Siyuan Fan; Ao Zhang; Hui Yu; Tao Zhang; Linfei Dong; Xidao Luan; Hui Yin

QoS-Aware Hybrid Routing for LEO Satellite Networks: Dynamic Path Allocation and Partitioning-Based Optimization
Xingyuan Liu; Xing Zou; Xiaofeng Wang

Hybrid Swarm Intelligence-Based Path Planning for Mobile Nodes in DTN over Complex Terrains
Xinyan Zhang; Gang Xu; XiaoDong Xu

6RLD: A Seedless Region Active IPv6 Address Dynamic Detection Method Based on Large Language Model and RAG Technology
Zhaobin Shen; Siyuan Zhu; Zijia Song; Guozheng Yang

DFNets: An Indoor Localization Model Based on Fresnel Clustering Fusion
Jieming Yang; Menghui Chen; Yun Wu

ICA3PP-17: Network Architectures and Algorithms (II)

Session Chair: Yan Li (liyan@mail.hnust.edu.cn), Hunan University of Science and Technology, China

DE-MFLA: Lightweight Packet-Level Encrypted Traffic Classification via Dual-Branch Embedding and Multi-Flow Linear Attention
Zhifeng Liang; Runyuan Sun; Zhenyu Li; Ge Zhai; Kaiyang Fang

Enabling Fine-Grained Flow Scheduling for Hardware-Offloaded Networks
Jinte Ying; Ming Li; Wenxin Li; Yulong Li; Dianci Lv; Dehan Wen

GAT-Enhanced Q-Learning for Adaptive Opportunistic Routing with Multi-Attribute Fusion
Yanqing Wu; Sihan Li; XiaoDong Xu; Gang Xu

Optimizing Collaborative Edge Caching in IoT via Social-Aware Spatio-Temporal Prediction and Multi-Agent Reinforcement Learning
Ze Liu; Wei Zhang; Hao Hao; Huiling Shi

INTMCC: An In-Network Telemetry-Based Multipath Congestion Control Algorithm for Data Center Networks
Li Hao Wang; Chenzhao Huang; Nan Wu; Yingying Zeng; Shiyin Zhu; Xiaobin Tan

RIS-Assisted Beamforming Optimization Based on DNN in the UAV-ISAC System
Zhiyu Liu; Jieling Zhang; Bin Yang; Pinlong Zhao; Pengfei Jiao; Zhidong Zhao; Huaming Wu

Enhanced Semi-Persistent Scheduling for Resource Collision Avoidance in C-V2X
Xiang Li; Lingyun Lu

ICA3PP-18: Network Architectures and Algorithms (III)

Session Chair: Yan Li (liyan@mail.hnust.edu.cn), Hunan University of Science and Technology, China

A Multi-Objective Mapping Optimization Strategy for Large-Scale NoC Design
Yan Tang, Chen Li, Xiaowen Chen, Jianzhuang Lu, Yang Guo.

J AFC: Job-Aware Flow Control for Distributed DNN Training
Siyan Pan; Xiaobin Tan; Tiance Li; Yingying Zeng; Ning Xu; Feng Yang

Efficient Multi-Receiver Certificate-Based Proxy Re-Encryption plus Scheme for Cloud Data Sharing
Changsong Yang, Mengqi Feng, Yueling Liu, Bowen Song, Yong Ding, Hai Liang.

LIEM: an Learned Interval-Based Event Matching Algorithm for Content-Based Publish/Subscribe Systems
Yongpeng Dong; Zhengyu Liao; Shiyu Qian; Jian Cao; Guangtao Xue

A Hierarchical Deep Reinforcement Learning Framework for Joint Trajectory and Resource Allocation in UAV-MEC Systems
Tianrong Wu; Haifeng Sun

RapidNet: Software-Based Virtual RapidIO for Containerized Intra-Satellite Serving Network
Mingxuan Liu; Jianhua Gu; Zhao TianHai

Leveraging Hierarchical Inference and Knowledge Distillation in Programmable Switches for Time-Varying Traffic Classification
Mingjie Wang; Junxing Zhang

ICA3PP-19: Network Architectures and Algorithms (IV)

Session Chair: Jinbin Hu (jnbinhu@csust.edu.cn), Changsha University of Science and Technology, China

XGTFormer: A Hybrid Transformer-Boosted Model for Effective Network Intrusion Detection
Hantao Zhou; Han Zhu; Hongbing Cheng

QoS-Sim: A Flexible Simulation Platform for Fine-Grained Data Center Network Monitoring
Yubing Li; Qingyun Liu

6Scout: IPv6 Target Generation with Hybrid Trees and Reinforcement Learning for Internet-Wide Scanning
Zhaobin Shen; Guozheng Yang; Zijia Song

A Temporal Forecasting Model for Illegal Online Transaction Using Adaptive Slicing and Dual-Branch Adversarial Enhancement
Qian Wang; Na Liang; Qingyan Ding; Mengbo Fan

Edge-Scheduled Mobile Cooperative Power Replenishment in Budget-Constrained WRSNs with Limited Charging Locations
Honglong Ge; Xuanang Gong; Lijie Xu

Load-Aware Offloading and Resource Allocation in SAGIN via LSTM-Enhanced Deep Reinforcement Learning
Mingyang Xu; Xin Chen; Libo Jiao; Zhekun Zhang; Xiaoya Fan

AI Medical Topic Popularity Prediction Based on Improved BERTopic Topic Modeling with Multi-LSTM and ARIMA
Haoran Hao; Xiangwei Zheng; Xining Wang; Wei Li

ICA3PP-20: Big Data Management and Analysis (I)

Session Chair: Jinbin Hu (jnbinhu@csust.edu.cn), Changsha University of Science and Technology, China

Dual-Domain Multi-Scale Network for Fundus Image Restoration
Ruilin Liang; Zhike Han; Wei Dai; Hanyu Xiao; Chaoyang Hong; Qingqing Zheng

Anomaly Detection in PV Power Plants Based on Improved Isolated Forest Approach
Yun Wu; Kai Yang; Yan Du; Jieming Yang; Ziyi Wang; Ning An; Nan Xu; Tianyang Li

ZQuery-LSM-Tree for ZNS SSD
Tao Cai; Danping Zou; Dejiao Niu; Zihao Yinyi; Qiujiang Huang; Yikang Deng

SSE-Sim: Simhash-Driven Multi-Trapdoor Searchable Encryption with PRE for IP Transactions
Qianbei Zang; Gang Shi

DAF-Net: Dynamic Aggregation and Cycle-Aware Frequency Mechanism for Time Series Forecasting
Liwei Dai; Jiong Yu; Xue Li

DiffGen: Optimizing I/O Trace Generation with Differentiated Modeling Techniques
Jian Liu; Zhiyang Feng; Ziguang Fu; Guodao Sun; Yilong Zhang; Nan Gao; Ronghua Liang; Peng Chen; Li Jiang

LinkUIE: Entity Linking Adapter for Universal Information Extraction
Wenqi Xiong; Yuancheng Zheng; Weizhi Meng; Bin Liu; Dianxin Wang; Jun Zheng

ICA3PP-21: Big Data Management and Analysis (II)

Session Chair: Jinbin Hu (jnbinhu@csust.edu.cn), Changsha University of Science and Technology, China

CalmKV: Enhancing Read Performance of KV Store on Fast SSDs Under Write Interference
Yitian Zheng; Yuhao Zhang; Zhijie Huo; Jiwu Shu

Forecasting and Attribution Modeling of Port Carbon Emissions for Green Governance
Hao Zhu; JiaHang Wang; ShuDong Zhang; Wei Wu; Biyuan Yao; Haoyu Du

PCRP: Data-Parallel Framework for Periodic-Causal Relation Paths in Temporal Knowledge Graphs
Xinfa Jiang; Yang Xiangli; Jing Yang; Shaojun Zou; Runbo Zhang

GSSN: A Graph Structural Similarity Network for Complex 2D Geometric Drawing Retrieval
Long Chen; Longlong Liao; Junyong Lu; Jie Liu; Yu Yuanlong

SWinAct: Multi-Anchor Guided Sliding Windows for Robust Temporal Action Modeling
Junwei Zhao; Shunmei Meng; Jielong Zhou; Qianmu Li

Prototype-Based Query Mechanism for Video Instance Segmentation
Xiaoqing Zhao; Jian Liu; Tianyu Hu

An Empirical Study on Precompilation as an Ops-Oriented Micro-Optimisation Strategy for Microservice-Based Applications
James Dougan; Zheng Li

ICA3PP-22: Internet of Things and Cyber-Physical-Social Computing (I)

Session Chair: Zhe Peng (zhepeng@polyu.edu.hk), The Hong Kong Polytechnic University, China

Average Delay Minimization Strategy for Multi-UAV Assisted MEC: A Lightweight Deep Reinforcement Learning Approach
Heng Liu; Qiang Tang; Kun Yang; Lei Yang

LLM-Enhanced Multi-AUV Collaborative Search via Multi-agent Reinforcement Learning
Peijun Dong; Hang Tao; Yang Zhao; Wei Shi; Hanjiang Luo

CSI-Based Human Activity Recognition Using Spatial-Temporal Features and Attention
Wenping Yu; Jianhao Wang; Yusong Dong; Zhewen Li; Jianzhong Zhang

MoMa-Pos: An Efficient Object-Kinematic-Aware Base Placement Determination Framework for Mobile Manipulation
Beichen Shao; Nieqing Cao; Yan Ding; Xingchen Wang; Fuqiang Gu; Chao Chen

Distributed Intelligent Computing with Kernel-Wise Deep Neural Network Partition over Collaborative Devices
Boya Sun; Yinglei Teng; Nan Wang

Joint Caching and Offloading Optimization for Heterogeneous Task Patterns in Multi-Access Edge Computing
Sihan Li; Yanqing Wu; XiaoDong Xu; Gang Xu

Open World Person Retrieval and Its Distributed Parallel Training Framework
Lan Yan; Wenbo Zheng; Kenli Li

ICA3PP-23: Internet of Things and Cyber-Physical-Social Computing (II)

Session Chair: Zhe Peng (zhpeng@polyu.edu.hk), The Hong Kong Polytechnic University, China

WSRNet: A Multi-Task Learning Model for Satellite Image Recognition and Segmentation of Forest Wildfires
Juan Luo; Tianyang Liu; Kexuan Feng; Guogen Zeng; Fan Li

SCoT Guard: A Safety Chain of Thought Guardrail Model
Yuxuan Lin; Shi Liu; Dongqin Liu; Wei Mi; Xuehai Tang

Managing Information Update with Edge Computing: A Deep Reinforcement Learning Approach
Yang Meng; Di Zhang; Min Guo; Xun Shao

Multi-Task Low-Level Vision Network for FPGA Deployment: SL-SYENet Joint Optimization Framework
Shenao Li; Yongjiang Xue; Fei Qiao; Qingzeng Song

A Learning-Based Hyperspectral Image Compression Method Integrating Frequency-Domain Modeling and State Space Mechanism
Juan Luo; Qi Li; Kexuan Feng; Guogen Zeng; Fan Li

Multi-AUVs-Human Collaborative Search and Rescue Scheme Based on Large Language Models and Deep Reinforcement Learning
Peijun Dong; Hang Tao; Yang Zhao

An IoT-Based Distributed Smart Warehousing System with Intelligent Scheduling and 5G-Driven Low Latency
Hanning Zhang; Shanwen Gou; Junwei Feng; Guansheng Wang; Lei Feng

ICA3PP-24: Performance Modeling and Evaluation (I)

Session Chair: Yijia Zhang (zhangyj01@pdl.ac.cn), Peng Cheng Laboratory, China

Atys: an Efficient Profiling Framework for Identifying Hotspot Functions in Large-Scale Distributed Microservices
Jiaqi Sun; Dingyu Yang; Shiyu Qian; Jian Cao; Guangtao Xue

Path Optimization of USV Based on Stochastic Schemata Exploiter with New Exploitation Strategy
Jianshan Liang; Yi Zuo

On Adaptive Cooperative Strategy for Throughput Enhancement in V2V/V2I Communications
Weidong Yang; Xinzhuo Zhang; Yan Liu; Ranran Sun; Yulong Shen

CoDVFS: Improving the Energy Efficiency of AI Servers through Coordinated DVFS
Yijia Zhang; BingQiang Wang; Qiang Wang; Shixun Zhang

Machine Learning and Data Statistics based Scalability Bottleneck Detection
Yuhan Cao; Haoming Zhan; Juan Chen; Mingyuan Zhang

Aspect Term Extraction Method Based on EBERT-CBAC
Yun Wu; Kai Yang; Yan Du; Jieming Yang; Ziyi Wang; Ning An; Nan Xu; Yifan Huang

HACompBench: Co-Designed Multimodal DNN Compression Evaluation for Edge Devices
Zhengyu Gan; Haohua Du; Chengquan Feng; Haisheng Tan

An Embedded Processor Debugging Model Based on Observability and Controllability
Xiao Hu, Ting Tang, Fenghua Luo

ICA3PP-25: Performance Modeling and Evaluation (II)

Session Chair: Zhe Peng (zhepeng@polyu.edu.hk), The Hong Kong Polytechnic University, China

Are We There Yet? Unraveling the State-of-the-Art Binary Feedback-Directed Optimizations
Mingliang Liu; Shanlin Deng; Baojian Hua

Towards Efficient SpMV: A Multi-Aware Optimization Framework for Heterogeneous Architecture
Yang Liu; Zexin Wang; Xinyin Zhang; Zenghui Ren; Yonghua Zhao

GMS-YOLO: A Lightweight Algorithm for SAR Ship Target Detection Based on YOLOv8n
Xiaozhang Liu; Xinting Zhou; Xiulai Li; Jiajing Xu

ERL-CDR: Evolutionary Reinforcement Learning with Causal Decoupling Representation
Zuohao Wu; Guang Li; Zihao Li; Jiaqi Wei; Mingsheng Shang

Model Archive and Ensemble Learning Based Differential Evolution Algorithm for Mixed-Variable Optimization
Qing Chen; Xiaogang Dong; Changshou Deng

AKD: an Asymmetric Knowledge Distillation Algorithm for Time Series Models in Cloud Service Performance Monitoring
Pengwei Liu; Weipeng Cao; Jiawei Qiu; Chuanfei Xu; Xi Tao; Zhong Ming

HManyCore-Sim: Heterogeneous Simulator for Deeply Fused Many-Core Processor
Liyi Wang; Hong An, Xiahui Hu, Yingying Wu, Yiyun Yin, Qinglin Liu

Fault Tree Abductive Methodology for Accident Causation Analysis
Ye Xing; Runzhi Li; Jianming Zhu; Peikun Ni

ICA3PP-26: Parallel and Distributed Architectures (V)

Session Chair: Jianqiu Xu (jianqiu@nuaa.edu.cn), Nanjing University of Aeronautics and Astronautics, China

Blockchain-based Federated Learning-enabled Adaptive Model Compression Scheme for Low-Latency Communications among Resource-Constrained Devices
Wenbin Qiu; Qinghang Gao; Jianmao Xiao; Sheng Cai; Riqing Xu; Yuanlong Cao

FPGA-Based Hybrid GCN-Transformer Accelerator for 3D Pose Estimation
Ziqi Zhang; Yongjiang Xue; Fei Qiao; Qingzeng Song

FedBC: Using Localization Mechanism to Alleviate Non-IID Feature Shift in Federated Learning
Yiyang Zhang; Jiajie Sun; Xiaokun Wang; Suxiang Zhang; Wei Li

FPGA-Optimized Parallel SM4 Accelerator: a Reconfigurable Hardware-Software Co-Design Framework
Jiaming Zhang; Ying Zhang

Monosulfide: A Sharded PoW Blockchain System with Secure Adaptive Mining Power Allocation
Yue Pan; Guangtao Xue; Shengyun Liu; Haotian Zhu; Jiahao Qi; Dian Ding

RF-PBFT: A Dynamic Consensus Algorithm Based on Reputation Partitioned Clusters
Song Li; Yongping Xiong

IoT Anomaly Detection Based on Grassmann Manifold Federated PCA
Yiyang Zhang, Xiaokun Wang, Jiajie Sun, Huifeng Bai, Huadong Yu, Rongxu Hou

pBeeGees: a Prudent Approach to Certificate-Decoupled BFT Consensus
Kaiji Yang; Jingjing Zhang; Junyao Zheng; Qiwen Liu; Weigang Wu; Jieying Zhou

ICA3PP-27: Parallel and Distributed Algorithms and Applications (VII)
Session Chair: Jiacheng Qu (jcqu@hainanu.edu.cn), Hainan University, China

EnvCluster-FL: An Environment-Aware Clustering Federated Learning Framework
Chuanyu Huang; Fanli Sun; Zhongxiang Shi; Junwei Du; Feng Jiang

HEMPF: Efficient High-Resolution Multimodal Inference on Heterogeneous Edges via Perception-driven Segmentation and Dynamic Offloading
Zhang Chen; Ying Zhang; Zhiwen Yu; Bin Guo

An Integrated Topology-Aware Mapping Scheme for Large-Scale CFD Applications on the ORISE Supercomputer
Lingyun Gao; Wu Yuan; Xiazhen Liu; Shan Liang; Jian Zhang; Zhonghua Lu

DeepFill: Accelerating MLLM Training by Filling Bubbles with Frozen Encoders
Zhengyu Qing; Shaohuai Shi; Qiang Wang

Adaptive Heterogeneous PUs Scheduling for Layer-Wise DNN Acceleration
Youmei Pan; Ming Wang; Jing Sun; Heng Zhang; Jinwen Li; Peng Wang; Fanjiang Xu

FBChain: A Blockchain-based Federated Learning Model with Communication Efficiency Consensus Algorithm
Yang Li; Chunhe Xia; Tianbo Wang

FedHyperClass: Boosting Cross-Modal Consensus for Federated Learning with Unimodal Clients
Haizhou Du; Chongyi Qiu

ICA3PP-28: Parallel and Distributed Algorithms and Applications (VIII)
Session Chair: Jiacheng Qu (jcqu@hainanu.edu.cn), Hainan University, China

PFedDyFilter: Personalized Federated Learning via Dynamic Filters
Zhongxiang Shi; Jinhuan Liu; Chuanyu Huang; Junwei Du; Feng Jiang

Addressing Multi-UAV Task Allocation in Dynamic Scenarios Using a Reinforcement Learning-Driven Graph Neural Network and Attention Mechanism
Hanrui Zhang; Lei Zuo; Fengchen Zhang; Yu Zhang; Jiaming Bai; Xiao Lv.

Hierarchical Dependency-Aware Scheduling for Distributed Stream Computing Systems
Yinuo Fan; Dawei Sun; Shuaiyi Zou; Jonathan Kua; Rajkumar Buyya

Adaptive Budget-Constrained Resource Provisioning for Workflow Scheduling in IaaS Clouds
Seyedeh Faezeh Farahbakhshian; Jun Feng; Hamza Djigal; Amin Fakhartousi

High-Performance Virtual Machine Placement Strategy for Dynamic Update Environments
Junjie Yin; Yang Yu; Xiaofeng Wang; Xing Zou

Neural Network-Enhanced Monte Carlo Tree Search for Adaptive Resource Scheduling in Heterogeneous Spark Environments
Xiaoyong Tang; Weilong Li; Wenzheng Liu; Ronghui Cao; Tan Deng

ICA3PP-29: Parallel and Distributed Algorithms and Applications (IX)
Session Chair: Jiacheng Qu (jcqu@hainanu.edu.cn), Hainan University, China

BUCAS: Budget Constrained Application Scheduling in IaaS Clouds
Xin Ni; Hamza Djigal; Abdoul Fatakhou Ba; Abdullahi Uwaisu Muhammad

Anomaly Detection Method for Photovoltaic Power Generation Data Based on IAT
Yun Wu; Ziyi Wang; Yan Du; Jieming Yang; Kai Yang; Ning An; Nan Xu; Xingyu Pan

Cache-Assisted Task Offloading for Cloud-Edge-UAV Inspection Systems
Beijing Fu; Xin Li; Jianqiu Xu; Xiaolin Qin

MCO-DFL: Multiple Devices Collaborative Optimization for Distributed Federated Learning Based on Cyber Threat Detection Models
Jianlong Li; Chao Bu; Zishuai Yan

Efficient Aggregation Based on Straggling Communication in Federated Learning
Yufang Liu; Peng Hou

Research on Dynamic Properties Evolution Algorithm of Polymer Nanomaterials Based on Heterogeneous Computing Platform
Xiaoman Zhang; Tao Liu; Han Qin; Ying Guo; Jingshan Pan; Dawei Zhao; Xiaoming Wu

GPBFT: a Dynamic Reputation and Group-Optimized PBFT for Scalable Consortium Blockchains
Shusen Zhang; Linlin Zhang; Wenshou Wu; Xuehua Bi; Fang Wenbo; Kai Zhao

ICA3PP-30: Parallel and Distributed Algorithms and Applications (X)
Session Chair: Jiacheng Qu (jcqu@hainanu.edu.cn), Hainan University, China

Fake News Detection Model Based on Entity Dependency Reduction Strategy
Jing Chen; Chen Xin; Hongbin Jiang; Liu Mingxin; Xiao Chen

Improving the Energy Efficiency of AI Clusters Through Variability-Aware Frequency Scaling and Task Allocation
Yijia Zhang; Dongxiang Zhang; Bingqiang Wang; Qiang Wang; Shixun Zhang

PSCA: A FPGA-Based Protein Structure Comparison Accelerator with Symmetric Simplified Matrix
Hui Su, Yuan Li, Xingyun Qi, Qiang Wang, Puguang Liu, Haoyu Liao, and Mingche Lai

Distributed Multi-Agent Coordination for Energy-Efficient UAV Systems: A Parallel Optimization Approach
Puqin Han; Zhiqiang Liu; Xu Zhang; Wenjing Li

A Simulation-Assisted Multi-Agent Reinforcement Learning Framework for Vehicle-to-Grid Coordination
Zhengchang Hua; Panagiotis Oikonomou; Karim Djemame; Nikos Tziritas; Georgios Theodoropoulos

Adaptive Data Prefetching for Real-Time Analytics: A Deep Reinforcement Learning Approach
Yangchen Ou; Yuxin Huang; Yunfeng Sun; Qingxi Wu; Zhuzhong Qian

CADA: A Confidence-Aware Dual-Aspect Fusion Network for Multimodal Sentiment Analysis
Li Tianyi; Daming Liu

ICA3PP-31: Service Dependability and Security in Distributed and Parallel Systems (V)
Session Chair: Yi Jiang (yj@hainanu.edu.cn), Hainan University, China

Rebel: A Cross-Chain Data Audit Scheme Based on Reputation Model to Defend Against Malicious Nodes
Hailang Cai; Yuwei Xu; Tianhua Li; Qiao Xiang; Jingdong Xu; Guang Cheng

PPCPP: A Practical Payment Channel Model with Privacy Protection
Haonan Huo; Di Liu; Jiarui Li; Guoyan Zhang

Efficient Privacy-Preserving Facial Verification via Fully Homomorphic Encryption and Preprocessing
Pengfei Zeng; Han Xia; Qiang Lai; Mingsheng Wang

LLM-BSCVM: LLM-Based Blockchain Smart Contract Vulnerability Management Framework
Yanli Jin; Chunpei Li; Peng Fan; Peng Liu; Xianxian Li; Chen Liu; Wangjie Qiu

Blockchain-Based Insurance Data Sharing Framework for Fraud Prevention in Zero Trust Environments
Xiaolin Yue; Ziqiang Ma; Juanyang Zhang

FLIDS-Mamba: Multi-Center Network Intrusion Detection Based on Federated Learning and Bidirectional State Space Model
Denghua Li; Yuesheng Zhu; Guibo Luo

ICA3PP-32: Service Dependability and Security in Distributed and Parallel Systems (VI)
Session Chair: Yi Jiang (yj@hainanu.edu.cn), Hainan University, China

Enhancing Security in Embodied Intelligence: Attack Detection via Constraint Functions
Dan Yu; Juntao Shi; Jiaqian Ren; Zhaoteng Yan; Zhihui Zhao; Yongle Chen

X-ECU: Unlocking In-Vehicle ECU Firmware Vulnerabilities for Exploitation
Yuhao Qiu; Haonan Miao; Xiangxue Li

Message Prediction Table: Enhancing Robustness Against Replay Attacks in CAN Networks
Jiapeng Zou; Haonan Miao; Xiangxue Li

DP-DPFL: Short Term Load Forecasting Based on Differential Privacy and Dynamic Personalized Federated Learning
Shuhui Zhang; Abiao Yuan; Lianhai Wang; Shujiang Xu; Wei Shao; Qizheng Wang

DAGLoc: End-to-End Troubleshooting Approach for Big Data Scheduling System
Xueyong Tan; Shipeng Zhang; Jing Liu

A Comprehensive Review of Trust-Based Access Control: A Five-Dimensional Analysis and Emerging Trends in Multi-Technology Integration
Lingjie Wang; Feng Xu

RBFUZZ: Network Protocol Fuzzing Guided by Rare Branch
Siqi Zhao; Rui Ma; Jingwen Ren; Yuqi Zhai; Shitong Xu

ICA3PP-33: Service Dependability and Security in Distributed and Parallel Systems (VII)
Session Chair: Shaojie Liu (shaojie@hainanu.edu.cn), Hainan University, China

MH-GAT: a Buffer Overflow Vulnerability Detection Method via Cross-Graph Semantic Alignment
QunLong Wang; Siqi Lu

MEML-KEM: A Memory-Efficient Implementation of ML-KEM for IoT Devices
Ruiqi Hou; Yiwen Gao; Yuejun Liu; Jingdian Ming; Yongbin Zhou

Conceptual Framework for Federated Reinforcement Learning in Network Defense
Piyumi Madhubhashini Srimali R Mudiyansele Rajapaksha; Yinxue Yi

A New vTPM Architecture with Strong Isolation for the Cloud
Samia Boutalbi; Remous-Aris Koutsiamanis; Maissa Dammak; Mario Sûdholt

Formalizing Blockchain-Based Communication for Tactical Data Link
Shangzhe Wu; Yongxin Zhao; Qiang Wang; Qiang Chen; Yongjian Li

Observer-Based Event-Triggered Control for Switched Systems Under DoS and Deception Attacks
Shigang Wang

MHVD: Multigranularity Smart Contract Vulnerability Detection Using Reinforced Multiplex Heterogeneous Graph Convolutional Network

Bowen Su; Jun Zhang; Zhaoxiong Song; Linpeng Jia; Zhi Yu

ICA3PP-34: Network Architectures and Algorithms (V)

Session Chair: Pingping Dong (ppdong@hunnu.edu.cn), Hunan Normal University, China

Towards Timeout-Less Flow Scheduling for Data Center Networks

Shaojun Zou; Yi Jiang; Jiacheng Qu

Availability-Aware Service Function Chain Placement with VNFI Sharing: A Performance-Enhancement Deep Reinforcement Learning Approach

Hanzhi Chang; Jing Bai; Xin Tang; Yixiang Wang

B2-CTA: Deep Learning Model for Network Intrusion Detection

Yufei Shang; Chunying Kang; Fen Wang; YuHang He

Distributed Semantic Communication Network with Adaptive Channel Conditions and Transmission Rates Joint Source-Channel Coding

Xiaoyan Zhao; Hongyu Ji; Peiyan Yuan; Xiangsen Cheng

Network Coding Based Energy-efficient Opportunistic Routing Protocol in Low-Power and Lossy Networks

Nisuna Bao; Wanying Zhang; Wuyungerile Li; Winston K. G. Seah

IB-APC: InfiniBand-Ethernet Protocol Conversion for Scalable Long-Distance RDMA Communication

Anbang Li; Meng Guo; Alexander Arkhipov; Anjun Liu; Ting Xia; Jiaxiang Wang; Yixin Qin; Yunbo Yan, and Xiaojuan Meng.

TD3-Based Collaborative Computation Offloading and Trajectory Optimization in UAV-Assisted MEC Networks

SaiBo Wang; Xin Chen; Libo Jiao; Yuchen Zhang; Aobo Cao

ICA3PP-35: Network Architectures and Algorithms (VI)

Session Chair: Tao Zhang (tzhang@ccsu.edu.cn), Changsha University, China

Resource Scheduling in Dynamic STAR-RIS-Enabled NOMA-ISCC Systems Based on Multi-Agent Deep Reinforcement Learning

Shangxiao Wu; Yiting Huang; Zhaohui Chen

A Multipath Routing Optimization Algorithm Based on SDN and Reinforcement Learning for Computing First Networks

Bin Guo; Xiangyu Bai; Cheng Haoran

DRL-Driven Adaptive Redundancy Control for Network Coding in FANETs: Balancing Reliability and Energy Efficiency

Bo Song; Yaqi Ke; Xiulin Qiu; Lei Xu; Yuwang Yang

A Multivariate Time Series Forecasting Framework Based on Multi-Scale Convolution and an Inverted Transformer with Differencing Mechanism

Mengbo Fan; Na Liang; Qingyan Ding; Qian Wang

In-Kernel CNN Inference for Edge Devices: An eBPF-Based Approach to Low-Latency and Resource-Efficient Processing

Yaodong Zheng; Junxing Zhang

Task Offloading in Dynamic Vehicular Networks Based on Deep Reinforcement Learning

Yini Pu; Xiaolin Zhang; Jingyu Wang; Lixin Liu; Jinling Yu; Lisha Li; Cuiyun Shi

Implementation and Performance Evaluation of TCP over QUIC Tunnels
Xuanhong Guo; Zekun Bao; Ying Chen

ICA3PP-36: Internet of Things and Cyber-Physical-Social Computing (III)

Session Chair: Xin Xie (xinxie@tju.edu.cn), Tianjin University, China

GAN-Inspired Multi-Strategy Grey Wolf Optimizer for Coverage Optimization in Obstacle-Rich IoT Environments
ChenXuan Wang; Kaidi Zhu; Wuyungerile Li

A Two-Stage Stackelberg Game Based Task Offloading Scheme for Internet of Vehicles
Mingfeng Huang; Tan Deng; Ronghui Cao; Wenzheng Liu

The Cloud-Edge-Terminal Collaborative Distributed Semantic Communication for IoT
Dongyuan Shen; Xiaoyan Zhao; Peiyan Yuan

DF-DETR: An Algorithm for Small Object Detection in UAV Aerial Images
Liangyao Bu; Hui Yang; Bo Yang

Baseline Generation Method for HIDS Data Based on Manifold Learning
Jianfeng Jia; Yilei Wang; Linjiang Zhou; Zhanghan Song; Lin Yi

UAV-Assisted Vehicular Edge Offloading and Scheduling Optimization via DRL and HA
Zheng Wan; Yifeng Tan; Shenglu Zhao; Xiaogang Dong; Yuzhu Liu

Delay-Aware Task Offloading Strategy for Vehicular Fog Computing Based on Q-Learning
Shuqin Deng, Wufei Wu and Dong Qin.

Streaming Weighing of Powdered Materials via Multimodal Fusion of Vibration, Optical Velocity, and Weight Signals
Yang Yu; Kangkang Fan; Peiru Li; Shijie Hu; Han Zhang; Dawei Zhang

ICA3PP-37 : Big Data Management and Analysis (III)

Session Chair: Sen Liu (senliu@fudan.edu.cn), Fudan University, China

CMS-YOLO: A Lightweight Multi-State Object Detection Model for Rosa davurica Pall
Jingxin Han; Yu Zhang

WindowView: a Stream Processing Engine for Big-Data Analytics
Bing Li; Wenting He; Zhibin Zhang

A Probability Interval Prediction Method for PV Power Based on PINformer-HKDE
Yun Wu; Ziyi Wang; Yan Du; Jieming Yang; Kai Yang; Ning An; Nan Xu; Xingyu Pan

A Trustworthy Attribute-Based Searchable Data Sharing Scheme for Cloud-edge-end Environments
Kaifa Zheng, Junxu Zhou, Zhenpeng Luo, Zhen Xu, Dunqiu Fan, Wenjin Li, Peihua Xie, Shuai Ou, and Di Zhou

ChipDRAG: Dynamic RAG for Chip Placement
Keqin Sun; Qiusong Yang; Mingshu Li

SyndiBERT: Uncovering Money Laundering Syndicates on Ethereum via Dynamic Fusion of Behavioral and Path Features
Wenjie Zhang; Heng Pan; Siqi Lu; Ying Xing; KunYang Li; BoWei Zhang; DongDong Fan

THCPN-Driven Automated Modeling Framework for Urban Road Networks
Chenyu Wang; Tao Sun

ICA3PP-38: Workshop on AI for Networks and Networking for AI (I)
Session Chair: Sen Liu (senliu@fudan.edu.cn), Fudan University, China

FALL: Fusion Adapter for Multiple LoRA Models Inference
Jiale Li; Kexuan Chang; Nianwang Lin; Zhixin Li; Sen Liu; Hongfeng Chai

DCT-Sketch: Memory-Efficient Detection of Multi-Dimensional Top-K Flows in High-Speed Networks
Shuchen She; Jiawei Huang; Yilin Zhao

An Improved GAN-Based Attack Sample Generation Method for High-Speed EMU Communication Networks
Jun Yang; Yumeng Cao; Yudong Zhou; Jiayu Chen; Changhong Li; Xidao Luan; Shangru Zhou

An Attribute-Sensitive Data Protection Method for UAV Based on FPE
Yizhen Sun; Yating Chen; Jiaqi Chen; Rui Liu; Shigeng Zhang

An Adaptive Watermark Embedding Method for Multi-Modal Data in Power Systems
Yizhen Sun; Yizhou Jiang; Wenxiao Zhao; Jingyuan Xue; Shigeng Zhang

An Innovative Model for Solving the Identical Shortcut Problem in Anomaly Detection of AIOps
Haokai Luo; Yizhen Sun; Hanyu Deng; Jun Ma; Jiawei Huang; Guang Yang

SMAR: Short-Flow Multi-Path Adaptive Routing for Heterogeneous RDMA Workloads
Tao Zhang; Ao Zhang; Ran Huang; Hui Yu; Ao Zhang; Siyuan Fan; Jyoti Sahni; Winston K. G. Seah

Synthesizing the Effects of AI-Driven Adaptive Learning Platforms on Students' Academic Achievement: A Meta-Analysis
Jin Zhang; Zhirong Li; Yaxin Wu; Yitong Huang

ICA3PP-39: Workshop on AI for Networks and Networking for AI (II) / Workshop on Emerging Network Technologies in Computing and Networking Convergence
Session Chair: Tao Zhang (tzhang@ccsu.edu.cn), Changsha University, China

HaLB: Heterogeneous Traffic-Aware Load Balancing for Minimizing Deadline Misses in AI-Centric Datacenter Networks
Jinbin Hu; Rui Zhi; Jin Wang

Towards Efficient Multi-Path Transport with Robust Reordering in RDMA Datacenter Networks
Jin Wang; Yang Li; Jinbin Hu

Hierarchical-Caching-Driven Distributed Architecture for Accelerating Model Training
Jinbin Hu; Wenda Tang; Jin Wang

VRI-PW: A Part-Whole Method for Maritime Vessel Re-Identification
Yang Cheng; Mingming Lu; Yongchuan Xu

Enhancing Equity: A Switch-Assisted Strategy for Improving Fairness in RDMA Networks
Quanwei Sun; Xingbo Gao; Zerui Tian; Sen Liu; Yang Xu; H. Jonathan Chao

Research on MPQUIC Simulation Technology in ns-3 Wireless Network
Ming Jiang; Haopeng Zhang; Jinquan Nie; Yuehua Fan

Automatic Generation and Optimization of Instructional Designs Through Multi-Stage Multi-Agent Collaboration
Yunyan Liao; Yang Jiang; Rongdan Shi; Xinyue Shu; Qing Huang; Wenjin Mao

Lane Line Detection Based on Micro Intelligent Vehicle Simulation Platform
Huangyao Guo; Junjie Li

ICA3PP-40: Workshop on Resource Coordination and Joint Optimization in Cloud-Edge-End Systems (I)
Session Chair: Han Shen (sunnyshine@zju.edu.cn), Xi'an Technological University, China

LLM4Rec-LIGHTNING: High-Throughput training system for LLM4Rec on Memory-constrained GPUs
Ming Gao; Guowang Zhang; Jin Ouyang; Nong Xiao

Cloud-Edge-End Coordinated Meta-Reinforcement Learning for Adaptive Resource Allocation in Intelligent Transportation Systems
Lian Tong; Xiaoxia Zhang; Yongjun Yan

A Hierarchical Optimization Framework for Pareto-Optimal Edge Server Deployment Balancing Latency, Load, and Energy Consumption
Lian Tong; Yongjun Yan

Enhancing RAPTOR in RAG Systems: Semantic Segmentation for Improved Initial Chunking
Xin Wan; Xiaodong Xie; Wei Lin; Tingjun Xie; Cheng Wang; Yan Liu; Yi Pan

Evolutionary Network Search with Adaptive Fusion for Gesture Recognition
Yuan Liu; JinYu Liu; Yizhang Xia; Junwen Xu; Shihao Song; Juan Zou

Acceleration Method of Distributed Multimodal Learning Tasks in Cloud Virtualization Environment
Bo Shan; Xinao Wang; Chang Xu; Shan Jiang; Xiangnan Liu; Xuan Liu

Human-Aligned Data Quality Assessment via Prompt and Scorer Co-Optimization
Quanzeng Wang; Conglei Xu; Zijian Zhou; Jiancheng Wang; Yang Xu

AI-Supported Educational Interventions for Enhancing Computational Thinking: A Meta-Analysis
Jin Zhang; Na Man; Yaxin Wu; Yitong Huang

ICA3PP-41: Workshop on Smart Education Powered by Parallel and Distributed Processing (I)
Session Chair: Wenhui Xu (xuwenhui@htu.edu.cn), Henan Normal University, China

Understanding the Influencing Mechanism of GAI Dependence Among College Students: Perspective from I-PACE Model
Yafei Shi; Jiali Chen; Qianqian Dong; Xiaoyan Cheng

The Effects of Perceived Usefulness, AI Self-Efficacy, and AI Interaction Positivity on the Continuance Intention of Generative Artificial Intelligence in Education
Yafei Shi; Qianqian Dong; Jiali Chen; Mingyue Wu; Junli Shen; Mengjin Chen; Huixin Xu

Determinants of College Students' Continuance Intention Toward Generative AI Teammates: An Integrated Expectation-Confirmation and Shared Mental Model Approach
Zhanling Guo; Yunzhen Liang; Yao Liu

Enhancing Creativity Through 3D Technology in STEAM Education: Insights from a Meta-Analysis
Jin Zhang; Yitong Huang; Yaxin Wu; Na Man; Zhirong Li

A Review of Advances in Textual Emotion Cause Analysis
Wenchao Dong; Wenhui Xu

Multi-Dimensional Prompt Expansion: Black-Box DoS Attacks on Multi-Agent LLMs
Xinyue Wang; Tongwei Zhang; Lingying Zhu

Towards Digital Biomarkers: Browser-Based Facial Dynamics Analysis for Dementia Subtype Diagnosis
Sinan Chen; Masahide Nakamura; Kenji Sekiguchi

How Does Content Type Influence Acceptance? A Study on Student Acceptance of AI-Generated Science Popularization Short Videos Based on the TAM Model

Mengxia He; Zi Huang; Xiuxiu Sima; Ke Zhu

ICA3PP-42: Workshop on Intelligent Distributed Computing (I)

Session Chair: Xin Xie (xinxie@tju.edu.cn), Tianjin University, China

FbsPipe: Forward-Backward Separation Pipeline Parallelism Method for Deep Learning

Zhengyu Liu; Fan Zhang; Fengzhe Zhang; Yanzhao Gao; Xiaofeng Qi; Xinyi Zhang; Shuaikang Hou

Dynamic Ring Signature: Towards Provable Anonymity in Blockchain-Based E-voting

Shan Jiang; Zhehao Huang; Shichang Xuan; Jiaxing Shen; Huakun Huang; Xiaojie Zhu

Federated Learning with Dual-View Feature Fusion and Composite Aggregation

Wenjia Xu; Yuyang Ji; Ke He; Zhengyu Chen; Xiaohong Qian; Jie Huang; Lei Zhang; Jian Wan

DP-DTG: Dynamic Gradient Updating-Based Differentially Privacy Preservation Mechanism for Distributed Services

Peiyu Lin; Xixi Sun; Youhuizi Li; Yichao Chen

FedDDS: A Federated Learning Optimization Method with Data Augmentation Based on Data Distribution Similarity

Yan Zeng; Jing Zhou; Hui Zheng; Yue Chen; Fan Hu; Maohua Yang; Jian Wan

Intelligent Train Vehicle Profiling via Data Mining and Tagging of Distributed Heterogeneous Data

Minlei Huang; Liming Zhou

DP-GNN-P: Graph Partitioning-Based Differential Privacy Preservation Mechanism for Service-Oriented Distributed Graph Neural Network Computing

Linhan Li; Xixi Sun; Peiyu Lin; Youhuizi Li; Yichao Chen

How Adaptive Gamification in AI Environments Enhances STEM Learning Outcomes: A TAM-Col Integrated Comparison with Fixed Scaffolding

Zi Huang; Mengxia He; Ke Zhu

ICA3PP-43: Workshop on Intelligent Distributed Computing (II)

Session Chair: Xin Xie (xinxie@tju.edu.cn), Tianjin University, China

Overview of the Evolution and Cutting-Edge Practices of Distributed Cloud Storage Database Technology

Xiaoyu Wang; Congfeng Jiang; JunMing Liu

DTSHS: A Distributed Training Task Scheduler for Heterogeneous Swarms

Yining Zhu; Wenqi Zhang; Xiaomin Guo; Boyu Lai; Yuan Yao; Yujiao Hu

ID3ATT: An Improved TD3 Approach for Active Target Tracking with Comprehensive Visual Information Acquisition

Yu Yang; Yi Wen; Yining Zhu; Junbo Wang; Yuan Yao

Adaptive Parallel Search for Multi-Query Tenuous Groups on Social Networks

Shanghui Mao; Ghenliang Guan; Yu Li; Xixi Sun

Fabric Pro: Transaction Lifecycle Optimization for Hyperledger Fabric

Yuqi Zhu; Deyong Liu; Youhuizi Li; Yu Li; Xin Zhang

A Blockchain-Based Solution for Multi-Stage Spatiotemporal Crowdsourcing

Chenliang Guan; Shanghui Mao; Junjie Guo; Xin Zhang; Yuyu Yin

Multi-Agent System Architectures Comparison: A Use Case in Telecom Customer Service
Weiwei Wang; Min Li; Guangyao Su; Hanning Zhang; Jianwei Fang; Changming Zhao; Wanglei Shi

How Core Personal Traits Drive Short Video Dependence: A Serial Mediation Analysis Through FoMO and Self-Efficacy in the I-PACE Model
Jinhai Liu; Yaxin Wu

The Blockchain 2025 Presentation Program

Blockchain-1: Security, Privacy, and Trust (I)

Session Chair: Aniello Castiglione (acastiglione@unisa.it), University of Salerno, Italy

A Redactable Blockchain Architecture for Regulatory Compliance
Christopher G Harris

A Robust and Efficient Threshold Signature Scheme Based on ECDSA
Dongsu Shen; Yangning Zhou; Benteng Deng; Shujuan Tian; Yanchun Li

TaintSentinel: Path-Level Randomness Vulnerability Detection for Smart Contracts
Hadis Rezaei; Francesco Palmieri; Karl Andersson; Ahmed Afif Monrat

TransparenKey: TPM-Backed Open-Source Auditable Custody Wallet
Ichiro Kuwahara

Zero-Knowledge Shuffle Improvement in Ethereum Single Secret Leader Election
Anders Malta Jakobsen; Oliver Holmgaard; Daniele Dell' Aglio; Michele Albano

Mapping Partisan Fault Lines Within DAOs
Thomas Lloyd; Daire OBroin; Martin Harrigan

QuantumCry: The Engineering and Implementation of a Post-Quantum Ransomware
Aniello Castiglione; Jacopo Gennaro Esposito; Vincenzo Loia; Alessia Maffei; Michele Nappi; Fabio Narducci

Blockchain-2: Applications and Services (I)

Session Chair: Panpan Han (happyafrog@163.com), Xidian University, China

Towards Verifiable-by-Design Smart Contracts: a Declarative Limit Order Books Implementation
Srisht Fateh Singh; Jeffrey Klinck; Zissis Poulos; Andreas Veneris; Mohammad Fawaz; Simon Roberts

Decentralized Physical Infrastructure Networks: Backgrounds, Architectures, Open Issues, and Case Studies
Jinwen Liang; Jiannong Cao; Bo Yang; Dongbin Bai; Hongbo Liu; Yinfeng Cao

Enhancing Liquidity in Blockchain-Based IoT Data Trading Through Semi-Fungible Tokens
Yueqi Su; Yuji Dong; Jie Zhang

MtDB: A Decentralized Multi-Tenant Database for Secure Data Sharing
Showkot Hossain; Wenyi Tang; Changhao Chenli; Haijian Sun; WenZhan Song; Seokki Lee; Mic Bowman; Taeho Jung

Research and Implementation of Cross-Chain Transaction Consensus and Hierarchical Rollback Mechanism Based on Reputation System
Yang Liu; Han Li; Fangchao Tian; Feng Wang; XiangYu Cui; Min Zhang

Vwe2psTS: Supporting Oracle-Based Conditional Payments from Joint Addresses
Panpan Han; Zheng Yan; Xueqin Liang; Laurence T. Yang

PolyEdge: a Blockchain-Based Decentralized Edge AI Platform
Hongbo Liu; Jiannong Cao; Bo Yang; Dongbin Bai; Yinfeng Cao; Xiaoming Shen; Yinan Zhang; Jinwen Liang; Shan Jiang; Mingjin Zhang

Blockchain-3: Scalability and Optimization (I)

Session Chair: Rui Zhang (zhangrui03@xidian.edu.cn), Xidian University, China

An AI-Powered Auto-Completion Tool for Solidity Smart Contracts
Fabian Hensel; Avik Banerjee; Elmira Ebrahimi; Stefan Schulte

Dual-Key Verifiable Secure Aggregation for Federated Learning via Blockchain
Yinghui Zhang; Yongchi Ma; Wei Liu; yibo pang; Yida Wang; Huabing Yuan

Enhancing Split Learning with Sharded and Blockchain-Enabled SplitFed Approaches
Amirreza Sokhankhosh; Khalid Hassan; Sara Rouhani

Hermes: Scalable and Robust Structure-Aware Optimal Routing for Decentralized Exchanges
Soroush Farokhnia; Sergei Novozhilov; Sanaz Safaei; Jiasi Shen

Privacy-Enhancing Interoperability Between Permissioned and Public Blockchains
Saeed Moradi; Sara Rouhani; Koosha Esmailzadeh Khorasani

Revenue Optimization in Multi-Blockchain Mining: Adaptive Allocation and Scheduling Approaches
Daewoong Cho; Gowri Ramachandran; Raja Jurdak; Salil S Kanhere

ZKPU: A Novel NVMe-Based Accelerator for Scaling Zero-Knowledge Proofs in Blockchain Systems
Dingsen Shi; Chris Tsu; Ying He; Donger Chen; Alex Goss; Yanbo Dai; Harry Fu; Song Fu

Blockchain-4: New Architectures (I)

Session Chair: Saidi Guo (guosd@zzu.edu.cn), Zhengzhou University, China

A Time-Bound Signature Scheme for Blockchains
Benjamin Marsh; Paolo Serafino

A Blockchain-Based Access Control Architecture Using Non-Transferable NFTs and Gas-Efficient IPFS URI Management
Yash Madhwal; Yury Yanovich; Pavel Chekriy

An Innovative NFT Approach to Ownership Assurance via Digital Content Similarity
Kei Yamanaka; Masahiro Mimura; Kazumasa Omote

Breaking the Straggler Effect: a Relaxed Mempool for High-Throughput and Low-Latency DAG-Based BFT Consensus
Woochang Jeong; Chanik Park

RzkFL: A Verifiable, Fast and Privacy-Preserving Framework for Federated Learning Inference Using Recursive Zero-Knowledge Proofs and on-Chain Verification
Zeinab Alipanahloo; Michael Duchesne; Kaiwen Zhang

Securing Blockchain-Based Distributed Learning for Heterogeneous Clients Through Knowledge Distillation and Zero-Knowledge Proofs
Ghislain Nkamdjinn Njike; Anh-Tu Hoang; Stefan Schulte

UPPR: Universal Privacy-Preserving Revocation
Leandro Rometsch; Philipp-Florens Lehwald; Anh-Tu Hoang; Dominik Kaaser; Stefan Schulte

Blockchain-5: IBTA Workshop (I)

Session Chair: Zihang Yin (yinzihang@caict.ac.cn), China Academy of Information and Com. Tech., China

Rchain: a Universal and Efficient Redactable Blockchain Scheme
Lingyuan Yin; Jianfeng Shi; Bin Xie; Yang Liu

Research on Construction Methods of Multi-Modal High-Quality Datasets in Industrial Manufacturing
Qiyang Wu; Daoqian Wang; Di Yao

SEFabric: Eliminating Runtime Conflicts in Permissioned Blockchain with Static Execution Control
Sirui Lyu; Qinglin Pan; Ji Qi

The Analysis of Data Annotation Operation Mechanisms in Industrial
Tongtong Cheng; Yang Liu; Tingting Xu; Can Luocan; Yuanchao Liu

Trusted Information Collection Mechanism for Short-Shelf-Life Food Supply Chains Based on Lightweight
Blockchain
Shengchuang Ren; Jiping Xu; Chenze Liu; Mingyang Chen; Xin Zhang

The SmartData 2025 Presentation Program

SmartData-1: Systems and Applications (I)

Session Chair: Qiujie Lv (lvqiujie@zzu.edu.cn), Zhengzhou University, China

TS-iCutpaste: Time Series Anomaly Detection for Cloud Performance Monitoring via Pre-Trained Models
Anyi Zhang; Peng Xu; Yazhou Cao

BucketServe: Bucket-Based Dynamic Batching for Smart and Efficient LLM Inference Serving
Wanyi Zheng; Minxian Xu; Shengye Song; Kejiang Ye

A Review on Multimodal Emotion Recognition Security: Evasion Attacks on Teacher-Leading Architectures
Chilato Chilato; Rui Zhang; Yan Zheng; Atif Hussain; Yu Gu

The CPSCoM 2025 Presentation Program

CPSCoM-1: Analysis and Applications (I)

Session Chair: Jieming Yang (yjm1985@gmail.com), Zhengzhou University, China

Physics-Constrained TCN-ConvLSTM Model for Sea Surface Temperature Prediction

Guminghao Gu; Xiaoyong Li; Song Wu; Mingkun Tan; Xingyu Zhu

Multi-Objective USV Path Planning and Computation Offloading with Obstacle Avoidance in Satellite-Edge Networks

FangQiuZi He; Xiangtao Yu; Li JiangHua; Peng Yu; Chen Cheng

RailSem19-H: A Physically Synthesized Multi-Density Fog Dataset for Rail Transit

Chao Wang; Peng Wang; Yin Hao; Li Xuanying; Wang Yijing; Cheng Dai

The Trajectory of Deep Learning in Time Series Forecasting: A Survey

Weishen Zhang; Yang Banglie; Cheng Dai

A Survey of Forecasting Methods for Irregular Time Series

Xuanying Li; Sha Xiang; Cheng Dai

Computational Discourse Analysis of Media Representations of Immigrant Women: a Comparative Study of Human Journalists and DeepSeek

Jingxia Wang; Lingshuai Kong

The iThings 2025 Presentation Program

iThings-1: IOT Technologies, Systems and Applications (I)

Session Chair: Chudong Shan (whuscd@whu.edu.cn), Wuhan University, China

Enhancing WSN Coverage and Connectivity Under Electromagnetic Interference via a Improved Hybrid PSO-GWO Algorithm

Xiuchen Guo; Jiaoyan Chen

A Fast Multi-Factor Evolutionary Algorithm with Lévy Flight Distribution

Xin Li; Shihong Zhang

Enhancing Communication in Edge Applications with IoT-Based Overlay Peer-to-Peer Networks

Marco Garofalo; Giuseppe Tricomi; Luca D'Agati; Zakaria Benomar; Giovanni Merlino; Antonio Puliafito; Francesco Longo

An Efficient Certificateless Key Agreement Scheme with Revocation Checking in Smart Grids

Boyu Li; Jing Zhang; Pengfei Yu; Junyi Wang; Hengrui Yang

Assured Deletion Scheme Based on Multi-Copy Association

Naifu Zhang; Hongwei Li; Wenbo Jiang; Yun Zhang; Jian Xiong; Rui Zhang

UCAT-Net: Semantic Segmentation of Ultrasound Placenta and Amniotic Fluid Images in IoT Environment

Junming Wei; Jun Liu; Cong Chen; Haixiao Gong; Zhenwei Di; Bocheng Liang; Ying Tan; Hongyan Lu

Multi-Interval Scheduling for Hybrid Time-Triggered and Event-Triggered Flows Transmission in Industrial Wireless Networks

Jiangwei Xu; Shi-Ning Li; Qin Wen; Linjie Xiao; Wanbao Wang; Yuan Ji

ProLoC: An Efficient Probability-Based Forwarding Mechanism Considering Load Factor for Congestion Control in Named Data Networking

Wenzhuo Lyu; Pushpendu Kar; Sherif Welsen; Alejandro Guerra-Manzanares

The GreenCom 2025 Presentation Program

GreenCom-1: Management and Applications (I)

Session Chair: Shutong Chen (shutongcs@gxu.edu.cn), Guangxi University, China

Dynamic Service Scheduling and Resource Management in Energy-Harvesting Multi-Access Edge Computing
Shuyi Chen; Panagiotis Oikonomou; Zhengchang Hua; Nikos Tziritas; Karim Djemame; Nan Zhang; Georgios Theodoropoulos

Green Energy-Driven and EMR-Safe Efficient Multiple Power Beacons-Facilitated Far-Field Wireless Charging for IoT

Jiujia Yin; Xilong Liu; Xihua Ma; Jun Chang

AAVs-WCVs Joint Scheduling for Efficient Far-Field Wireless Charging in Lake Monitoring

Ziqing Lin; Xilong Liu; Bo Wu; Jingkun Yan

A GAE-Based Link Prediction Model for IoT Applications at the Edge

XuRi Huang; BoLong Sun; Min He; Liang Lv

WCV-Facilitated Efficient Directional Wireless Charging for IoTDS Sleep Time Minimization

Ziqing Lin; Xilong Liu; Yuzhuo Zhang; Xihua Ma

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