

# Advanced Program Summary

## 13 August 2025 (Wednesday)

	Meeting Room: Devonshire A and B					
9:15-9:45	Opening Ceremony					
9:45-10:30	Keynote Speech 1					
10:30-11:00	Coffee Break					
11:00-11:45	Keynote Speech 2					
11:45-12:30	Keynote Speech 3					
12:30-13:30	Conference Lunch					
13:30-15:30	Panel — Hybrid AI and the Edge-Cloud Continuum					
15:30-16:00	Coffee Break					
	Devonshire A	Devonshire B	Online Room 1	Online Room 2	Online Room 3	Online Room 4
16:00-18:00	HPCC-1	SmartCity-1	HPCC-7	HPCC-8	AINet-1	NDMAD-1
19:00-21:30	Conference Reception					

## 14 August 2025 (Thursday)

	Meeting Room: Devonshire A and B					
9:00-9:45	Keynote Speech 4					
9:45-10:30	Keynote Speech 5					
10:30-11:00	Coffee Break					
11:00-11:45	Keynote Speech 6					
11:45-12:30	Keynote Speech 7					
12:30-13:30	Conference Lunch					
	Devonshire A	Devonshire B	Online Room 4	Online Room 1	Online Room 2	Online Room 3
13:30-15:30	HPCC-2	ICESS-1	HPCC-16	HPCC-9	AINet-2+ SAGIINAT-2	SAGIINAT-1
15:30-16:00	Coffee Break					
16:00-18:00	HPCC-3	DSS-1	HPCC-6	HPCC-10	MLSys-1	BDRA-1
19:00-21:30	Conference Dinner					

## 15 August 2025 (Friday)

	Burlington	Chatsworth	Online Room 1	Online Room 2	Online Room 3	Online Room 4
9:00-10:30	HPCC-4	DSS-2	HPCC-11	HPCC-12	MLSys-2+ BDRA-2	ACE-1+ ISCCN-2
10:30-11:00	Coffee Break					
11:00-12:30	HPCC-5+ ISCCN-1	DependSys-1 +ICESS-2	HPCC-13+ SmartCity-2	HPCC-14+ DSS-3	HPCC-15+ ICESS-3	MVIC-1+ ISCCN-3
12:30-13:30	Conference Lunch					

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### The Opening Ceremony and Keynotes:

<https://Universityofexeter.zoom.us/j/93135828451?pwd=9sfJJgJvIYN2Sh4y6RpaCAbPZDgnrN.1>

### Online Room 1

<https://Universityofexeter.zoom.us/j/91838236215?pwd=85nRqH8B3BC8LeaGaeBbtq1GTKXqAn.1>

### Online Room 2

<https://Universityofexeter.zoom.us/j/93564114126?pwd=5rN4ybSEWBtqK9QGTwHWp1n8tR95p5.1>

### Online Room 3

<https://Universityofexeter.zoom.us/j/91874838961?pwd=QtyKQvJL1jI7yrRA0cqdoGTbl7aOnR.1>

### Online Room 4

<https://Universityofexeter.zoom.us/j/99413381267?pwd=omTRa0lkyPzCU610BhqX0nZ980kU5b.1>

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

Prof. M. Jamal Deen

*Distinguished University Professor, McMaster University, Canada***Abstract**

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 systems.

**Biography**

**Dr. 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.

## Keynote Speech 2

### Queueing Theory and AI Joint Forces to Minimize Delay and Energy Consumption at the Edge

Prof. Erol Gelenbe

*Institute of Theoretical and Applied Informatics*

*Polish Academy of Sciences, Poland*

#### Abstract

Edge computing systems must offer low latency at low cost and low power consumption for sensors and other applications, including the IoT, smart vehicles, smart homes, and 6G. Thus, substantial research has been conducted to identify optimum task allocation schemes in this context using non-linear optimization, machine learning, and market-based algorithms. Prior work has mainly focused on two methodologies: (i) formulating non-linear optimizations that lead to NP-hard problems, which are processed via heuristics, and (ii) using AI-based formulations, such as reinforcement learning, that are then tested with simulations. These prior approaches have two shortcomings: (a) there is no guarantee that optimum solutions are achieved, and (b) they do not provide an explicit formula for the fraction of tasks that should be allocated to the different servers to achieve a specified optimum. In this talk we will present a different mathematically based principled method that explicitly computes the optimum fraction of jobs that should be allocated to the different servers to (1) minimize the average latency (delay) of the jobs that are allocated to the edge servers and (2) minimize the average energy consumption of these jobs at the set of edge servers. This approach has low computational cost and provides simple linear complexity formulas that achieve minimum latency and minimum energy consumption. We will also show our experiments where reinforcement learning with low computational complexity is used to reduce energy consumption against a small increase in average response time for the jobs.

#### Biography



Erol Gelenbe (FIEEE, FACM) received the B.S.E.E. degree from METU, Turkey, the M.S.E.E. and Ph.D. degrees from the Polytechnic Institute of NYU, and the D.Sc. degree in Mathematical Sciences from Sorbonne University. He pioneered system performance evaluation methods and invented the random neural network and G-Networks. He built research teams, helped to develop commercial tools for system modeling and simulation such as the queueing network analysis package QNAP and the manufacturing simulator FLEXSIM, designed system architectures such as the many-to-many communication switch Sycomore for Thomson CSF, and graduated over 90 Ph.D. students, including 24 women. He is currently a Professor at the Institute of Theoretical and Applied Informatics, Polish Academy of Sciences, a visiting faculty at King's College London, and an associated researcher at CNRS I3S, Université Côte d'Azur (Nice). Previously, he held chaired professorships at Imperial College, the University of Central Florida, Duke University, Université Paris-Descartes, Paris-Saclay University, and Université de Liège. He was a Principal Investigator of numerous European Union research projects and a Coordinator of FP7 NEMESYS and H2020 SerIoT, and is currently funded by the H2020 DOSS project. His research was funded in the U.S. by NSF, ONR, ARO and industry, and in the UK by UKRI, MoD and also industry. He is also a Fellow of the RSS, AAIA and IET, and an Elected Fellow of the French National Academy of Technologies, the Science Academies of Poland, Turkey, the Royal Academy of Belgium, and an Honorary Fellow of the Hungarian Academy of Sciences and the Islamic World Academy of Sciences (Amman, Jordan). He is also a Member of Academia Europaea and the National Academy of AI (USA). His prizes include the Parlar Foundation Science Award (Turkey), the Grand Prix France Télécom, the ACM SIGMETRICS Life-Time Achievement Award, the IET Oliver Lodge Medal, and the Mustafa Prize. France awarded him the honors of Chevalier de la Légion d'Honneur, Chevalier des Palmes Académiques, and Commandeur de l'Ordre du Mérite. He was also awarded Commander of the Order of the Crown of Belgium, Commendatore al Merito and Grande Ufficiale dell'Ordine della Stella by Italy, and Officer of the Order of Merit of Poland. He is ranked in the top 7% of the Stanford 2%. ScholarGPS ranks him No. 1 in Poland for all of Engineering and Computer Science, No.2 in Poland over all fields, and No. 2 in Electrical and Computer Engineering when Poland and the UK are grouped together.

### Keynote Speech 3

## From Parallel Computing to Concurrent Data Access: The Dataflow under von Neumann Machine Approach

Prof. Xian-He Sun  
*United States Illinois Institute of Technology*  
*Chicago, USA*

### Abstract

While the success of deep learning hinges on its ability to process vast amounts of data, computing systems struggle to keep up with the unprecedented demand of ever-increasing data, leading researchers back to the notorious memory-wall problem. Unfortunately, the old paradigm or new technology we have, such as parallel computing, multicore, or dataflow, are all designed for speedup computing. They are not designed to address the memory-wall problem. In fact, they have put even more pressure on the already overstressed memory systems. Data access has become the number one performance killer of computing. A paradigm shift is needed for computing from a data-centric point of view. In this talk, we introduce the concept of dataflow under the von Neumann machine to address this issue. We begin by presenting the C-AMAT model, which quantifies the benefits of concurrent data access and reveals the relationship between data locality and concurrency. Next, we introduce the LPM (Layer Performance Matching) framework to optimize memory system performance and formally introduce the concept of dataflow under the von Neumann machine. We then discuss our recent work in I/O systems, focusing on the Hermes multi-tiered I/O buffering system. Hermes optimizes data movement based on the LPM framework and has been a significant success. Finally, we will address some fundamental issues and present forward-thinking computer system designs for AI and big data applications. We will discuss the critical role of collaborative research infrastructures, like the envisioned StoreHub, in accelerating progress.

### Biography



Dr. **Xian-He Sun** is a University Distinguished Professor, the Ron Hochsprung Endowed Chair of Computer Science, and the director of the Gnosis Research Center for accelerating data-driven discovery at the Illinois Institute of Technology (Illinois Tech). Before joining Illinois Tech, he worked at DoE Ames National Laboratory, at ICASE, NASA Langley Research Center, at Louisiana State University, Baton Rouge, and was an ASEE fellow at Navy Research Laboratories. Dr. Sun is an IEEE fellow and is known for his memory-bounded speedup model, also called Sun-Ni's Law, for scalable computing. His research interests include high-performance data processing, memory and I/O systems, and performance evaluation and optimization. He has over 350 publications and 7 patents in these areas and is currently leading multiple large software development projects in high performance I/O systems. Dr. Sun is the Editor-in-Chief of the IEEE Transactions on Parallel and Distributed Systems, and a former department chair of the Computer Science Department at Illinois Tech. He received the Golden Core award from IEEE CS society in 2017, the ACM Karsten Schwan Best Paper Award from ACM HPDC in 2019, and the first prize best paper award from ACM/IEEE CCGrid in 2021. More information about Dr. Sun can be found on his web site [www.cs.iit.edu/~sun/](http://www.cs.iit.edu/~sun/).

**Keynote Speech 4****Active Inference for Distributed Intelligence in the Computing Continuum**

Prof. Schahram Dustdar

*Head of the Research Division of Distributed Systems at the TU Wien, Austria*

*Austria and part-time ICREA research professor at UPF*

**Abstract**

Modern distributed systems deal with uncertain scenarios, where environments, infrastructures, and applications are widely diverse. In the scope of IoT-Edge-Fog-Cloud computing, leveraging these neuroscience-inspired principles and mechanisms could aid in building more flexible solutions able to generalize over different environments. A captivating set of hypotheses from the field of neuroscience suggests that human and animal brain mechanisms result from a few powerful principles. If proved to be accurate, these assumptions could open a deep understanding of the way humans and animals manage to cope with the unpredictability of events and imagination. In this talk, we will explore how Active Inference mechanisms can be utilized for Distributed Intelligence in the Computing Continuum.

**Biography**

Schahram Dustdar is a Full Professor of Computer Science at the TU Wien, heading the Research Division of Distributed Systems, Austria and part-time ICREA research Professor at UPF Barcelona. He holds several honorary positions: University of California (USC) Los Angeles; Monash University in Melbourne, Shanghai University, Macquarie University in Sydney, and University Pompeu Fabra, Barcelona, Spain. From Dec 2016 until Jan 2017 he was a Visiting Professor at the University of Sevilla, Spain and from January until June 2017 he was a Visiting Professor at UC Berkeley, USA.

From 1999 – 2007, he worked as the co-founder and chief scientist of Caramba Labs Software AG in Vienna (acquired by ProjectNetWorld AG), a venture capital co-funded software company focused on software for collaborative processes in teams. He is the co-founder and chief scientist of Coovally.ai, an AI infrastructure company based in Barcelona.

He serves as Editor-in-Chief of Computing (Springer). Dustdar is the recipient of multiple awards: IEEE TCSVC Outstanding Leadership Award (2018), IEEE TCSC Award for Excellence in Scalable Computing (2019), ACM Distinguished Scientist (2009), ACM Distinguished Speaker (2021), IBM Faculty Award (2012). He is an elected member of the Academia Europaea: The Academy of Europe, as well as an IEEE Fellow (2016) and an Asia-Pacific Artificial Intelligence Association (AAIA) Fellow (2021) and was AAIA president (from 2020-2021).



**Keynote Speech 5****Composite DP: Bounded and Unbiased Composite Differential Privacy**

Prof. Jinjun Chen

*Swinburne University of Technology, Australia***Abstract**

The most kind of traditional DP (Differential Privacy) mechanisms (e.g. Laplace, Gaussian, etc.) have unlimited output range. In real scenarios, most datasets have bounded output range, e.g. age [0-150]. Users would then need to use post-processing or truncated mechanisms to forcibly bound output distribution. However, these mechanisms would incur bias problem which has been a long-known DP challenge, resulting in various unfairness issues in subsequent applications. A tremendous amount of research has been done on analyzing this bias problem and its consequences, but no solutions can solve it fully.

As the world first solution to solve this long-known DP bias problem, this talk will present a new innovative DP mechanism named Composite DP. It will first illustrate this long-known bias problem, and then detail the rational of the new mechanism and its example noise functions as well as their implementation algorithms. All source codes are publicly available on Github for any deployment or verification.

**Biography**

Dr Jinjun Chen is a Professor from Swinburne University of Technology, Australia. He holds a PhD in Information Technology from Swinburne University of Technology, Australia. His research interests include data privacy and security, cloud computing, scalable data processing, data systems and related various research topics. His research results have been published in more than 300 papers in international journals and conferences. He received various awards such as IEEE TCSC Award for Excellence in Scalable Computing and Australia's Top Researchers. He has served as an Associate Editor for various journals such as ACM Computing Surveys, IEEE TC, TCC and TSUSC. He is a MAE (Academia Europea) and IEEE Fellow (IEEE Computer Society). He is Chair for IEEE

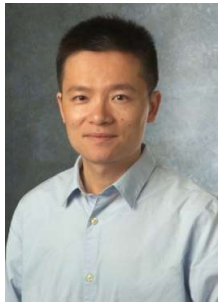
TCSC (Technical Community for Scalable Computing).

**Keynote Speech 6****Optimal Distributed Model Training in Heterogeneous Environments**

Prof. Pan Li

*Academic Vice President and Lixing Chair Professor**Hangzhou Dianzi University, China***Abstract**

The computational power required for training deep learning models has been skyrocketing in the past decade as models scale with big data, and has become a very expensive and scarce resource. Therefore, distributed training, which can leverage distributed available computational power, is vital for efficient large-scale model training. However, most previous distributed training frameworks like DDP and DeepSpeed are primarily designed for co-located clusters under homogeneous computing and communication conditions, and hence cannot account for geo-distributed clusters with both computing and communication heterogeneity. In this talk, I will introduce a new data parallel based distributed training framework called Co-Adaptive Data Parallelism (C-ADP). Specifically, we consider a data owner and parameter server that distributes data to and coordinates the collaborative learning across all the computing devices. We employ local training and delayed parameter synchronization to reduce communication costs. Moreover, I will formulate a data parallel scheduling optimization problem to minimize the training time by optimizing data distribution. To solve this problem, I will devise an efficient algorithm and formally prove that the obtained solution is optimal in the asymptotic sense. At the end, I will present experiment results demonstrating the efficiency and efficacy of C-ADP.

**Biography**

Dr. Pan Li is currently the Academic Vice President and Lixing Chair Professor at Hangzhou Dianzi University, Hangzhou, China. He received his Ph.D. degree in Electrical and Computer Engineering from University of Florida in August 2009. After that, he became a faculty member with Mississippi State University and then with Case Western Reserve University for twenty years. His research focuses on artificial intelligence, cybersecurity, and the interplay between them. He has served as an Editor for nine internationally renowned journals such as TMC, TBD, TWC, TNSE, and on the organizing committee and technical program committee for flagship conferences like AAAI, IJCAI, USENIX Security. His research has been supported by both federal agencies and industry companies. He was a recipient of NSF CAREER Award and an IEEE/AAIA/AIIA Fellow.



**Keynote Speech 7****Intelligent Power Management for Cyber-Physical Systems***Prof. Man Lin**Chair and Professor**W.F. James Research Chair**St. Francis Xavier University, Canada***Abstract**

Green computing is essential for keeping our planet sustainable. Cyber-Physical Systems are prevalent in driving innovation across various sectors. Effective policies that reduce the energy consumption of Cyber-Physical Systems can significantly benefit our environment. This talk presents machine learning techniques for intelligent power management in Cyber-Physical Systems, focusing on designing methods to derive adaptable, energy-efficient power management policies for Linux-based systems. Key topics include DQN-based DVFS governor for systems with periodic workloads that have deadline constraints, interleaving learning for systems with limited computational resources, profiling and software-based power estimation, and adaptation to Quality of Experience (QoE).

**Biography**

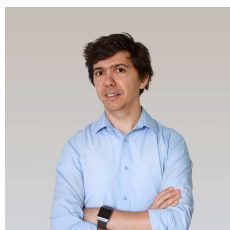
Dr. Man Lin received her B.E. degree in Computer Science and Technology from Tsinghua University, Beijing, China, and her Ph.D. degree from Linköping University, Sweden. She is currently a professor and the chair of the Department of Computer Science, as well as a W.F. James Research Chair in Pure and Applied Science, at St. Francis Xavier University in Canada. Her research interests include Low-Power Computing, Cyber-physical Systems, Real-Time Scheduling, Machine Learning, System Analysis and Optimization Algorithms. Dr. Man Lin's research has been funded by NSERC (National Science and Engineering Research Council of Canada) and CFI (Canadian Foundation of Innovation). She served as the chair of the IEEE CIS Smart World Technical Committee (2022-2022). She has been involved in several IEEE conference organizations and currently serves as an associate editor for IEEE Transactions on Sustainable Computing and the Elsevier Journal of Systems Architecture.

**2025 IEEE HPCC/DSS/SmartCity/DependSys/ICSS Joint Panel Session****Hybrid AI and the Edge-Cloud Continuum****Abstract**

The convergence of advanced AI models and next-generation connectivity is creating a new computing paradigm: hybrid AI across the edge-cloud continuum, set to transform sectors such as telecom networks, connected vehicles, industrial IoT, and multimedia analytics. Meanwhile, multi-access edge computing (MEC) and 5G/6G radio access enable real-time insights by processing data near devices. Hybrid AI is envisaged to push the boundaries of data processing and machine learning through dynamic model partitioning and offloading, cloud-assisted training with on-device inference, and privacy-preserving federated learning at scale. Hence, how to design, deploy, and govern these systems - balancing latency, energy, cost, and trust - has become a major objective for researchers and practitioners.

The panelists, with diverse backgrounds and outstanding accomplishments, will present their views on the challenges and strategies to realize hybrid AI across the edge-cloud continuum. The session will then be open for discussions from the floor.

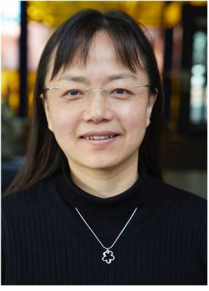
**Panelists:** Prof. Paul Patras, University of Edinburgh  
Dr. Nektarios Georgalas, British Telecom (BT)  
Prof. Liangxiu Han, Manchester Metropolitan University  
Mr. Stefanos Laskaridis, Amazon Science  
Dr. Xinyi Lin, Toshiba Bristol Research and Innovation Laboratory (BRIL)  
Dr. Simone Mangiante, Vodafone



Paul Patras is a Professor of Mobile Intelligence in the School of Informatics at the University of Edinburgh and co-founder/CEO of Net AI. Dr Patras has over 10 years of experience of leading research at the intersection of mobile networking, artificial intelligence and security, some of which has been transferred from the lab into commercial products. He has spearheaded the use of deep learning to solve several problems in the mobile networking domain, which were previously considered intractable.



Nektarios Georgalas is an Innovation Principal (Data & AI) at BT and Industrial Principal Investigator across three pillars at the government-funded BT Ireland Innovation Centre (BTIIC) in Northern Ireland: Autonomous IoT, Process Mining & Analytics, and Trustworthy and Explainable AI. At BTIIC, Nektarios leads multi-disciplinary teams with university partners, BT Research and BT Engineering, suppliers and customers to realise the Autonomous IoT vision—self-serviced and self-managed IoT Ecosystems by means of AI, machine learning, advanced analytics, Edge/Fog/Cloud Computing, IoT SLA management and optimisations. Nektarios' contributions have been recognised with 22 International and BT honours as well as IEEE service: two *IEEE Outstanding Awards* and two *IEEE Outstanding Leadership Awards*. Nektarios is inventor/co-inventor of 20 patents and author of 100+ peer-reviewed papers in high impact factor IEEE Journals and Conferences.



Prof. Han is currently a full Professor of Computer Science at the Department of Computing and Mathematics, Faculty of Science and Engineering, Manchester Metropolitan University. Prof. Han's research areas mainly lie in the development of novel big data analytics/Machine Learning/AI, and development of novel intelligent architectures that facilitates big data analytics (e.g., parallel and distributed computing, Cloud/Service-oriented computing/data intensive computing) as well as applications in different domains (e.g. Precision Agriculture, Health, Smart Cities, Cyber Security, Energy, etc.) As a Principal Investigator (PI) or Co-PI, Prof. Han has a proven track record of successfully leading multi-million-pound projects on both national and international scales (supported by diverse funding sources: UKRI, GCRF/Newton, EU, Industry, and Charity) and has extensive research and practical experiences in developing intelligent data driven AI solutions for various application domains (e.g. Health, Food, Smart Cities, Energy, Cyber Security) using various large datasets (e.g. images, numerical values, sensors, geo-spatial data, web pages/texts).



Stefanos is a Research Scientist specialising in Machine Learning (ML), Distributed & Mobile Systems, and Efficient ML algorithms. His research interest revolves around the areas of dynamic network architectures, federated/collaborative learning, on-device AI as well resource and energy-efficient deep learning. Currently, he is an Applied Scientist at Amazon Science, where he focuses on Large Language Models (LLMs) for Alexa+, particularly in the areas of self-learning and speculative decoding for efficient inference. He is a Cambridge graduate and has held previous research positions at Brave, Samsung AI, the University of Cambridge and CERN. His work has been featured in various top-tier venues, including NeurIPS, ICML, MobiCom and ECCV, among others, and has led the organisation of numerous workshops and tutorials on On-Device Computing, Distributed ML and Federated Learning.



Xinyi Lin received the B.Eng. degree from the University of Electronic Science and Technology of China, Chengdu, China, in 2020, and the Ph.D. degree from the University of Glasgow, Glasgow, U.K., in 2024, supported by the EPSRC iCASE Studentship with British Telecom. She is currently a Research Engineer at Toshiba Bristol Research and Innovation Laboratory (BRIL), U.K., where she contributes to the EU 6G SNS 6G-Goals project. Her research interests include reconfigurable intelligent surfaces (RIS), semantic communication, and network optimization. Dr. Lin was recognized as a 2023 Wireless Communication Letters Exemplary Reviewer and serves on the Technical Program Committees for ICC 2025 and MECOM 2024 & 2025.



Dr. Simone Mangiante received his PhD in Computer Networks in 2013 from the University of Genoa in Italy, working on Carrier Ethernet and SDN. He then spent three years with Dell EMC in Ireland as a senior research scientist, where he managed European projects on SDN and network transport. He led the design and deployment of an industrial IoT testbed and contributed to several H2020 EU proposals. He is currently a senior researcher in Vodafone Group R&D in the UK where he focuses on machine learning algorithms for future networks and services, and synthetic data generation to make data available to innovation projects. His main research interests are edge computing, distributed cloud architecture and machine learning for computer networks.

## Part I: TECHNICAL SESSIONS OF HPCC-2025

13 August 2025 (Wednesday)

### 16:00-18:00 Session HPCC-1: High Performance Computing and Applications (Room: Devonshire A)

Session Chair: Juan Zhang, Northumbria University at Newcastle, UK

- BinomialHash: A Constant Time, Minimal Memory Consistent Hash Algorithm  
*Massimo Coluzzi, Amos Brocco, Alessandro Antonucci, Tiziano Leidi*
- Benchmarking Confidential Computing: Application Performance Comparison of TDX v/s SEV-SNP  
*Xinyuan Liu, Mehul Sankhe, Ronil Rodrigues, Tomasz Szydlo, Rajiv Ranjan, Devki Nandan Jha*
- Early track elimination in GPU Accelerated Algorithms for Track Finding in Particle Physics  
*Petr Fiedler, Pavel Tvrdík, André Sopczak*
- Expanding Automatic Music Transcription Dataset via Single Note Audio Synthesized Data  
*Yuzhe Yuan, Kaoru Ota, Mianxiong Dong*
- Accelerating the Martian Atmospheric Simulation of GoMars Model with Multi-GPUs  
*Guofan Yu, Haoran Kong, Xin You, Hailong Yang, Shaokang Du, Zhongzhi Luan, Yi Liu, Depei Qian*

### 16:00-18:00 Session HPCC-7: Mobile Edge Computing (Online Room 1)

Session Chair: Zheng Wan, Jiangxi University of Finance and Economics, China

- Wireless Single-Camera Markerless Motion Capture System for Healthcare Applications  
*Areej Athama, Apoorva Srivastava, Shengyang Huang, Kezhi Wang, Yongmin Li, Xiaojun Zhai*
- Decentralized Offloading for AI Inference with Heterogeneous Models in Mobile Cellular Networks  
*Yiying Lin, Su Yao, Mu Wang, Xingyan Chen, Peng Guo, Ding Ma*
- Collaborative Edge-Device DNN Inference with Dynamic Model Partitioning, Data Compression and Resource Allocation  
*Yufan Tang, Tong Zhang, Kun Zhu, Fengyuan Ren*
- MF-ESD: A Novel Mean Field Reinforcement Learning Approach for Scalable Edge Server Deployment  
*Xia Ou, Zhou Zhou, Taotao Yu, Hongbing Cheng, Mohammad Shojaifar*
- Multi-scenario Task Offloading Algorithm Based on Meta-reinforcement Learning  
*Simin Li, Zhenchun Wei, Lin Feng, Zengwei Lyu, Dawei Hang, Yan Qiao, Han Lu, Xiaohui Yuan*
- Metaverse Service Provisioning Empowered by Monitoring and Analytical Digital Twins in MEC  
*Guangyuan Xu, Zichuan Xu, Qiufen Xia, Bingheng Yan, Zhen Feng, Pengyuan Xu*
- GCN and MADDPG-Based Two-Tier Distributed Cache Optimization for Metaverse Scenarios  
*Shenglu Zhao, Zheng Wan, Xuelin Liu, Xiaogang Dong, Yifeng Tan, Yuming Fang*
- Green-Aware MAPPO: Energy-Efficient Task Scheduling for Multimodal Large Language Models in Multilayer Computing Power Networks  
*Manjun Zhang, Ying Wang, Peng Yu, Xuesong Qiu, Shaoyong Guo*

### 16:00-18:00 Session HPCC-8: Edge-Cloud Computing and Networking (II) (Online Room 2)

Session Chair: Zhen Wang, University of Chinese Academy of Sciences, China

- Stochastic Petri Net Modeling for Analysis of Adaptive Street Lighting Systems  
*Cleunio França Filho, Eric Borba, Thiago Valentim, Eduardo Tavares*

- P4NFC: A P4-Based Comprehensive Network Flow Classification Scheme in SDN  
*Qin Xu, Heng He, Hai Yu, Zeng Peng, Lei Nie*
- Geographic Routing Protocol with Adaptive Prediction-Based Location Service for FANET  
*Shuman Liu, Wang Yang, Yanbo Wang, Jianwei Yao*
- Research on LoRa Signal Propagation Characteristics and Link Quality Assessment Methods in Campus Environments  
*Shengli Pang, Di Liu, Fan Yang, Shiji Xu, Chan Hu, Honggang Wang*
- Optimization of LoRa Network Multi-Service MAC Protocol Based on DDQN  
*Honggang Wang, Chan Hu, Xiaolei Liu, Di Liu, Ruoyu Pan, Shengli Pang*
- Beamforming for Movable and Rotatable Antenna Enabled Multi-User Communications  
*Ruojing Zhao, Yifei Xu, Songjie Yang, Chen Hua, Assi Chadi*
- ALL-M2CR: Adaptive Low-Latency Multi-Modal Cooperation Routing Approach for Time-Sensitive Transmission under Multi-Domain Networks  
*Licheng Zhang, Xingang Liu*
- VIFMM: Custom RISC-V Vector Instructions with INT-FP Mixed-Precision Computing for Accelerating LLM Inference  
*Gu Kai, Jian Fang, Zhang Guangda, Bingxi Pei, Zhang Tianbo*

**14 August 2025 (Thursday)**

**13:30-15:30 Session HPCC-2: Distributed Computing and Systems (Room: Devonshire A)**

Session Chair: Bo Sheng, Northeastern University, USA

- PECO: Probabilistic Evaluation-based Client Selection for Federated Learning with Overlapping Clients  
*Allen Yang, Shiyue Hou, Yiming Xie, Bo Sheng, Ningfang Mi*
- ClariNet: Generalized Reputation Framework for Witnessed Data in Distributed Systems  
*Andrew Robie, Man-Ki Yoon*
- Inter-File Similarity for online Prediction to improve Data Placement Efficiency in Hierarchical Storage  
*Adrian Khelili, Sophie Robert, Soraya Zertal, Philippe Couvee*
- An Incentive Mechanism with Two-way Auction in Privacy-Preserving Mobile Crowdsensing  
*Haotian Wang, Tao Jun, Yu Gao, Weice Sun*
- Accelerated Autotuning of Deep Learning Workloads with Pretrained Performance Models  
*Trevor Hanz, Apan Qasem*

**13:30-15:30 Session HPCC-16: Intelligent Computing and Communications (Room: Online Room 4)**

Session Chair: Wang Miao, University of Exeter, UK

- DualFlowKT: Enhancing Knowledge Tracing Through Parallel Processing of Graph Structures and State Space Models  
*Longcheng Li, Leilei Shi, Hongyun Wang, Lu Liu, Zixuan Han, Liang Jiang*
- MPKT: Multi-Perspective Knowledge Tracing  
*Hongyun Wang, Leilei Shi, Longcheng Li, Lu Liu, Zixuan Han, Fuxiang Chen*
- Hierarchical Multi-Granularity Flow AuthorizationTags for Access Control in Campus Networks  
*Cuiyun Hua, Yuliang Wang, Zongpeng Li, Jiafu Zhang, Hui Jin*
- Deep Learning for Multiple Sclerosis on AI-Computing Networks: A Systematic Review  
*Zheng Wu, Xiangyuan Zhu, Rui Ding, Zhuo Zhang, Zhen Wang, Kehua Guo*
- A Low-Latency Decision-Making Scheme Based on Grouped Blockchain in IoV Environments  
*Yibing Li, Xinghui Ding, Jie Li, Yan Zhuang, Weilong Gong, Yangjie Cao*

- Tiling Dynamic Programming Computations To Maximize Parallelism  
*YanTao Sun, Miaomiao Wang, Jian Guan, Lin Li, Li Wang, GuanJun Liu*
- Multi-Source Loose Contact Event Query Processing for Moving Objects  
*Xinyu Chen, Hua Dai, You Chen, Geng Yang*
- Online Node Selection for Delay Optimization in Hierarchical Split Federated Learning  
*Zhuo Li, Yashi Dang, Yongzhi Zhou*

### **13:30-15:30 Session HPCC-9: Cybersecurity and Privacy in Distributed Systems (Online Room 1)**

Session Chair: Songyuan Li, University of Exeter, UK

- An Efficient and Revocable Attribute-Based Encryption Scheme Based on RLWE with Hidden Policy for 6G-enabled IIoT  
*Zihao Wang, Yusun Fu, Xin Lin*
- From Soup to Nuts: A Hierarchical Relation-Based IP Attribution Approach for Cyber Threat Traceback  
*Junyi Wang, Yutong Zeng, Tao Leng, Jianguo Zhao, Cheng Huang*
- Boosting Sharded Blockchain Efficiency via Account Allocation and Migration Strategies  
*Shengrong Deng, Kai Zhao, Wenshou Wu, Xuehua Bi, Linlin Zhang*
- Asymmetric Group Key Agreement Protocol with Identity-Detection for NGNs  
*Tianqi Zhou, Mingdi Shen, Wenying Zheng, Zakirul Alam Bhuiyan*
- Privacy-preserving Decentralized Federated Learning For Heterogeneous Graph  
*Liya Ma, Runhua Xu, Lu Liu, Siqi Sun, Chen Li, Lihong Wang*
- Multi-class Network Intrusion Detection with Class Imbalance via LSTM & SMOTE  
*Muhammad Wasim Nawaz, Rashid Munawar, Muhammad Khurram Bhatti, Ahsan Mehmood, Muhammad Mahboob Ur Rahman, Qammer H. Abbasi*
- LOHA: Hypergraph Masked Autoencoder for Advanced Persistent Threat Detection  
*Guanwen Chen, Lizhao Wu, Hui Lin, Zhaobin Zhou*
- DiB-ETC: A Distillation Framework with BERT Teacher Model for Imbalanced Encrypted Traffic Classification  
*Xingchen Zhan, Nan Li, Meimei Li, Chao Liu*

### **16:00-18:00 Session HPCC-3: Edge-Cloud Computing and Networking (I) (Room: Devonshire A)**

Session Chair: Haozhe Wang, University of Exeter, UK

- Energy-Efficient and Latency-Aware Microservice Deployment for Satellite Edge System  
*Linchuan Xing, Xin Li, Xiaolin Qin*
- Decoupled Time-Series Forecasting for Serverless Cloud workload with TiDE  
*Ziheng Suo, Yao Lu, Lu Liu*
- Split Fine-Tuning of BERT-based Music Models in the Edge-Cloud Continuum: An Empirical Analysis  
*Bradley Aldous, Ahmed M. Abdelmoniem*
- Edge Computing-Based Anonymous Cross-Domain Authentication Scheme for VANETs  
*Bei Li, Hong Zhong, Chengdong Gu, Jing Zhang, Qingyang Zhang, Jiaxin Li, Jie Cui*
- Privacy Preserving Dual Millimetre Wave Radar Based Human Activity Recognition  
*Yang Qiang, Katie Zhou, Kevin Wang*
- BiLSTM-Based Power Spectral Density Prediction in Low Sub-Band Wire Environments  
*Hary Sabita, Robert Bestak, Dusan Maga, Jaromir Hrad*

### **16:00-18:15 Session HPCC-6: Neural Networks and Federated Learning (Online Room 4)**

Session Chair: Rui Jin, University of Exeter, UK

- Deepfake Detection via 3D Face Reconstruction-Based Image Blending  
*Junfeng Xu, Weiguo Lin, Mingyang Shao, Wanshan Xu, Jing Zhou, Yikun Xu*
- Hierarchical Clustering Strategy for Enhanced HPC System Configuration



*Nessrine Aloulou, Melek Kchaou, Baya Mezghani, Mouna Baklouti, Saber Feki*

- IdMuS: An Efficient ID-based Broadcast Multi-signature Scheme from Lattices  
*Weiqi Wang, Xiaofan Liu, Ruoting Xiong, Wei Ren, Yi Ren, Xianghan Zheng*
- Dynamic Pruning with Maximum Entropy Reinforcement Learning for Geological Environment Remote Sensing Interpretation  
*Jing Honglei, Du Haoyang, Huang Xiaohui, Wang Yuewei, Yunliang Chen, Jianxin Li*
- Sequential Recommendation based on Causal Inference  
*Haolong Fu, Zhechao Yu, Yixing Xu, Congfu Xu*
- Performance-driven Image-based 3D Reconstruction based on Collaborative Mobile UAV Docking Stations  
*Ao Long, Huang Xiaohui, Xiaodao Chen, Li Cao, Kaijun Yang, Honglei Jing, Peiyao Zhao, Lizhe Wang*
- An Efficient Method for Preemptive Scheduling of Resources in Kubernetes  
*Zhaoyang Zhang, Peiyao Zhao, Qiang Xiong, Honglei Jing, Jianxin Li, Yunliang Chen*
- Malicious DoH Tunnel Traffic Identification Framework Based on DiffFlow-CNN  
*Weilin Gai, Runqing Zhang, Peng Wang, Peng Zhang, Kai Huang, Xugong Qin, Ruoxing Wang*
- A Container-Orchestrated Parallel Processing Framework for Efficient Geological Environment Data Analytics  
*Jiabao Li, Xiaohua Tian, Wang Yuewei, Min Jin, Huang Xiaohui, Yunliang Chen, Lizhe Wang*

#### **16:00-18:15 Session HPCC-10: AI Compute Systems & Accelerators (I) (Online Room 1)**

Session Chair: Songyuan Li, University of Exeter, UK

- Adaptoserve: A Efficient System for Supporting Adaptive Chunked-prefills in LLM Inference  
*Yu Ding, Jingxuan Zhao, Zhengong Cai, Kai Shi, Fansong Zeng, Bowei Yang*
- HeadTile: A Scalable and Efficient Accelerator for Large Language Model Inference with 3D Memory Integration  
*Qingshan Xue, Yihao Shi, Bo Wang, Shengbai Luo, Xueyi Zhang, Tiejun Li, Zhuojun Chen, Sheng Ma*
- SuperSpec: Enhanced Verification and Sampling for End-to-End LLM Speculative Decoding  
*Chen Shen, Rui Guo, Yang Cheng, Yang Lin, Zhixin Zhao, Yitao Hu, Sheng Chen, Xiulong Liu, Keqiu Li*
- SmartCache: Two-Dimensional KV-Cache Similarity for Efficient Long-Context LLM Decoding  
*Chen Shen, Hao Chen, Kaining Hui, Zhixin Zhao, Yang Cheng, Yitao Hu, Sheng Chen, Xiulong Liu, Keqiu Li*
- TSCNN: Compressing and Accelerating Sparse CNNs Using Sign-Reserved Toeplitz Filters  
*Zhen Wang, Tianyu Liu, Zhihua Fan, Yuhang Qiu, Zhiyuan Zhang, Wenming Li, Xiaochun Ye, Dongrui Fan*
- When to Skip: Sparsity-aware Acceleration for Intermittent Neural Network Inference  
*Hongyue Wang, Shuo Xu, Wei Zhang, Lei Ju*
- Efficient TEE-Based DNN Inference on Edge Devices: A PyTorch-Compatible Design  
*Yuanhang Yu, Guo yong, Yongpeng Liu, Yipin Sun, Ding yan, Zihao Guan, Wei Wang*
- Mutual Information-based Feature Pyramid Enhancement for Real-Time Detection Transformer  
*Linhe Yang, Guangyao Pang, Jiecheng Li, Chengfeng Wei*
- Node Selection-Based Hierarchical Split Learning Model Quality Optimization  
*Kang Zheng, Zhuo Li*

**15 August 2025 (Friday)**

## 9:00-10:30 Session HPCC-4: High Performance Computing and Applications (I) (Room: Burlington)

Session Chair: Olaf Krzikalla, Institute of Software Methods for Product Virtualization, Germany

- Explicit SIMD Vectorization with modern C++  
*Olaf Krzikalla, Johannes Wendler, Immo Huisman*
- Triangle Counting over Large-scale Directed Graphs  
*Kai Yin, Zhigao Zheng, Qian Yan, Kudereti Kuerban, Ting Gan, Hao Liu, Zhixiang Yang, Hao Huang*
- Towards Learning Multi-aspect Diffusion Networks without Timestamps  
*Mingxin Wang, Yuxiang Li, Ling Han, Ting Gan, Hao Huang*
- GNN-Enhanced Multimodal Fusion with Contrastive Learning for Smart Health Oriented High Performance Recommendation System  
*Keito Inoshita, Ryutaro Matsuoka, Xiaokang Zhou, Zhigao Zheng, Akira Kawai, Katsutoshi Yada*
- RaceHPC: A Cloud-Agnostic Automated Platform for HPC Hackathons  
*Imen Chaari, Mouna Baklouti, Saber Feki*

## 9:00-10:45 Session HPCC-11: AI Compute Systems & Accelerators (II) (Online Room 1)

Session Chair: Jian Tang, China Telecom Ltd., China

- Unlocking NPU Performance: A Comparative Analysis of Framework-Hardware Interaction on Ascend  
*Hao Jiang, Zhihong Liang, Lu Lu, Siliang Suo*
- APSCC: Adaptive Congestion Control for Packet-Sprayed RDMA Networks in AI Clusters  
*Jian Tang, Wenming Zheng, Fangfang Yan, Xiaoping Fan, Luren Liu, Anran Xu, Yi Liao*
- Heterogeneity-Aware Two-Tier GPU Resource Scheduling for Machine Learning Tasks  
*Xilong Gu, Yong Guo, Yan Ding, Bao Li, Jianfeng Zhang, Chunbo Jia, Chenlin Huang*
- X-SA: An Efficient Configurable Systolic Array Computing Architecture for GPGPU  
*Yingsong Wang, Zhenzhen Jia, Ling Yang, Hongbing Tan, Junsheng Chang, Junbo Tie, Libo Huang*
- SICA: A Multicore Neuromorphic Processor Featuring Sparse Integration and Communication-Aware Optimization  
*Ping Yu, Lei Wang, Yang Guo, Zhijie Yang*
- Optimization of General Matrix Multiplication for RISC-V Processors  
*Tao Zhang, Bei Zhou, Jianmin Pang, Fei Li, Hongru Yang, Mengyao Duan, Jianing Zhang, Shuai Wang, Jinchen Xu*
- LAMP: A Locality-Aware TLB Sharing Framework for Multi-Tenant GPUs via TLB Comprehensive Profiling  
*Hang Yang, Chen Li, Xuanyi Li, Xiaowen Chen, Jianzhuang Lu, Yang Guo*

## 9:00-10:45 Session HPCC-12: Data-centric AI (I) (Online Room 2)

Session Chair: Luyang Zhang, University of Exeter, UK

- A Keyword Exchange-based Data Augmentation Method for Low-Resource Neural Machine Translation  
*Hong Yan, Fuxue Li, Peijun Xie, Chuncheng Chi, Qingfeng Cai, Yantao Wang*
- A Multi-Scale Centralized Asymptotic Optimization Algorithm for Low-Resource Acoustic Scene  
*Xin Pang, Fengpei Ge, Yanling Li*
- SCAD: A Lightweight Recommendation Model based on Multi-interest  
*Xiaotong Cui, Nan Wang*
- A Hybrid Pipeline and Large Language Model System for Task-Oriented Dialogue  
*Yihan Zheng, Weixing Tan, Qian Li, Lei Liu, Zhongmin Yan*

- DebateNav: Structured Multi-VLM Expert Debate for Robust Zero-Shot Object Navigation  
*Henghui Sun, Weixing Tan, Lei Liu, Zhongmin Yan, Xudong Lu*
- Generative Pretrained Dynamic Transformer for Efficient Time Series Forecasting  
*Chuanru Ren, Yao Lu, Yunyin Li, Lu Liu*
- BASH: A Bandwidth Sharing Mechanism for Subpartition Scheduling in GPU L2 Caches  
*Bingchao Li, Yuchen Zhu, Xiaohui Li, Jizeng Wei*

### **11:00-12:30 Session HPCC-5 & ISCCN-1: High Performance Computing and Applications (II) (Room: Burlington)**

Session Chair: Ramin Taheri, University of Reading, UK

- LMC: Lightweight Message Collection for Distributed Training of Deep Learning Models  
*Yihao Zhang, Yufan Wang, Jie Jia, Yi Liu*
- TSGAN: A Lightweight Teacher-Student-Based GAN Framework for the Edge-Cloud Computing  
*Weitong Liao, Hao Wu, Zikun Zhang, Mohammed Alghamdi, Hammam Alghamdi, Ligang He*
- Accelerating the Cryo-EM Structure Determination in RELION on Modern Many-core CPU  
*Kelun Lei, Hailong Yang, Jia Yuan, Shaokang Du, Zhongzhi Luan, Yi Liu, Depei Qian*
- Enhancing the Robustness of Federated Learning-based Intrusion Detection Systems in Transportation Networks  
*Ramin Taheri, Zahra Pooranian, Fabio Martinelli*
- Algorithmic Approaches to Enhance Safety in Autonomous Vehicles: Minimizing Lane Changes and Merging  
*Seyed Moein Abtahi, Akramul Azim*

### **11:00-13:30 Session HPCC-13 & SmartCity-2: Data-centric AI (II) (Online Room 1)**

Session Chair: Fuxue Li, Yingkou Institute of Technology, China

- FusionBC: Contrastive Graph and Information Bottleneck Fusion Learning for Time Series Forecasting  
*Hui Xu, Yangyang Shi, Qianqian Ren, Zhijuan Li*
- Multi-Dimensional Series Forecasting for Multi-Node Microservices Leveraging Specialized Embedding in LLMs  
*Lefan Cheng, Jingguo Ge, Quanfeng Lv, Tong Li, Bingzhen Wu*
- MF-Mamba: An Efficient Multi-Feature Fusion Mamba Model for Medical Image Segmentation  
*Weitong Xing, Jun Geng, Mengran Liu, Xiangxiang Yao, Yuxin Xie, Mingzi Yuan*
- MHTMG: inferring miRNA-drug associations based on multi-head attention with a parameterized transformation matrix and GraphSAGE  
*Yunyin Li, Chuanru Ren, Zheqi Song, Shudong Wang, Shanchen Pang, Lu Liu*
- Sensitive Label Replacement-Assisted Property Inference Attack against Federated Learning on Server Side  
*Shun Zhang, Tinghang Wang, Longxing Zou, Zhirong Yang*
- Blockchain-based Multimodal Semantic Sharding System for Digital Copyright utilizing GraphClustering  
*Zhongze Lin, Lizhao Wu, Hui Lin*
- INC-HAIM: An Improved Neighborhood Coreness-based Heuristic Algorithm for Influence Maximization in Complex Networks  
*Songyuan Guo, Xiong Yang, Yao Lu, Zekun Sun, Lu Liu*
- HITOM: Optimizing Throughput for Mixed-Mode Encryption Tasks on Heterogeneous Computing Platforms  
*Yuan Liu, Wendi Feng, Mingxu Gong, Wei Zhang*

- An Improved Requests Scheme for Large-scale Data in Front-end Visualization Scenarios  
*Ruojing Hao, Lexi Xu, Jihua Li, Jie Gao, Zijing Yang, Yuan Tian, Xinzhou Cheng*

### **11:00-13:30 Session HPCC-14 & DSS-3: Data Management and Storage Systems (Online Room 2)**

Session Chair: Luyang Zhang, University of Exeter, UK

- TuneReset: Adaptive Space Reclamation to Mitigate Long-Tail Latency in ZNS SSDs  
*Nannan Zhao, Fan Yang, Hao Wang, Ruofei Wu, Hao Ren, Yulu Shi, Jiameng Zhang, Taoyu Zhong, Zhijie Huang*
- BVLSM: Write-Efficient LSM-Tree Storage via WAL-Time Key-Value Separation  
*Ming Li, Wendi Cheng, Jiahe Wei, Xueqiang Shan, Weikai Liu, Xiaonan Zhao, Xiao Zhang*
- MMSEH: Metadata Management System Based on New Extensible Hash  
*Tao Cai, Yikang Deng, Dejiao Niu, Qiangqiang Ni*
- TripleGraph: A High-Throughput Data Structure for Dynamic Graph Supporting Diverse Workloads  
*Sibo Li, Yuan Zhang, Yang Feng, Yingnan Zhao, Huawei Cao*
- An Account Clustering-Based Scheme for Efficient Blockchain Sharding  
*Weilong Gong, Zhongyong Guo, Jie Li, Yan Zhuang, Yibing Li, Yangjie Cao*
- Comparative Analysis of Deep Learning Model Efficiency for Underwater Video Classification  
*Amani Homoud, Saptarshi Das, Stuart Townley*
- OPD-Based Attribute-Oriented Concept Reduction for Cognitive Diagnosis  
*Beibei Liu, Fei Hao, Qing Wan, Carmen Bisogni, Xu Zhang, Lexi Xu*
- Optimizing Fruit Harvesting Through a High-Performance Deep Learning Framework for Detection, Tracking, and Automated Counting  
*Munir Majdalawieh, Shafaq Khan*
- Hybrid Machine Learning Approach for Emotion Analysis and Prediction in Social Media Data  
*Sambeg Dhakal, Sujing Wang*
- AI-Driven Milk Fat Classification: Advancing Dairy Analytics in Saudi Arabia  
*Adel Alshehri, Aali Alqarni, Abdulrahman Binobaid*

### **11:00-13:30 Session HPCC-15 & ICESS-3: Kubernetes and HPC Optimization (Online Room 3)**

Session Chair: Fuxue Li, Yingkou Institute of Technology, China

- HyMetricScaler: A Multi-Metric-Driven Hybrid Autoscaling Framework for Kubernetes  
*Yuhong Feng, Jianming Li, Liangjie Li, Haoran Li, Zhijiao Xiao, Xin Wang*
- Locality-Aware QoS Optimization for Microservices Scheduling in Kubernetes Cluster  
*Satish Kumar, Nawar Jawad, Rami Bahsoon*
- TOPSIS-FGD: A Multidimensional Resource Scheduling Strategy for Fragmentation Optimization  
*Haohan Chen, Bingjian Yao, Jieting Zhang, Zhijiao Xiao, Liangjie Li, Yuhong Feng, Sheng-hua Zhong*
- A Kubernetes cluster load balancing scheduling algorithm for specific applications  
*Du Houde, Zhenchun Wei, Zengwei Lyu, Zeng Hanyu*
- RKOP: A Parallel Randomized Kaczmarz Algorithm Based on Oblique Projection for Large-Scale Overdetermined Equations  
*Xinyu Guo, Min Tian, Xiaoming Wu, Jidong Huo, Yunhui Zeng, Wei Du*
- SmartGC: Enhancing SSD Performance and Lifespan through Intelligent Garbage Collection  
*Nannan Zhao, Hao Wang, Fan Yang, Zhijie Huang*
- LLM-THP: A Large Language Model-Powered Terminal Honey-pot Dialogue Framework  
*Peng Wang, Laite Wang, Weilin Gai, Zhijian Zheng, Peng Zhang, Ruoxing Wang*

- A Knowledge Distillation based Translation Prompt Information Fusion Method for Neural Machine Translation  
*Fuxue Li, Haoming Ma, Hong Yan, Chuncheng Chi, Peijun Xie, Beibei Liu*
- Incorporating Word Translations into Neural Machine Translation  
*Fuxue Li, Peijun Xie, Hong Yan, Chuncheng Chi, Xingyue Li, Wei Chen*
- Lightweight MCU Implementation (under 512KB Flash and 256KB RAM) of Neural Networks for Bird Call Classification  
*Jingwei Chen, Terry Tao Ye*

## Part II: TECHNICAL SESSIONS OF DSS-2025

14 August 2025 Thursday

### 16:00-18:00 Session DSS-1: Advances in Data-Driven Systems and AI (Room: Devonshire B)

Session Chair: Shagufta Henna, Atlantic Technological University, Ireland

- Volatility Prediction and Classification Using GARCH Model and Dynamic Random Forest with Gaussian Mixture Model  
*Haiyang Zhou, Aihua Zhang*
- Counterfactual GraphLIME-Enabled Explainable Adversarial Defense for Graph-Based Intrusion Detection Using Residual GAN-FGSM Framework  
*Shagufta Henna*
- Machine Learning for Accurate and Explainable Industry-Scale Rebuild Cost Estimation in Insurance  
*Chunbo Luo, Ahsan Iqbal, Diogo Pacheco, Martin Lake*
- Real-Time Multimodal AI for Medical Intervention Understanding  
*Matthew Wilkerson, Taylor Brown, Garrett Davis, Toby White, Joshua Lockart, Luis Hernandez, Sambit Bhattacharya*
- Deep Learning Methods for Apnoea Detection Based on Pulse and Oximetry Data  
*Dongjin Yang, Jingqiong Zhang, Eishaan Bhargava, Heather Elphick, Sanja Dogramadzi, Lyudmila S. Mihaylova*
- No Labels, No Pairs, No Problem: Align4Eye for Cross-Modality Self-Supervised Learning to Enhance Early Diabetic Retinopathy Diagnosis  
*Yuanyuan Liu, Xin Zhang, Peng Wang, Li Guo, Liangxiu Han*
- Design and Implementation of a Flexible Edge Computing Architecture for a Multi-Application Industrial Inspection System  
*Jian Wen Chen, Meng Shiun Tsai, Che Lun Hung*

15 August 2025 Friday

### 09:00-10:30 Session DSS-2: Frontier Applications of Intelligent Systems(Room: Chatsworth)

Session Chair: Vamanie Perumal, Indian Institute of Technology Madras, India

- Performance Benchmarking of Tamil Nadu's Intra-State Bus Network: Evidence from Data Envelopment Analysis  
*Vamanie Perumal, Kandaswamy Paramasivan*
- Towards Transformer-Based Flow Volume Prediction in Network Traffic  
*Samara Mayhoub, Mirko Schiavone, Chuan Heng Foh, Mohammad Shojafar*
- An Interpretation of Spearman Correlation via k-Subset Permutations  
*Oriel Limor, Zohar Yakhini*
- SimKit: Similarity Graphs, Eigendecomposition and Spectral Clustering in Neo4j

*Rahul Mondal, Evelina Ignatova, Jonas Heinzmann, Minh Dung Do, Abhivanth Murali, Daniel Walke, Patrick Cato, Robert A. Becker, Thomas Bleistein, Gunter Saake, David Broneske, Robert Heyer*

- Gyroscopic Utensil for Parkinson's Disease  
*Jake Mullen, Mehdi Rakhtalarostami, Sunday Atuba*

### **Part III: TECHNICAL SESSIONS OF ICESS-2025**

**14 August 2025 Thursday**

#### **13:30-15:30 Session ICESS-1: Design and Optimisation of Embedded Systems (Room: Devonshire B)**

Session Chair: Saad Mubeen, Mälardalen University, Sweden

- Silent Error Resilient Kalman Filter for Inertial Navigation Using Linear Algebra Checksums  
*Saibal De, Jackson Mayo, Hemanth Kolla, Christopher Bennett*
- Managing Container Orchestration in Mixed-Critical Cyber-Physical Systems  
*Lukas Stahlbock, Frank Köster*
- Impact of Tuning Parameters of Parallel Pattern Applications for Heterogeneous Embedded Systems on Performance and Energy Efficiency  
*Yazeed Almalaq, Vladimir Janjic*
- A Predictable and Real-Time Electric Vehicle Charging Framework with a Dynamic Protection System  
*Jenish Gajera, Farhaan Mohamemd, Akramul Azim*
- Partitioned Scheduling for DAG Tasks Considering Probabilistic Execution Time  
*Fuma Omori, Atsushi Yano, Takuya Azumi*
- Rubus Offline Scheduler for Resource Constrained Embedded Real-Time Systems  
*Jukka Mäki-Turja, Vildan Zivojevic, Saad Mubeen*
- Runtime Embedded Systems Peripheral Configuration Using An Interpreted Language  
*Nicholas Fairburn, James Whiting*
- An Embedded Visual-Inertial Navigation System for Mobile Platforms Using an Event-Based Camera  
*Andrew Ferguson, James Evans, Shaun Forman, Douglas Fraser, Samuel Kliskey, Gaetano Di Caterina, Ehsan Mohseni*

### **Part IV: TECHNICAL SESSIONS OF DependSys-2025**

**15 August 2025 Friday**

#### **11:00-12:45 Session DependSys-1 & ICESS-2: Intelligent Embedded Systems and Applications (Room: Chatsworth)**

Session Chair: Sunday Atuba, University of the West of England, UK

- Edge Intelligent Unmanned Aerial Vehicle Oil Tank Inspection Method based on GWO-PSO Scheduling  
*Zixuan Liu, Xiaokang Yin, Cai Luo, Chunbo Luo, Lei Liu, Zeyu Fu*
- Weather Integrated SMART Irrigation System  
*Irene Biju, Sunday Atuba*
- Tolerating Node Failures in Multi-Processor Real-Time Systems with Data Dependencies  
*Amin Naghavi, Tingting Hu, Nicolas Navet*
- LightChain-RAN-RF: A Lightweight Blockchain-Enabled RFID Framework for O-RAN Edge Environments  
*Hadiseh Rezaei, Mehdi Golsorkhtabaramiri, Rahim Taheri, Chuan Heng Foh, Mohammad Shojafar*



- A Carbon-Aware Task Offloading Framework for Sustainable Fog Computing  
*Jaber Pournazari, Ahmed Al-Dubai, Xiaodong Liu, Reza Akraminejad*
- Towards Building Robust, Reliable and Private AI/ML Security Solutions in Open Radio Access Networks  
*Sotiris Chatzimiltis, Mohammad Shojafar, Mahdi Boloursaz Mashhadi, Rahim Tafazolli*
- Hybrid Telecom Fraud Detection with Machine Learning, Large Language Models, and Blockchain  
*Saviz Changizi, Nasibeh Mohammadzadeh, Mohammad Shojafar*

**Part V: TECHNICAL SESSIONS OF SmartCity-2025**  
**13 August 2025 (Wednesday)**

**16:00-18:00 Session SmartCity-1: Data Processing, Systems and Applications (Room: Devonshire B)**

Session Chair: Prof. Theo Tryfonas, University of Bristol, UK

- Complex Networks in Crisis: Evaluating the Impact of COVID-19 on Lung Cancer Healthcare  
*Matheus Linhares Ferreira Gomes, Raimir Holanda Filho, Luis Borges Golveia, Rosina Ribeiro Gabriele*
- NEXUS (Networked Exchange of Unified Systems) for Data Exchange in a Federated Smart City Digital Twin: A Case Study on Twin Cities  
*Javad Zarean, Seif Allah El Mesloul Nasri, Manolya Kavakli-Thorne*
- Long-time Sensor Accuracy Management: A Combined Approach of Manual and Automatic Calibration  
*Taiki Yamada, Takuya Yoshihiro*
- Design and Performance Assessment of a Residential Photovoltaic System in Relation to Local Weather Conditions in Egypt  
*Fares Elgamal, Mehdi Rakhtala Rostami, Sunday Atuba*
- Transforming Open Urban Data into Infrastructure Supporting Air Quality Interventions  
*Vijay Kumar, Kevin Jolly, Sam Gunner, Maria Pregnolato, Patrick Tully, Theo Tryfonas*
- Material-Aware Synthetic Data Generation for Smart City Applications  
*Debora Russo, Domenico Amalfitano, Gerardo Di Martino, Nicola Mazzocca, Valeria Vittorini*
- Privacy-Preserving Electricity Load Forecasting in Smart Cities Using TinyML at the Edge  
*Amar Almaini, Santhosh Nataraj, Gautam Savaliya, Manjitha Dahanayaka Vidanalage, Abhishek Subedi, Ahmed Al-Dubai, Jakob Folz*

**Part VI: TECHNICAL SESSIONS OF Associated Workshops/Symposia**

**AINet-2025 TECHNICAL SESSIONS**  
**13 August 2025 (Wednesday)**

**16:00-18:30 Session AINet-1: AI-driven Network (Room: Online Room 3)**

Session Chair: Lexi Xu, China Unicom, China

- TOA and FOA Based UAV-Assisted Localization for Satellite Navigation Enhancement  
*Jiawei Tang, Tian Chang, Peng Yin, Dekang Liu, Jin Che, Xingyu Fan*
- ReEC: A Recommendation-Enabled Edge Caching Approach for Next-Generation AIoT  
*Zheng Su, Huiling Shi, Shuohan Liu, Jiaao Sun, Hao Hao, Wei Zhang*
- Research on Network Information Risk Prevention Based on Blockchain

*Weiwei Pang, Chunyu Jiang, Qi Zhang, Chen Kang, Bin Liu, Lifeng Zhang, Tingting Liu, Suwan Wang, Wenxi Song*

- A Complaint Auxiliary Analysis Scheme for Mobile Network Based on Multi-modal Generative LLM  
*Jihua Li, Zhaoxing Li, Jianlong Liu, Rui Xiao, Sai Huang, Zixiang Di, Yijia Zheng, Renjie Geng, Xiaoli Yuan, Qinding Zhang*
- Deployment Strategy Research for Reconfigurable Intelligent Surfaces with Imperfect CSI  
*Xiaohao Mo, Saibin Yao, Zhenwei Jiang*
- Multi-Perspective Dynamic Risk Prediction for Projects Based on Knowledge Graph  
*Wan Wei, Lin Wang, Cheng Wei, Jiajun Cheng, Chao Nie, Lei Han*
- Neighbor-Aware Graph Representation Learning for Robust Telecom Fraud Detection  
*Bin Yang, Leilei Zhong, Xu Cheng, Ying Xing, Zhipu Xie, Jinchao Huang, Yuhao Gao, Lexi Xu*
- Enterprise Data Intelligence Platform: Architecture, Principle, Functionality  
*Yanmei Liu, Pengwei Ma, Zhuo Wang, Jiafeng Tian, Shilian Yu, Jingshi Yang*
- Overview of Data Intelligence Industry: Data, Algorithms, and Applications  
*Jiafeng Tian, Zhuo Wang, Yanmei Liu, Shilian Yu, Chunyu Jiang, Pengwei Ma*
- A Unified Optimization Framework for Collaborative Access and Resource Allocation in Space-Air-Ground Integrated Networks  
*Shoufeng Wang, Ye Ouyang, Yiyan Cui, Hua-Min Chen, Qinjie Zheng, Jingyu Zhao, Jingyi Hao, Nan Yuan, Wei Zhao, Fan Li, Xuan Chen, Jianchao Guo*

**14 August 2025 (Thursday)**

**13:30-15:30 Session AINet-2 & SAGIINAT-2: AI-driven Network and SAGIINAT (Room: Online Room 2)**

Session Chair: Gaofeng Cui, Beijing University of Posts and Telecommunications, China

- DCU: A New Dynamic Codebook Update Improvement on the Vector Quantization Model  
*Yan Xu, Linjiang Shen, Chao Cui, Die Wang, Hongzhi Cui*
- An Adaptive Measurement Method Combining MSE and SSIM for Image Transmission  
*Hongzhi Cui, Shuqing Qiu, Jundong Xu, Yan Xu*
- Performance Testing and Analysis of Token Generation for LLMs Based on MaaS (Model-as-a-Service)  
*Yang Cheng, Sisi Qin, Jing Qi, Feng Cao, Dongwei Yan*
- Mitigating Generative Hallucinations in Knowledge Graph Construction: A Reinforcement Learning Reward Shaping Approach  
*Zhipu Xie, Bin Yang, Jinchao Huang, Lexi Xu, Xin Wang, Han Zhang*
- Combining Large and Small Models to Empower Handling of User Complaints of 5G Network  
*Feibi Lyu, Songbai Liang, Zixiang Di, Tian Xiao, Lu Zhi, Jiajia Zhu, Lexi Xu, Bei Li, Yan Zhang, Zhaoning Wang*
- A Deep Reinforcement Learning Framework for Intelligent Telecom Product Portfolio  
*Shoufeng Wang, Ye Ouyang, Yiyan Cui, Lianhua Zhang, Qinjie Zheng, Jingyu Zhao, Jingyi Hao, Nan Yuan, Wei Zhao, Fan Li, Xuan Chen, Jianchao Guo*
- Indoor Wireless Coverage Prediction via Building Layout-Driven Propagation Modeling  
*Lei Han, Chao Nie, Cheng Wei, Anzhi Lei, Jian Pan*
- Study on Ground Grid Segmentation Method for Spectrum Sharing Analysis of Internet Constellations via Spatial Sampling  
*Yiwei Qi, Xiang Gao, Xiujuan Yao, Xue Li, Zhimin Chen, Yanan Fan, Zhen Li, Xuechen Gu*

## SAGIINAT-2025 TECHNICAL SESSIONS

14 August 2025 (Thursday)

### 13:30-15:30 Session SAGIINAT-1: Space-Air-Ground Integrated Information Networks (Room: Online Room 3)

Session Chair: Cheng Wang, Beijing University of Posts and Telecommunications, China

- Optimal Network Topology for LEOMega-Constellations: A Generic Repetitive Connectivity Pattern Approach  
*Tianchen Feng, Zhicheng Li, Shuaijun Liu, Lixiang Liu*
- Beam Scanning Method for Intelligent Relay Backhaul Antenna based NCR  
*Bao Guo, Jinge Guo, Yuchen Zhang, Jiayu Li, Qintian Wang, Yang Zhang*
- Efficient Compatibility Simulation for Cislunar Satellite Constellation Based on Orbital Configuration Recurrence  
*Xue Li, Xiang Gao, Xiujuan Yao, Yuanhao Ma, Zhen Li, Jing Wang, Yunlong Sun, Xueping Huang*
- Synesthesia-based Networked UAV Rejection System  
*Bao Guo, Jinge Guo, Jiayu Li, Yingtao Meng, Yang Zhang, Yi Liu*
- Analysis of the Principles, Application Scenarios and Performance Measurement Indicators of Integrated Sensing and Communication Technology  
*Wei Zeng, Jun Fan, Rui Xiao, Jihua Li, Guoping Xu, Lei Wang, Jianrong Zhong, Lexi Xu, Hong Chang, Xue Chen*
- Coverage Performance Improving Based on NCR in Low-Altitude Network  
*Bao Guo, Jinge Guo, Jiayu Li, Zihan Chen, Hongbo Long, Yang Zhang, Bing Huang*
- An Operator-Centric Framework for Risk-Aware Low-Altitude Urban Security: A UAV-as-a-Service Approach  
*Enwan Zhang, Jianxun Ding, Xinbing Zhan, Ke Jin, Sheng Nie, Zheng Li, Yutong Xing, Chaolun Wang, Ning Yin*
- Uplink Coverage Performance Enhancement Method in Low Altitude Networks  
*Bao Guo, Jinge Guo, Jiayu Li, Xiaoxuan Du, Yang Zhang, Guozhi Wang*

## MLSys-2025 TECHNICAL SESSIONS

14 August 2025 (Thursday)

### 16:00-18:15 Session MLSys-1: Machine Learning assisted Smart System (Room: Online Room 2)

Session Chair: Lexi Xu, China Unicom, China

- Influence Maximization with Influence-Aware Community Detection  
*Changxin Wang, Pengyao Xu, Chao Chen, Lexi Xu, Bin Yang, Jinchao Huang, Chong Di*
- DC-RANSAC: A Dual-Consensus Cylinder Fitting Algorithm for IoT-Based Spindle and Impeller Alignment  
*Xueping Liu, Zhaolin Song, Xiting Peng, Fuyin Zheng, Xiaodan Zhang, Hanyu Xue, Zihang Wang, Shi Bai*
- Transformer-based Temporal Feature Pyramid Network for Temporal Action Proposal Generation  
*Yan Zhang, Tian Xiao, Lu Zhi, Feibi Lv, Jiajia Zhu, Liang Liu, Zhaoning Wang, Zixiang Di, Lexi Xu, Bei Li*
- A Deep Reinforcement Learning based Approach for Inclusive Intelligent Services in 6G Intelligent Networks  
*Yi Yue, Xuebei Zhang, Feile Li, Wencong Yang, Youxiang Wang, Xiongyan Tang*
- The Component Technology and Evaluation Methods for Railway Signaling Systems in Cloud Platform

*Yongli Zang*

- Retrieval-Augmented LLM-Driven Multi-Agent Optimization Framework for Intelligent Manufacturing Scheduling  
*Xiang Li, Xiaolong Zhou, Jinbo Li, Qingyue Di, Lei Jing, Bin Fan*
- Reinforcement Fine-tuning of Large Language Models for Anomaly Log Analysis in AIDC Switches  
*Dongyue Zhang, Yuer Niu, Bohua Xu, Qianren Liu, Junjie Tong, Chang Cao, Xiangbin Li*
- Innovation and Application of New Green Minimalist Digital Machine Room in Mobile Communications  
*Jinhu Shen, Bowei Pu, Ning Zhang, Hao Ding, Mingjie Yang, Xing Liang, Xuemin Huang, Jiaqi Wang*
- High-quality Thing Description Language Enhanced Construction and Application for Industrial Digital Twins  
*Yanhong Wang, Lei Jing, Yucheng Wang, Wei Jiang, Xiaolong Zhou, Bin Fan, Xiang Li*

**15 August 2025 (Friday)**

**9:00-10:45 Session MLSys-2 & BDRA-2: Machine Learning and Big Data Research (Room: Online Room 3)**

Session Chair: Rui Jin, University of Exeter, UK

- Integrate Digital Twins with Knowledge Graphs Navigation Traffic Management Operation and Maintenance System  
*Dong Wang, Liyan Wang, Xuwen Chen, Shenghao Gong, Meng Li, Yiming Wang*
- Agent-based Intelligent Operations and Maintenance for Artificial Intelligence Data Centers  
*Yuer Niu, Xiangbin Li, Dongyue Zhang, Bowen Han, Yu Zhou, Bohua Xu*
- A Comparative Analysis of Mobile Network Coverage and Performance Disparities in the River Severn Catchment Area  
*Haitham Mahmoud, Matt Smith, Stephen Ashton, George Boston, George Gibson, Adel Aneiba, Umar Daraz, De Mi*
- Research on the Application of Agricultural Large Models in 5G-Enabled Precision Planting Scenarios  
*Linlu Li, Junran Wang, Zhengchao Qiu, Lianbo Song, Jue Jia*
- Pareto-Optimal Planning of EV Charging Infrastructure: A Hierarchical Spatio-Temporal GNN Approach with Green Energy Synergy  
*Enwan Zhang, Jianxun Ding, Xinbing Zhan, Xiaofa Zhang, Daixiang Wei, Yaomin Xia, Zhenlong Xu*
- Multi-Agent Scheduling for Network Management  
*Qi Shao, Yidan Zhang, Yue Wang, Sai Han, Lexi Xu, Zhaoning Wang, Xinzhou Cheng, Gang Zhu, Haowen Sun, Xingjun Chi*
- AI-based 5G Beam Weight Optimization Scheme for Coverage Improvement in Low-altitude Scenarios  
*Tian Xiao, Mengyan Zhang, Bei Li, Zixiang Di, Chao Wang, Feibi Lyu, Yan Zhang, Wei Zhang, Chenrui Zang, Lu Zhi, Lexi Xu*

## BDRA-2025 TECHNICAL SESSIONS

14 August 2025 (Thursday)

### 16:00-18:45 Session BDRA-1: Big Data Research and Application (Room: Online Room 3)

Session Chair: Chaowei Wang, Beijing University of Posts and Telecommunications, China

- Differentiated Service Data-driven Intelligent Adjustment Method for 5G/5G-A Broadcast Beams  
*Zixiang Di, Bei Li, Lu Zhi, Tian Xiao, Feibi Lyu, Jinchao Huang, Wei Zhang, Zhaoxing Li, Songbai Liang, Pei Wang, Jinjian Qiao*
- The Application of SSB Frequency Offset in Low-altitude Network  
*Bei Li, Zixiang Di, Tian Xiao, Zhaoning Wang, Liang Liu, Feibi Lyu, Hongbing Ma, Jiajia Zhu, Guanghai Liu, Lexi Xu, Cheng Chen, Xiaomeng Zhu*
- Research on Host Classification Based on Language Models in Mobile Communication Networks  
*Wei Zhang, Chen Cheng, Tianyi Wang, Yuhui Han, Zixiang Di, Yuan Tian, Dongliang Wang, Bei Li, Lexi Xu, Tian Xiao, Hong Sun, Guoguang Zhang*
- Architecture Design of Multi-Agent LLM Systems in Railway Data Governance  
*Yiyan Cui, Yanmei Guo, Chenying Ren, Chao Zhang, Shi Shu, Wei Peng*
- RED-LocQ Model for Distance Perception and Signal Quality Assessment in RedCap Terminals  
*Yichen Xie, Bowei Pei, Dongliang Ma, Lixin Li, Lina Bao, BingMing Wang, Jianye Han, Jiangtian Xie*
- Traffic Speed Series Prediction Based on Multi-View Spatial-Temporal Graph Convolutional Networks  
*Di Zhang, Wenxi Yang, Yinbao Xie, Zhijian Qu*
- Trusted Data Space: Conceptual Connotation, Technical Architecture and Construction Paths  
*Yuzhen Bai, Jingshi Yang, Ailin Lyu, Xuan Jia, Bo Yuan, Jiameng Feng, Jinrui Tong*
- A Quantum-Enhanced Hybrid Framework for Improving Traffic Resilience in Large-Scale Events  
*Enwan Zhang, Jianxun Ding, Xinbing Zhan, Zhiguo Huang, Fei Yao, Gangqiang Xu, Chaolun Wang, Xuan Cui*
- IOTQ: A High-Quality Dataset Evaluation Framework for Full AI Lifecycle  
*Wenhua Peng, Hao Ding, Chang Zhang, Le Gu, Yifan Li, Hongji Duan*
- Targeting Potential Cloud PC Subscribers via Multi-dimensional Profiling of Telecom Big Data  
*Yuan Tian, Chen Cheng, Xinzhou Cheng, Yongzhong Zhang, Qiankai Cao, Yuhui Han, Tianyi Wang, Wei Zhang, Yuwei Jia, Ruojing Hao, Ya'nan Zhang, Zijiang Yang*
- Privacy-preserving Computing Hardware-software: Principle, Framework, Integration Solution  
*Jingshi Yang, Yuzhen Bai, Ailin Lyu, Xuan Jia, Bo Yuan, Siyuan Wang, Jinrui Tong*

## NDMAD-2025 TECHNICAL SESSIONS

13 August 2025 Friday

### 16:00-18:30 Session NDMAD-2025 (Room: Online Room 4 )

Session Chair: Wei Han, China University of Geosciences (Wuhan), China

- LandSR-Mamba: Land Cover Super-Resolution for Detailed Hazard Assessment  
*Shurui Hu*

- Multi-Regional Multi-Hazard Risk Assessment and Early Warning Based on the Poisson Model  
*Zhu Tao, Li Huanzhen, Yanxia Huang*
- Remote Sensing Bathymetric Inversion Research in Shallow Seas Based on WorldView-2  
*Lingyun Jiang, Nan Luo, Yu Qiu, Weiwei Zhang, Jungui Zhang, Yijun Xiong, Kai Zhao, Zhongliang Zeng*
- A Multi-source Data-based Regional Risk Assessment and Mapping of Rainfall-induced Landslides  
*Ming Wei, Wei Huang, Fenghua Yu, Jia Zhang, Libo Zhou, Rui Chen, Chengbin Wang*
- Deep Learning-based InSAR Subsidence Monitoring and Disaster Warning in Mining Areas  
*Zhixuan Cheng, Zixuan Ge, Chuanguang Zhu, Hongmei Zhang, Liya Zhang, Jiawang Ge, Chao Yang*
- Correlation Analysis of Soil Erosion and Landscape Patterns Using a Landscape Ecological Risk Index  
*Min Jin, Xin Dai, Xiaohong Wang, Xueling Long, Si Wang, Weina Li, Lei Tong*
- A Generative Adversarial Network Method with Multi-Scale Hybrid Attention for Remote Sensing Image Super-Resolution  
*Zexu Zhang, Qiyong Tang, Yangzhou Long, Fan Lei, Cuifeng Zhang, Jiawang Ge, Jie She, Chao Yang*
- Geological Hazard Knowledge Graph Construction for Human-Induced Susceptibility and Exposure Assessment  
*Xinya Lei, Changle Li*
- The Spatio-Temporal Evolution Characteristics of Soil Erosion Disasters Based on the RUSLE Model  
*Weirong He, Runbin Huo, Zhijun Zhang, Yanliang Wang, Zibing Wang, Wenbin Hong*
- Ground Subsidence Monitoring in Lao Cai Mining Areas Using Time-Series InSAR Technology  
*Sipeng Han, Jungui Zhang, Wangchuan Guo, Hang Dong, Xingwu Liu, Congyuan Zhang, Zhongshun Cai*

## ACE-2025 TECHNICAL SESSIONS

15 August 2025 (Friday)

### 9:00-10:30 Session ACE-1 & ISCCN-2: Security and Trust in Diverse Systems (Room: Online Room 4)

Session Chair: Xiaohua Feng, University of Bedfordshire, UK

- Virtual Sandbox for Malware Analysis and Threat Detection  
*J. chathuni*
- EDI in Higher Education Challenge  
*Xiaohua Feng*
- Towards Practical Radio Biometrics in Cars  
*Lukasz Migacz*
- A Forensics Framework for Investigating Robot Operating System Environment  
*Iroshan Abekoon*
- ML-Driven Predictive Autoscaling and Fault Tolerance in Multi-Region Cloud Architectures  
*Abhijeet Mukkawat*
- ATQ: An Optimal Gradient Quantization Strategy for Distributed Training under Relatively Low-Bandwidth and Unstable Network  
*Rengang Li, Yujie Dai, Kefeng Zhu, Pengyu Hou, Yanwei Wang*



## MVIC-2025 TECHNICAL SESSIONS

15 August 2025 (Friday)

### 11:00-13:00 Session MVIC-1 & ISCCN-3: Machine Vision Technology (Room: Online Room 4)

Session Chair: Zizhen Peng, Wuzhou University, China

- A Real-Time Animation Blending Scheme for Cavalry Combat Skills Via Interpolation Algorithms  
*Xiongjie Tao, Zhipeng Cai, Haixiao Gong, Bin Hu, Yingli Zhao, Di Xie, Peiping Li*
- A Fast Intra-Prediction Mode Decision Algorithm Using Gradient Histograms in HEVC  
*Xinxiang Zhang, Zhenming Yu, Caixu Xu, Jialing Chen*
- Optimizing a Gemstone Recognition Model Using YOLOv8 and the CBAM Attention Mechanism  
*Zongni Li, Biqing Liang*
- A Microscopic Image Object Detection Methodbased on Deformable Convolution and Multi-ScaleConvolution Attention  
*Wei chengfeng, Peng Zizhen, Yang Linhe, Li Guiguang, Kong Yincheng*
- An End-to-End Recognition Model for Multi-line Characters of Ship Plates Based on TrOCR  
*Hongquan Lin, Hong Chen, Pingping Deng, Qianshan Zhong*
- Analysis of Safe Driving Behaviour of Transport Vehicles based on Data Mining Techniques  
*Xueyan Lu*
- POLRAG: A RAG-LLM Framework for Policy Question Answering  
*Hongquan Lin, Pingping Deng, Qianshan Zhong, Xiaoying Zhu*
- A Network Intrusion Detection System Based on Convolutional Neural Network  
*Guanqing Yang, Qiuyan Huang, Haifeng Lv, Xueyan Lu*

## Floor Plan

### Ground Floor Layout

