Welcome Message

Dear colleagues,

On behalf of the 2025 Organizing Committee of Wireless and Optical Communications Conference (WOCC2025), we welcome you to the 34th WOCC conference on May 20th-22nd. The conference is hosted by Macau University of Science and Technology (MUST) and Guangdong University of Science and Technology (GUST).

The 34th Wireless and Optical Communications Conference is an IEEE international conference. In the past three decades, WOCC has become one of the major conferences for telecommunications and networking professionals both in the U.S. and in the Asia-Pacific region, as well as, other regions of the world, presenting the latest innovations, discussing the emerging techniques, exchanging research ideas, and exploring frontier issues. WOCC 2025 will also feature high-quality plenary speeches, as well as, invited keynotes from prominent research and industry leaders.

We hope your participation in WOCC 2025 is a productive and rewarding experience and thank you for your involvement and contribution in making WOCC 2025 a successful event.

Organizers

Technical Sponsors

IEEE

IEEE Photonics Society

Sponsor

MTel 電信有限公司

Companhia de Telecomunicações de MTel, lda.

Supporters

Media Partners

electronics an Open Access Journal by MDPI

MDPI Academic Open Access Publishing since 1996

i&CN

Contents

Organizing Committees

General Chairs

Qinglin Zhao
Macau University of Science and Technology

Jie Zhang
Beijing University of Posts and Telecommunications

Program Chairs

Jianqing Li
Macau University of Science and Technology

Miaowen Wen
South China University of Technology

Jianjun Yu
Fudan University

Xu Chen
Sun Yat-sen University

Shaowei Wang
Nanjing University

Publication Chairs

Rubing Huang
Macau University of Science and Technology

Liwei Tian
Guangdong University of Science and Technology

Lei Yang
Guangdong University of Science and Technology

Local Coordinate Chair

Xuanxuan Xiao
Macau University of Science and Technology

Finance Chair

Jinyu Tian
Macau University of Science and Technology

Publicity Chairs

Li Feng
Macau University of Science and Technology

Yungui Chen
Guangdong University of Science and Technology

Longqing Zhang
Guangdong University of Science and Technology

Advisory Members

Mengchu Zhou
New Jersey Institute of Technology

Yu-Dong Yao
Stevens Institute of Technology

Meilong Jiang
Qualcomm

Kevin Lu
Stevens Institute of Technology

James C. M. Hwang
Cornell University

Xin Jiang
City University of New York

Danijela Cabric
University of California, Los Angeles

Technical Program Committee

Amjad Ali amjad
Zhejiang University

Chak Fone Cheang
Macau University of Science and Technology

Chen Chen
Chongqing University

Chi-Chong Wong
Macau University of Science and Technology

Dagang Li
Macau University of Science and Technology

Derick Miller
Stevens Institute of Technology / Nokia

Di Wu
Sun Yat-sen University

Haifei Ma
Guangdong University of Science and Technology

Haisheng Yu
China Future Internet Engineering Center

Hong Liu
Institute of Materials Research and Engineering

Huaqiang Yuan
Dongguan University of Technology

Ivan Kotuliak
Slovak University of Technology in Bratislava

Jiahao Huo
University of Science and Technology Beijing

Jian Li
Guangdong University of Technology

Jian Zhu
Guangdong University of Technology

Jiancheng Ye
Macau University of Science and Technology

Jianping Li
Guangdong University of Technology

Jindong Wang
Chongqing University

Jing Zhou
Shanghai Institute of Technical Physics, Chinese Academy of Sciences

Jun Li
Guangzhou University

Kai Huang
Macau University of Science and Technology

Kevin Hung
Hong Kong Metropolitan University

Liang Yu
Guangdong University of Science and Technology

Maha Sliti
University of Carthage

Marek Galinski
Slovak University of Technology in Bratislava

Meng Xiang
Guangdong University of Technology

Michal Ries
Slovak University of Technology in Bratislava

Mingjun Wang
Xi'an University of Technology

Mohammad Faizal Ismail
Photonics Research Centre, Universiti Malaya

Nan Cui
Beijing University of Posts and Telecommunications

Nannan Li
Macau University of Science and Technology

Peiyun Zhang
Nanjing University of Information Science and Technology

Ping Su
Tsinghua Shenzhen International School, Tsinghua University

Qianyi Huang
Sun Yat-sen University

Ran Hao
The Chinese University of Hong Kong

Rastislav Bencel
Slovak University of Technology in Bratislava

Rui Min
Beijing Normal University

Shiyao Fu
Beijing Institute of Technology
Shuai Yu
Sun Yat-sen University
Shumin Yao
Pengcheng Laboratory
Shunzhi Yang
Shenzhen PolytechnicUniversity
Wanggen Wan
Shanghai University
Wanli Wen
Chongqing University
Wei Jiang
Nanjing University
Wei Wang
Beijing University of Posts and Telecommunications
Weiwei Jiang
Beijing University of Posts and Telecommunications
Wenmin Wang
Macau University of Science and Technology
Xiansong Fang
Peking University
Xiaofen Wang
University of Electronic Science and Technology of China
Xiaonan Fang
Macau University of Science and Technology
Xiaosong Yu
Beijing University of Posts and Telecommunications
Xin Wang
Beijing Information Science and Technology University
Xuan Chen
Guangzhou University
Xuanyuan Zhe
BNU- HKBU United International College
Yang Yue
Xi'an Jiaotong University
Yixiao Zhu
Shanghai Jiao Tong University
Yu He
Shanghai Jiao Tong University
Yu Huang
Guangzhou University
Yufeng Cheng
Hubei University of Automotive Technology
Yulei Wang
South-Central Minzu University
Yuyang Peng
Macau University of Science and Technology
Zhanyang Zhang
City University of New York
Zhenming Yu
Beijing University of Posts and Telecommunications
Zinan Wang
University of Electronic Science and Technology of China

Conference Venue

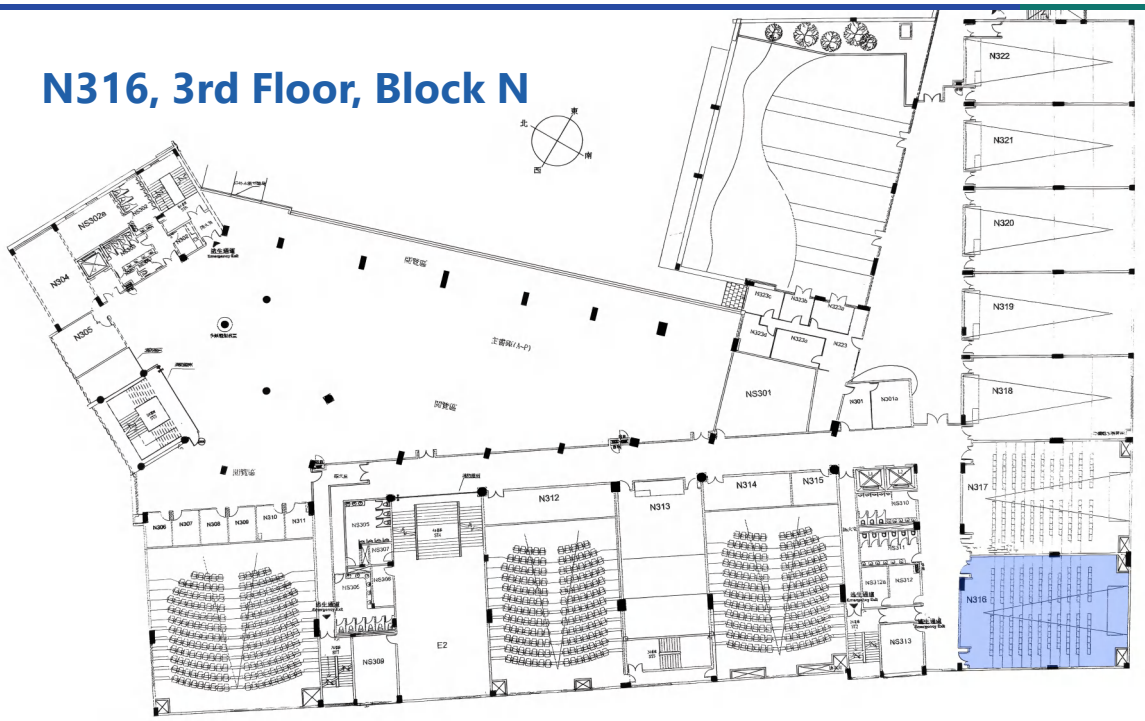
Macau University of Science and Technology

Address: Avenida Wai Long, Taipa, Macau, China

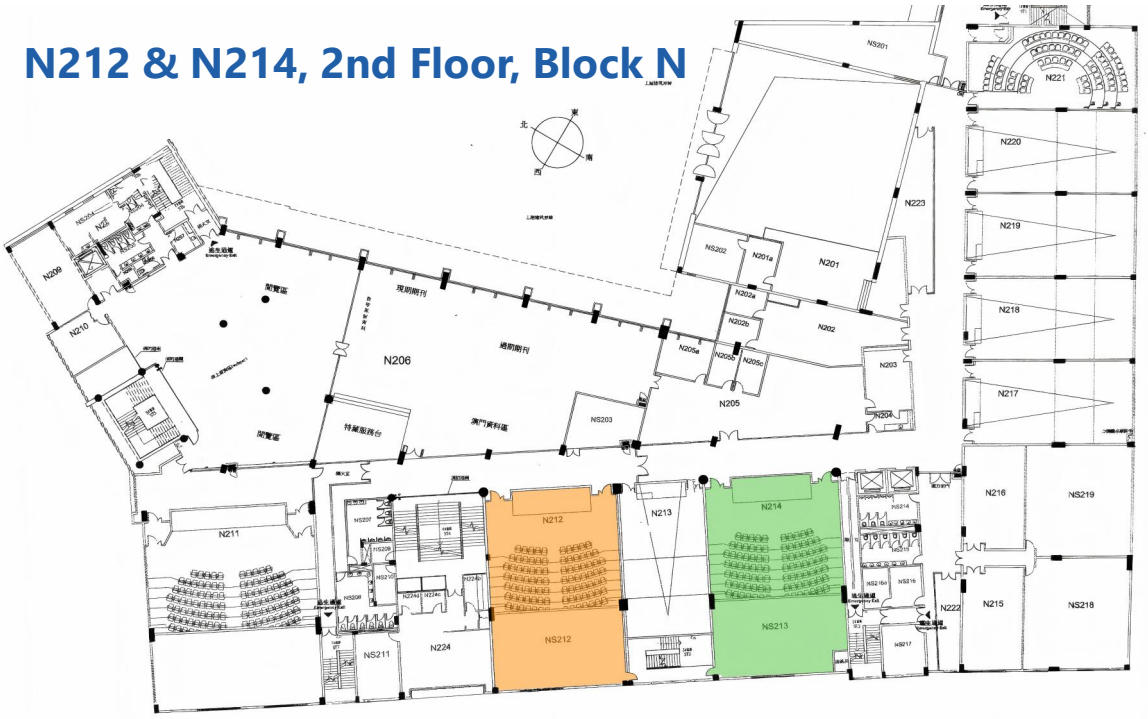
Conference Room			
Room	May 20	May 21	May 22
N101 (1F)	-	✦	-
N212 (2F)	-	✦	✦
N214 (2F)	-	✦	✦
N316 (3F)	-	✦	✦

Conference Venue

N316, 3rd Floor, Block N



N212 & N214, 2nd Floor, Block N



Agenda Overview

Conference Language: English

Tuesday, May 20, 2025		
Time	**Activity**	**Venue**
10:00-20:00	**Sign-in & Conference Kits Collection**	**N101 Lobby (1F)**

Wednesday, May 21, 2025			
Time	**Activity**		**Venue**
09:00-09:20	**Opening Ceremony**		**N101 (1F)**
09:20-10:00	**Chair: Yudong Yao, Stevens Institute of Technology, USA**		
	Keynote Session	**Prof. Yunhao Liu** *ACM Fellow, IEEE Fellow* *Tsinghua University, China* **Speech Title:** AIOT: From Digital-follow-up to Digital-Leadoff	
10:00-10:40		**Prof. Dusit Niyato** *IEEE Fellow, IET Fellow* *Nanyang Technological University, Singapore* **Speech Title:** Toward Scalable Generative AI via Mixture of Experts in Mobile Edge Networks and Metaverse	
10:40-11:10	**Break & Group Photo**		
11:10-11:50	**Chair: Jian Song, Tsinghua University, China**		**N101 (1F)**
	Keynote Session	**Prof. Chao Lu** *OSA Fellow* *The Hong Kong Polytechnic University, China* **Speech Title:** Integrated Optical Communication and Distributed Sensing Systems	
11:50-12:30		**Prof. MengChu Zhou** *Fellow of IEEE, IFAC, AAAS, CAA and NAI* *New Jersey Institute of Technology* **Speech Title:** Joint Optimization Approach to Multi-Unmanned-Aerial-Vehicle-Assisted Large-Scale Mobile Edge Computing	
12:30-13:30	**Lunch @ The Seasons Restaurant on Block N**		

Time	Activity		Venue
13:30-15:30	Technical Session	TS01- Machine Learning and Artificial Intelligence Symposium	N212 (2F)
		TS02- Wireless Networks and Communications	N214 (2F)
		TS03- Optical Communications and Networks	N316 (3F)
15:30-15:50	Break & Poster		
15:50-17:50	Technical Session	TS04- Machine Learning and Artificial Intelligence Symposium	N212 (2F)
		TS05- Wireless Networks and Communications	N214 (2F)
		TS06- Advances in Universal Wireless Communication for Internet of Things	N316 (3F)
18:30-20:30	Banquet @ Grand Hyatt Macau Ballroom 3		

Thursday, May 22, 2025			
Time	**Activity**		**Venue**
09:00-10:30	Technical Session	TS07- Wireless Networks and Communications	N212 (2F)
		TS08- Advances in Universal Wireless Communication for Internet of Things	N214 (2F)
		TS09- Vehicle-LAA-Road-Cloud Cooperation Theory and Technologies	N316 (3F)
10:30-10:50	Break		
10:50-12:20	Technical Session	TS10- Wireless Networks and Communications	N212 (2F)
		TS11- Advanced Technologies for Space-Air-Ground-Sea Integrated Networks	N214 (2F)
		TS12- Machine Learning and Artificial Intelligence Symposium	N316 (3F)
12:30-13:30	Lunch @ The Seasons Restaurant on Block N		

Keynote Speaker

Prof. Yunhao Liu

ACM Fellow, IEEE Fellow
Tsinghua University, China

09:20-10:00, May 21, 2025 **N101**

Bio.: Yunhao Liu, ACM Fellow, IEEE Fellow, Chair Professor at Tsinghua University. He also served as the Dean of School of Software in Tsinghua, and the MSU Foundation Professor and the Chairperson of Department of Computer Science and Engineering in Michigan State University. Yunhao received his B.S. degree in the Department of Automation at Tsinghua University, and an M.A. degree at Beijing Foreign Studies University, China. He received an M.S. and a Ph.D. degree in Computer Science and Engineering at Michigan State University, USA. Yunhao received Hong Kong ICT Best Innovation and Research Award Grand Prize 2007, China Ministry of Education First Class Natural Science Award 2010, Second Class National Natural Science Award 2011, ACM Presidential Award 2013, CCF Wang Xuan Award 2022, CCF First Class Natural Science Award 2024, CIE First Class Natural Science Award 2024 as well as many best paper awards including ACM MobiCom 2014 best paper award, ACM SenSys 2021 Best Paper Award, and SIGCOMM 2021 Best Student Paper Award.

Speech Title: AIOT: From Digital-follow-up to Digital-Leadoff

Abstract: We have passed the period of Digital-Follow-up, and now we are in Digital Twin, and trying to enter Digital-lead-off of Industrial Internet of Things. I will share lessons learned from our recent implementations of AIOT systems in oil refinery and glass factories in Middle East, United States, and China.

Keynote Speaker

Prof. Dusit Niyato

IEEE Fellow, IET Fellow
Nanyang Technological University, Singapore

10:00-10:40, May 21, 2025 **N101**

Bio.: Dusit Niyato is currently a President's Chair Professor in the College of Computing & Data Science (CCDS), Nanyang Technological University, Singapore. Dusit's research interests are in the areas of mobile generative AI, edge intelligence, quantum computing and networking, and incentive mechanism design. Currently, Dusit is serving as Editor-in-Chief of IEEE Transactions on Network Science and Engineering (TNSE). He is also an area editor of IEEE Communications Surveys and Tutorials, IEEE Transactions on Vehicular Technology (TVT), topical editor of IEEE Internet of Things Journal (IoTJ), lead series editor of IEEE Communications Magazine, and associate editor of IEEE Transactions on Wireless Communications (TWC), IEEE Transactions on Communications, and other ComSoc magazines. Dusit is the Members-at-Large to the Board of Governors of IEEE Communications Society for 2024-2026. He was named the 2017-2024 highly cited researcher in computer science. He is a Fellow of IEEE and a Fellow of IET.

Speech Title: Toward Scalable Generative AI via Mixture of Experts in Mobile Edge Networks and Metaverse

Abstract: The evolution of generative artificial intelligence (GenAI) has driven revolutionary applications like ChatGPT. The proliferation of these applications is underpinned by the mixture of experts (MoE), which contains multiple experts and selectively engages them for each task to lower operation costs while maintaining performance. Despite MoE's efficiencies, GenAI still faces challenges in resource utilization when deployed on local user devices. Therefore, we first propose mobile edge networks supported MoE-based GenAI. Rigorously, we review the MoE from traditional AI and GenAI perspectives, scrutinizing its structure, principles, and applications. Next, we present a new framework for using MoE for GenAI services in Metaverse to revolutionize content creation and interaction in the Metaverse. Specifically, we harness an MoE model's ability to efficiently manage complex data and complex tasks by dynamically selecting the most relevant experts running various sub-models to enhance the capabilities of GAI. We then present a novel framework that improves video content generation quality and consistency, and demonstrate its application through case studies. Our findings underscore the efficacy of MoE and GAI integration to redefine virtual experiences by offering a scalable, efficient pathway to harvest the Metaverse's full potential.

Keynote Speaker

Prof. Chao Lu

OSA Fellow
The Hong Kong Polytechnic University, China

11:10-11:50, May 21, 2025 **N101**

Bio.: Prof. Chao LU obtained his BEng in Electronic Engineering from Tsinghua University, China in 1985. He received his MSc and PhD degree from University of Manchester, UK in 1987 and 1990 respectively. He joined the School of Electrical and Electronic Engineering, Nanyang Technological University (NTU), Singapore in 1991 as a Lecturer and has served there as Senior Lecturer and Associate Professor until 2006. From June 2002 to December 2005, he was seconded to the Institute for Infocomm Research, Agency for Science, Technology and Research (A*STAR), Singapore, as Program Director and Department Manager leading a research group in the area of optical communication and fibre devices. Since April 2006, he has been with the Department of Electronic and Information Engineering, The Hong Kong Polytechnic University as a Professor. He serves as a Visiting Professor to the School of Electrical and Electronic Engineering, Nanyang Technological University (NTU) from Dec 2013 to Dec 2014. Over the years, he has published more than 300 papers in major international journals such as Optics Express, Optics Letters, IEEE Photonic Technology Letters and IEEE/OSA Journal of Lightwave Technology. He has presented many papers and has given a number of invited talks in major international conferences. He has been organizer or technical program committee member of many international conferences. His research interests are in the area of optical communication systems and networks, fibre devices for optical communication and sensor systems. In addition to academic research work, he has had many industrial collaborative research projects and has a number of awarded patents. He is a fellow of the Optical Society (OSA).

Speech Title: Integrated Optical Communication and Distributed Sensing Systems

Abstract: In recent decades, a comprehensive network of land-based and underwater optical communication fibers has been established to meet the global demand for connectivity. Lately, there has been increasing interest in using this existing infrastructure for environmental sensing to monitor changes in the physical environment. This interest is fueled by two primary factors: the widespread geographic coverage of optical communication fibers and their high sensitivity to optical detection, which together offer a range of previously unattainable sensing capabilities. These capabilities include the development of extensive networks for monitoring seismic activity, transportation systems, and more. Additionally, integrating sensing functions can greatly improve the reliability of the current optical network. Since a single optical fiber link can transmit hundreds of terabits or even petabits of data per second, any disruption can result in significant data loss. Many such disruptions are caused by unauthorized digging, wind, and other factors. Early detection of these disturbances can enable preventative measures to reduce data loss. In this presentation, we will explore recent advancements in combining optical communication and sensing technologies and discuss some application examples.

Keynote Speaker

Prof. MengChu Zhou

Fellow of IEEE, IFAC, AAAS, CAA and NAI
New Jersey Institute of Technology, USA

11:50-12:30, May 21, 2025 **N101**

Bio.: MengChu Zhou received his B.S. degree in Control Engineering from Nanjing University of Science and Technology, Nanjing, China in 1983, M.S. degree in Automatic Control from Beijing Institute of Technology, Beijing, China in 1986, and Ph. D. degree in Computer and Systems Engineering from Rensselaer Polytechnic Institute, Troy, NY in 1990. He joined the Department of Electrical and Computer Engineering, New Jersey Institute of Technology in 1990, and is now a Distinguished Professor. His interests are in intelligent automation, robotics, Petri nets, Internet of Things, edge/cloud computing, AI, and big data analytics. He has over 1300 publications including 17 books, over 900 journal papers including over 700 IEEE Transactions papers, 31 patents and 32 book-chapters. He is a recipient of Excellence in Research Prize and Medal from NJIT, Humboldt Research Award for US Senior Scientists from Alexander von Humboldt Foundation, and Franklin V. Taylor Memorial Award and the Norbert Wiener Award from IEEE Systems, Man, and Cybernetics Society, and Edison Patent Award from the Research & Development Council of New Jersey. He is Fellow of IEEE, International Federation of Automatic Control (IFAC), American Association for the Advancement of Science (AAAS), Chinese Association of Automation (CAA) and National Academy of Inventors (NAI).

Speech Title: Joint Optimization Approach to Multi-Unmanned-Aerial-Vehicle-Assisted Large-Scale Mobile Edge Computing

Abstract: This talk introduces how multiple unmanned aerial vehicles (UAVs) assist IoT devices in an edge computing system in accomplishing their tasks in an energy-efficient manner. UAVs serve these devices as edge servers, and fly to footholds to collect task data from the latter, execute tasks locally and return results to the latter. The optimization goal is to minimize overall energy consumption by jointly optimizing 1) association between each UAV and ground-based IoT devices, 2) deployments of UAVs, and 3) flight trajectories of UAVs. To achieve this, this talk proposes a Joint Optimization Approach (JOA) for the association between each UAV and ground-based IoT devices, deployment of UAVs, and UAV flight trajectories. It is verified on ten large-scale instances, and the results demonstrate its effectiveness in achieving minimal energy consumption, well outperforming the state-of-the-art methods. As a result, this research makes UAV-assisted large-scale mobile edge computing systems closer to its real applications to advance low-attitude space economic development.

Technical Session

TS01-Machine Learning and Artificial Intelligence Symposium

Session Chair

Longcheng Que, University of Electronic Science and Technology of China, China

13:30-15:30, May 21, 2025 **N212, 2nd Floor**

Invited Speech

13:30-14:00

Yudong Yao

Stevens Institute of Technology, USA

Bio.: Dr. Yudong Yao has been with Stevens Institute of Technology since 2000. From 2007 to 2018, he served as Stevens' department chair of electrical and computer engineering. Previously, Dr. Yao worked for Carleton University (Ottawa), Spar Aerospace (Montreal), and Qualcomm (San Diego). Dr. Yao' s research interests include information technologies, wireless communications, artificial intelligence, and telehealth. Dr. Yao is a Fellow of IEEE (2011), National Academy of Inventors (2015), Canadian Academy of Engineering (2017), and Asia-Pacific Artificial Intelligence Association (2022).

Speech Title: Deep Learning and Large Language Models in Interdisciplinary Research

Abstract.: Artificial intelligence, particularly deep learning and large language models, has made remarkable advances in recent years, achieving significant breakthroughs in the development of novel models, algorithms, and applications. As researchers in the field of engineering, we are committed to leveraging deep learning to identify emerging challenges, tackle new problems, and create innovative applications. In this talk, we will present our recent work in deep learning research for applications in signals and systems, with a particular focus on information engineering, biomedical engineering (medical imaging), and various other engineering domains. Our objective is to foster interdisciplinary collaboration in the field of deep learning research.

Invited Speech

14:00-14:30

Derick Miller

Stevens Institute of Technology / Nokia, USA

Bio.: Derick Miller holds an MSc in Computer Engineering from Stevens Institute of Technology and a BSc in Electrical Engineering from Rose-Hulman Institute of Technology. His expertise spans embedded systems, adaptive digital signal processing, and real-time implementation. At Nokia, his research focuses on advanced DSP algorithms for passive intermodulation cancellation and digital predistortion in 5G mobile radios. He also explores computer vision, synthetic data generation, and machine learning for autonomous systems. His work bridges both theoretical development and high-performance deployment in next-generation wireless and embedded platforms.

Speech Title: Analyzing the Impact of Training Maritime UAV Object Detection Models on Synthetic and Real Data

Abstract.: Unmanned aerial vehicles (UAVs) are increasingly utilized in maritime search and rescue (SAR) enabling rapid response and wide coverage at lower costs than traditional methods. However, building accurate object detection models for SAR UAVs is challenging due to limited access to high-quality labeled maritime data. Synthetic data has emerged as a valuable supplement to real data, particularly in fields where data collection is costly or limited. This study explores synthetic data' s effectiveness in training maritime SAR object detection models using the SeaDroneSee dataset and evaluates varying synthetic-to-real data ratios across three architectures: Faster R-CNN, YOLOv11, and RetinaNet. Experiments are conducted on the JARVIS high-performance computing cluster, and this presentation offers a detailed analysis of the findings, examining synthetic data's practical benefits and limitations in SAR applications.

Oral Presentations

14:30-14:45

Paper ID: #1571126809

Paper Title: Low-light Image Enhancement via Virtual Exposure and Structural Decomposition

Authors: Kai Che, Jian Lv, Yun Zhou, Anqing Chen, Jia Wei, Longcheng Que

Presenter: Kai Che, University of Electronic Science and Technology of China, China

14:45-15:00

Paper ID: #1571126015

Paper Title: Lightweight Reversible Network for Infrared Image Denoising

Authors: Yun Zhou, Jiaqi Liang, Kai Che, Mengyuan Tao, Tao Zhou, Jiayuan Gong and Jian Lv

Presenter: Yun Zhou, University of Electronic Science and Technology of China, China

15:00-15:15

Paper ID: #1571124252

Paper Title: A Causal Convolutional Low-rank Representation Model for Imputation of Water Quality Data

Authors: Xin Liao, Bing Yang, Tan Dongli and Cai Yu

Presenter: Xin Liao, Southwest University, China

15:15-15:30

Paper ID: #1571124563

Paper Title: Double Regularized Second-Order Low-Rank Representation for Web Service QoS Prediction

Authors: Hao Wu, adn Jialaing Wang

Presenter: Hao Wu, University of Electronic Science and Technology of China, China

Technical Session

TS02-Wireless Networks and Communications

Session Chair

Lu Gan, OPPO, China

13:30-15:30, May 21, 2025 **N214, 2nd Floor**

Invited Speech

13:30-14:00

Jian Song

Tsinghua University, China

Bio.: Received his PhD degrees from Electronic Engineering Department, Tsinghua University, China in 1995,and was then Postdoctor in The Chinese University of Hong Kong and University of Waterloo, Canada. He worked in USA for seven years before joining the faculty team of Tsinghua University in 2005 as a full professor.

He is Director of DTV Technology R&D Center, major technical contributor for the Chinese digital terrestrial television broadcasting standard and also the director of National DTV Engineering Lab (Beijing).

Dr. Song is VP publication of IEEE Broadcasting Technology Society (BTS), also Editor-in-Chief (EiC) of IEEE Access for BTS. He is Vice Chairman of ITU-R WP 6A and founding EiC of ITU academic Journal named Intelligent and Converged Networks. Dr. Song's current research interest is in the digital broadcasting, network convergence, wireless communications, visible light communications (VLC), powerline communications. He is Fellow of IEEE and IET.

Speech Title: Field Trial for Coverage Performance of Wireless Digital Multimedia Broadcasting Network

Abstract.: Coverage performance for Digital Television/ Terrestrial Multimedia Broadcasting-Advance system and FeMBMS-based broadcasting system has been evaluated through the field tria,l focusing on high-speed mobility and reasonably high spectrum efficiency with the same transmitter facility of same the RF hardware, frequency and power. Results show that terrain is major deterministic factor for each system and well-designed longer time-interleaver for FeMBMS is indispensable to users' satisfaction.

Invited Speech

14:00-14:30

Lu Gan

OPPO, China

Bio.: Ms. Lu GAN, Principal Engineer at OPPO, brings over two decades of technical expertise in cellular telecommunication security research. As a key contributor to 3GPP SA3 standards development, she has played a pivotal role in shaping cellular security frameworks for 5G/6G. Her leadership is evidenced by spearheading the publication of multiple white papers on next-generation cellular telecommunication security.

Speech Title: Physical Layer Group Key Generation for 3GPP AIoT System

Abstract.: 3GPP AIoT system is an IoT service with IoT devices powered by wireless energy haevesting. Due to the power consrtain of AIoT devices, wireless physical layer key generation can be leveraged to protect sensitive data in AIoT system.

This paper captures a Physical Layer Group Key Generation (PLGKG) scheme, and proposes precoding weight coefficient design for AIoT Reader, facilitating multiple AIoT devices reseive the same RSS and extract common group key.

By the above design, this paper enables efficient key generation for AIoT service, with good compliance with 3GPP RAN protocol.

Invited Speech

14:30-15:00

Marek Galinski

Slovak University of Technology, Slovakia

Bio.: Marek Galinski (Member, IEEE) received the Ph.D. degree from FIIT STU, Bratislava, Slovakia in 2020. He is currently an Associate Professor with FIIT, STU. He is also the Head of the Automotive Innovation Laboratory, FIIT STU. He is the coauthor of a book focused on both technical and legal aspects of the cybersecurity of automated vehicles, which has been written in cooperation with the Faculty of Law, Comenius University in Bratislava and published in Wolters Kluwer. With research focused mainly on V2X communications and intelligent mobility in terms of communication architectures and computer networks optimization or security. Together with an interest in LEO satellite networks and new generations of cellular networks, he is focused on the management of

heterogeneous networks in terms of low latency and reliability for safety-critical applications in the V2X environment. Within the laboratory, the research team also focuses on data collection and data analysis from different types of sensors and are dealing with the sensor fusion applications in the real-time. In 2024 he was Visiting Researcher to Christian Doppler Laboratory for Digital Twin assisted AI for sustainable Radio Access Networks at TU Wien in Vienna, Austria.

Speech Title: V2X for Mission Critical Services - State of the Art and Beyond

Abstract.: Vehicle-to-Everything (V2X) communication enables many innovative and safety-critical applications for safer, more resilient, and sustainable road transportation. Nevertheless, there is still no consensus on some crucial standards and access technologies in general. While the EU is heading towards wide implementation of ITS-G5 based on 802.11p, other parts of the world are more in favour of a V2X communication stack that relies on standard 3GPP cellular networks. In almost every research paper regarding V2X communication, we read a lot about PC5, yet the real world has adopted this technology very slowly. This presentation covers the current state of the art in V2X communication, provides a holistic comparison of direct vs network-based communication, and discusses open challenges for the upcoming years in the adoption of massive V2X. The presentation will not omit hot topics such as AI-native V2X applications or Mobile Edge Cloud (MEC) capabilities in 5G Networks.

Oral Presentations

15:00-15:15

Paper ID: #1571124305

Paper Title: Improved BP-Based Cooperative Localization Algorithm of Factor Graph in UAV Networks

Authors: Pubo Bao, Jianing Zhao, Yiming Hu, Changjian Song, Zhenjia Gao, Xuenan Ni, Chen Wang, Xinming Zhao

Presenter: Pubo Bao, Southeast University, China

15:15-15:30

Paper ID: #1571134833

Paper Title: Channel Estimation in RIS-Assisted Wireless Communication System Based on Attention-Based Convolutional Neural Network

Authors: Chaoyang Li; Xiaohan Li; Tingting Gan; Lei Yang; Kwok L. Chung

Presenter: Chaoyang Li, Guangdong University of Science and Technology, China

Technical Session

TS03-Optical Communications and Networks

Session Chair

Wanli Wen, Chongqing University, China

13:30-15:30, May 21, 2025 **N316, 3rd Floor**

Invited Speech

13:30-14:00

Huiqin Wang

Lanzhou University of Technology, China

Bio.: Professor Huiqin Wang is currently a doctoral supervisor at the School of Computer and Communication, Lanzhou University of Technology. She is a senior member of the Chinese Optical Society and the Gansu Institute of Electronics, and the lead instructor of the provincial-level quality course Principles of Communication in Gansu Province. She received her bachelor's degree from Lanzhou Jiaotong University in 1996 and her Ph.D. in Engineering from Xi’ an University of Technology in 2011. Her research interests focus on optical communication and information processing. Professor Wang has led or participated in over 20 research projects, including those funded by the National Natural Science Foundation of China and the Army 863 project. Her work has been recognized with ten provincial and ministerial science and technology awards, including the Second Prize of Gansu Science and Technology Progress Award. She holds fifteen authorized invention patents, six utility model patents, and eleven software copyrights. She has published more than 100 academic papers in journals such as Optics and Laser Technology, Optical Letters, and Science China. As a key academic organizer, she initiated and successfully hosted the 10th International Conference on Information Communication and Networks (ICCN 2022) and the 5th Forum on Wireless Optical Communication Theory and Networking Technologies, significantly promoting international academic exchange in the field.

Speech Title: Optical Orthogonal Frequency Division Multiplexing with Differential Index Modulation

Abstract.: This study proposes a differential index modulation (DIM) scheme for optical orthogonal frequency division multiplexing (OOFDM) systems, achieving channel-estimation-free decoding

through an innovative time-frequency dispersion matrix design. The matrix integrates unitary characteristics with a Lemer code-based index mapping mechanism, enabling differential operations in the time-frequency domain to eliminate dependency on complex channel estimation in conventional systems. To address the high computational complexity of maximum likelihood detection, a deep learning-based DIMFormer detector is developed, reducing computational complexity by 38.98% and time complexity by 99% compared to traditional methods. Simulations under exponential Weibull turbulence channel models and proof-of-concept experiments demonstrate that the proposed scheme maintains a maximum signal-to-noise ratio (SNR) loss of no more than 4 dB (as low as 1 dB in typical scenarios) across various turbulence intensities and higher-order modulation configurations, while fully retaining the channel-estimation-free advantage. The work provides a comprehensive solution combining theoretical innovation (including theoretical bit error rate analysis) and engineering feasibility for optical communication systems in complex environments.

Invited Speech

14:00-14:30

Xin Li

Beijing University of Posts and Telecommunications, China

Bio.: Xin Li is a postdoctor at BUPT. Her current research focuses on optical fiber networks, satellite optical communication networks, and the collaboration of wide-area intelligent computing centers. Up to now, she has published more than 20 international journal and conference papers.

Speech Title: Large-Scale and Highly Dynamic Laser-Based Satellite Communication Networks

Abstract.: With the continuous evolution of the sixth-generation mobile communication technology (6G), satellite communication plays an increasingly important role in the aspects of precise navigation and positioning, real-time transmission of remote sensing data and all-time, all-domain communication. Laser-based satellite networking is characterized by large capacity, low latency and high bandwidth, and is expected to be an effective complement to terrestrial networks. However, laser-based satellite networking encounters a series of technical challenges, such as constellation and topology design, architecture system, routing algorithm and reliability assurance, due to dynamic changes of laser links, uneven traffic distribution, space environment, etc. Therefore, the research of high-reliability laser-based satellite networking technology for large-scale and highly dynamic network has become a key scientific issue that needs to be broken through in current satellite communication.

Oral Presentations

14:30-14:45

Paper ID: #1571127942

Paper Title: Heterogeneous Integration of Optical Biosensing with Electrode Coated ECG and PPG Applications

Authors: Wen-Cheng Lai, Yuan Sheng Lin, Hong-Yi Lin

Presenter: Wen-Cheng Lai, Ming Chi University of Technology, China

14:45-15:00

Paper ID: #1571126651

Paper Title: Space-Time-Frequency Index Modulation in Optical Wireless Communications

Authors: Huiqin Wang, Qihan Tang, Zhen Wang, Minghua Cao, Yue Zhang, Qingbin Peng

Presenter: Zhen Wang, Lanzhou University of Technology, China

15:00-15:15

Paper ID: #1571123424

Paper Title: 31.2Tb/s DCI Transmission System Over 3×80km Larger Aeff Fibre

Authors: Xin Zhao, Bingbing Wu, Fang Li, Rui Tang, Lu Liu, Xiaohua Tang

Presenter: Xin Zhao, China Academy of Information Communications Technology, China

15:15-15:30

Paper ID: #1571125299

Paper Title: TCM_ICPR: Personalized Recommendation Algorithm for Traditional Chinese Medicine Prescriptions Based on Knowledge Graph Enhancement

Authors: Liping Fu, Chaobo Zhang

Presenter: Chaobo Zhang, Guangdong University of Science and Technology, China

Technical Session

TS04-Machine Learning and Artificial Intelligence Symposium

Session Chair

Maoqiang Wu, South China Normal University, China

15:50-17:50, May 21, 2025 **N212, 2nd Floor**

Invited Speech

15:50-16:20

Xu Chen

Sun Yat-sen University, China

Bio.: Dr. Xu Chen is a full professor at the School of Computer Science at Sun Yat-sen University, serves as the director of the Institute of Advanced Network and Computing Systems and the deputy director of the National and Local Joint Engineering Laboratory of Digital Homes. He was selected as the German Humboldt Fellow, the National Youth Talent Project and the Guangdong Province High-Level Talent Project. He has won academic honors such as the IEEE Distinguished Lecturer, the Hong Kong Young Scientist Award, the runner-up of the IEEE Computer Society Annual Best Paper Award, and the IEEE INFOCOM/IWQoS/ICC Best Paper (runner-up) Awards. He serves as an editorial board member of internationally renowned journals such as IEEE JSAC Series, TMC, TWC, TVT, and the Information Journal of the Chinese Academy of Engineering.

Speech Title: Enabling Real-Time Deep Graph Inference with Edge Computing

Abstract.: Graph Neural Networks (GNNs) have gained growing interest in miscellaneous applications owing to their outstanding ability in extracting latent representation on graph structures. To render GNN-based service for IoT-driven smart applications, the traditional model serving paradigm resorts to the cloud by fully uploading the geo-distributed input data to the remote datacenter. However, our empirical measurements reveal the significant communication overhead of such cloud-based serving and highlight the profound potential in applying the emerging edge computing. To maximize the architectural benefits brought by edge computing, in this talk we present Fograph, a novel distributed real-time GNN inference framework that leverages diverse resources of multiple edge nodes in proximity to IoT data sources. By introducing heterogeneity-aware execution planning and GNN-specific compression techniques, Fograph tailors its design to well accommodate the unique characteristics of GNN serving in edge environments.

Invited Speech

16:20-16:50

Yiqing Zhou

Institute of Computing Technology, Chinese Academy of Sciences, China

Bio.: Yiqing Zhou (S'03–M'05–SM'10) received the B.S. degree in communication and information engineering and the M.S. degree in signal and information processing from the Southeast University, China, in 1997 and 2000, respectively. In 2004, she received the Ph.D. degree in electrical and electronic engineering from the University of Hong Kong, Hong Kong. Now she is a professor in Wireless Communication Research Center, Institute of Computing Technology, Chinese Academy of Sciences. Dr. Zhou has published over 150 papers and five book/book chapters in the areas of wireless mobile communications. Dr. Zhou is the associate/guest editor for IEEE Trans. Vehicular Technology (TVT), IEEE IoT Journal, IEEE VTM, IEEE JSAC (Special issue on "Broadband Wireless Communication for "High Speed Vehicles" and "Virtual MIMO"), DCN, ETT and JCST. She is also the TPC co-chair of ChinaCom2012, symposia co-chair of IEEE ICC2015, symposium co-chair of GLOBECOM2016, ICC2014, tutorial co-chair of ICCC2014 and WCNC2013, and the workshop co-chair of SmartGridComm2012 and GlobeCom2011. She received Best Paper Awards from DCN2024, WCSP2019, IEEE ICC2018, PIMRC2015, ICCS2014 and WCNC2013.

Speech Title: Query-Aware Semantic Encoder-Based Resource Allocation in Task-Oriented Communications

Abstract.: Task-oriented communications with semantic encoders are promising to enhance the communication efffciency, by selecting and transmitting valuable data according to task requirements/queries. However, existing semantic encoders lack the capability to track the changing in queries, leading to biased data selection. This paper proposes a query-aware semantic encoder, i.e., Query-Data Cross (QDC) encoder for task-oriented communications. By consistently focusing on data features that are most relevant to the current query at the transmitter, QDC can adapt to changing queries. Based on the dynamic semantic relevance obtained by QDC, a relevance-based data selection and bandwidth allocation optimization (RDSBA) problem is formulated, considering a multi-device task-oriented communication system, where devices should transmit valuable data with high relevance to the queries broadcasted by the base station (BS). RDSBA aims to maximize the data profft of all devices, which is deffned as the difference between the relevance of data selected for the BS and the cost of obtaining the data. Then, a DRL-based data selection and bandwidth allocation (DRL-DB) algorithm is proposed to solve the NP-hard optimization problem. Simulation results demonstrate that QDC can smartly track the changing in queries and achieve an accuracy of at least 85% in relevance evaluation, more than 8% higher than existing schemes. Based on the relevance provided by QDC, the proposed RDSBA scheme with DRL-DB can increase the data profft by at least 18%, comparing to existing schemes.

Oral Presentations

16:50-17:05

Paper ID: #1571133813

Paper Title: Reputation-Driven Communication Optimization for Wireless Edge Data Verification

Authors: Jian Li, Yibo Chen, Jincheng Cai, Shumin Yao, and Ying Zeng

Presenter: Jian Li, Guangdong University of Technology, China

17:05-17:20

Paper ID: #1571126802

Paper Title: An Efficient Method of Infrared-Visible Image Fusion

Authors: Longcheng Que, Tao Zhou, Tao Mneyuan, Kai Che, Yun Zhou, Jiaqi Liang and Jian Lv

Presenter: Longcheng Que, University of Electronic Science and Technology of China, China

17:20-17:35

Paper ID: #1571124177

Paper Title: Adaptive Learning Rate Optimizer In Hierarchical Clustering Asynchronous Federated Learning

Authors: Jiale Zhang, Zijing Rong and Mingjun Dai

Presenter: Zijing Rong, Shenzhen University, China

17:35-17:50

Paper ID: #1571128018

Paper Title: AI-Driven Intelligent Learning Companions: A Multimodal Fusion Framework for Personalized Education

Authors: Cunqian You, Huijuan Lu, Ping Li, and Xiaoyu Zhao

Presenter: Cunqian You, China Jiliang University, China

Technical Session

TS05-Wireless Networks and Communications

Session Chair

Gordon Ning Liu, Soochow University, China

15:50-17:50, May 21, 2025 **N214, 2nd Floor**

Invited Speech

15:50-16:20

Gordon Ning Liu

Soochow University, China

Bio.: Gordon Ning Liu received the B.S.E.E. degree from Southeast University, Nanjing, China and the Ph.D. degree from Nanyang Technological University, Singapore. He is currently a Distinguished Professor with the School of Electronic and Information Engineering, Soochow University, Suzhou, China. Before joining Soochow University, he was the optical technology director of Huawei France Research Institute. His recent research interest includes the optical transmission and switching systems, algorithms and devices for 6G, data centers, intelligent networked vehicles and industrial Internet.

Speech Title: Intra-Vehicle Optical Networks and Its MPI Mitigation

Abstract.: In recent years, with the emergence of autonomous driving, the automotive industry has been undergoing a profound revolution. Autonomous vehicles rely on multiple sensing devices to perceive their surroundings and depend on high-speed, reliable intra-vehicle networks (IVNs) for data transmission. As the number of sensors grows, the data rates of both uplink and downlink in the IVN have sharply increased. The fiber optics communication has emerged as a prospective solution for IVNs due to its advantages, including high transmission bandwidth, low attenuation, strong resistance to electromagnetic interference, and light weight. However, the inherently harsh vehicular environment, including wide temperature range, frequent vibrations, and high levels of contamination, poses significant challenges to the deployment of fiber optics communication in IVNs. To address these issues, novel IVN configurations and noise elimination methods have been proposed.

Invited Speech

16:20-16:50

Wanli Wen

Chongqing University, China

Bio.: Wanli Wen earned his B.S. degree from Anhui University of Finance and Economics in Bengbu, China, in 2011. He then obtained his M.S. degree in Communication and Information Systems from Hangzhou Dianzi University, Hangzhou, China, in 2014, followed by a Ph.D. degree in Information and Communications Engineering from Southeast University, Nanjing, China, in 2019. Currently, Dr. Wen serves as an Associate Professor at the School of Microelectronics and Communication Engineering, Chongqing University, China. Between 2014 and 2015, he held an engineering position at Spreadtrum Communications (Shanghai) Co., Ltd. From 2019 to 2020, he worked as a postdoctoral research fellow at the Singapore University of Technology and Design, under the supervision of Prof. Tony Q. S. Quek. Dr. Wen received recognition as an exemplary reviewer for IEEE Communications Letters in 2017 and served as the Session Chair for FAIML'22. His research focuses on green communications, mobile/multi-access edge computing and caching, federated learning, holographic communications, physical layer security, as well as semantic communications.

Speech Title: Federated Edge Learning: Theory, Technologies, and Applications

Abstract.: In the era of big data, the exponential growth of data has fueled the development of artificial intelligence and machine learning while simultaneously introducing challenges related to data privacy and computational efficiency. Mobile Edge Computing (MEC) and Federated Learning (FL) have emerged as promising solutions to address these issues. MEC enhances computational efficiency and real-time processing by deploying resources at the edge of the network, reducing data transmission delays. However, centralizing data at edge servers in MEC can lead to privacy risks and difficulty ensuring data isolation across users. On the other hand, FL, as a decentralized machine learning framework, preserves user privacy by training models locally and transmitting only model updates. Yet, FL faces its own challenges, including high communication costs, device heterogeneity, and non-uniform data distributions. To overcome these limitations, the integration of MEC and FL has given rise to Federated Edge Learning (FEEL). FEEL combines the advantages of both technologies by executing FL training at the network edge, reducing communication overhead and leveraging MEC's computational power to accelerate model processing. This approach significantly addresses communication bottlenecks, minimizes costs, and mitigates privacy concerns associated with traditional centralized data processing systems. This speech will provide an overview of the key principles, technological frameworks, and diverse applications of FEEL. Additionally, it will explore how

FEEL is driving advancements in practical domains such as user behavior prediction, industrial anomaly detection, medical diagnostics, and autonomous driving. By bridging the capabilities of MEC and FL, FEEL represents an exciting frontier for developing efficient, secure, and scalable AI solutions in the age of connected intelligence.

Oral Presentations

16:50-17:05

Paper ID: #1571124579

Paper Title: A Novel RFF Extraction and Recognition Method Based on DMRS and Deep Learning

Authors: Xinming Zhao, Jianing Zhao, Tianwen Yang, Changjian Song, Chen Wang, Xuenan Ni, Pubo Bao, Yunfei Wang

Presenter: Xinming Zhao, Southeast University, China

17:05-17:20

Paper ID: #1571133619

Paper Title: Implementation and Experimental Verification of DTMB-A Single Frequency Network

Authors: Yongle Sun, Jian Song, Chao Zhang, Yonglin Xue, Haidong Fang

Presenter: Jian Song, Tsinghua University, China

17:20-17:35

Paper ID: #1571132741

Paper Title: On the Security of Caesar Cipher, Linear Cipher and Enhanced Linear Cipher in Hiragana Messages

Authors: Fuyou He, Chai Wen Chuah*

Presenter: Fuyou He, Guangdong University of Science and Technology, China

17:35-17:50

Paper ID: #1571148636

Paper Title: SFLF: Social Forces Based Leader-Follower Emergency Evacuation Model

Authors: Fengting Yan, Yuanzi He, Hong Yang, Yu Meng, Fukui Dai, Hong Lan

Presenter: Fengting Yan, Guangdong University of Science and Technology, China

Technical Session

TS06-Advances in Universal Wireless Communication for Internet of Things

Session Chair

Weiwei Jiang, Beijing University of Posts and Telecommunications, China

15:50-17:50, May 21, 2025 **N316, 3rd Floor**

Invited Speech

15:50-16:20

Weiwei Jiang

Beijing University of Posts and Telecommunications, China

Bio.: Dr. Weiwei Jiang received the B.Sc. and Ph.D. degrees from the Department of Electronic Engineering, Tsinghua University, Beijing, China, in 2013 and 2018, respectively. He is currently an assistant professor with the School of Information and Communication Engineering, Beijing University of Posts and Telecommunications, and Key *Laboratory* of Universal Wireless Communications, Ministry of Education. His current research interests include artificial intelligence, machine learning, big data, wireless communication and edge computing. He has published more than 60 academic papers in IEEE Trans and other journals, with more than 3800 citations in Google Scholar. He is one of 2023 and 2024 Stanford's List of World's Top 2% Scientists.

Speech Title: Distributed Integrated Sensing and Communication Systems for 6G Communications

Abstract.: With the vision of "Internet of Everything", 6G has put forward higher demands for the communication and sensing capabilities of a vast number of nodes, making the integration of communication and sensing one of the dominant trends in 6G technology and services. In low-altitude economic scenarios, high-precision sensing of low-altitude unmanned aerial vehicles (UAVs) is required. Traditional single-node sensing systems face significant limitations, and the importance of distributed integrated sensing and communication (ISAC) systems is increasingly prominent. This study aims to address the demand for high-precision real-time sensing capabilities of low-altitude UAV swarms in the intelligent low-altitude economic scenarios of the 6G era, and explore the high-precision and high-resolution positioning technology for multiple UAV targets in complex dynamic environments by distributed ISAC systems.

Invited Speech

16:20-16:50

Zhen Chen

South China University of Technology, China

Bio.: Zhen Chen is currently a Full Professor with the Jinan University, Guangzhou, China. From 2020 to 2023, he was a Lead Engineer with Hong Kong Applied Science and Technology Research Institute, Hong Kong, China. From 2023 to 2025, he was a Post-Doctoral Research Fellow with the City University of Hong Kong and University of Macau, respectively. His current research interests include large language model, integrated radar and communication, channel estimation, AI communications and 5G/6G secure communication. He serves as an editor for IEEE Open Journal of the Communications Society; Digital Communications and Networks (Elsevier); Signal Processing (Elsevier); Applied Soft Computing (Elsevier) and IEEE Open Journal of Signal Processing.

Speech Title: RapidPD: Rapid Human and Pet Presence Detection System for Smart Vehicles via Wi-Fi

Abstract.: Heatstroke and life threatening incidents resulting from the retention of children and animals in vehicles pose a critical global safety issue. Current presence detection solutions often require specialized *hardware* or suffer from detection delays that do not meet safety standards. To tackle this issue, by remodeling channel state information (CSI) with theoretical analysis of path propagation, this study introduces RapidPD, an innovative system utilizing CSI in subcarrier dimension to detect the presence of humans and pets in vehicles. The system models the impact of motion on CSI and introduces motion statistics in subcarrier dimension using a multi-layer autocorrelation method to *quantify* environmental changes. RapidPD is implemented using commercial Wi-Fi chipsets and tested in real vehicle environments with data collected from 10 living organisms. Experimental results demonstrate that RapidPD achieves a detection accuracy of 99.05% and a true positive rate of 99.32% within a 1-second time window at a low sampling rate of 20 Hz.

Oral Presentations

16:50-17:05

Paper ID: #1571124185

Paper Title: A Campus Bullying Online Detection System Based on Wi-Fi Sensing and Deep Learning

Authors: Yichang Li, Cheng Wei, Xinsheng Zhu, Haoyang Wang, Yong Li, Limeng Dong

Presenter: Yichang Li, Northwestern Polytechnical University, China

17:05-17:20

Paper ID: #1571133334

Paper Title: Indoor Positioning And Navigation Based on WIFI

Authors: Hong Li, Yanrong Chen, Xiumei Mao, Jianwen Huang

Presenter: Hong Li, Guangdong University of Science and Technology, China

17:20-17:35

Paper ID: #1571123372

Paper Title: A Survey of Authentication Protocols for Enhancing Security in Underwater Communication Systems

Authors: Sai Varshitha G, Rupa Chiramdasu, Divya D, Thippa Reddy Gadekallu and Gautam Srivastava

Presenter: Thippa Reddy G, Zhejiang University, China

17:35-17:50

Paper ID: #1571127846

Paper Title: Securing UAV Networks: Exploring Computationally Efficient Authentication Protocols

Authors: Muhammad Asghar Khan

Presenter: Muhammad Asghar Khan, Prince Mohammad Bin Fahd University, Saudi Arabia

Technical Session

TS07-Wireless Networks and Communications

Session Chair

Jianping Li, Guangdong University of Technology, China

09:00-10:30, May 22, 2025 **N212, 2nd Floor**

Invited Speech

09:00-09:30

Jian Wang

Huazhong University of Science and Technology, China

Bio.: Jian Wang received his PhD in physical electronics from Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China, in 2008. He worked as a postdoctoral *research* associate in the Optical Communications Laboratory, University of Southern California, Los Angeles, California, United States, from 2009 to 2011. Currently, he is working as a professor at Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology. He is the vice director of Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology. He leads the Multi-Dimensional Photonics Laboratory. His research interests include optical communications, optical signal processing, silicon photonics, photonic integration, orbital angular momentum, and structured light. He has authored or coauthored more than 330 refereed international journal papers on Science, Science Advances, Nature Photonics, Nature Nanotechnology, Nature Communications, Light: Science and Applications, Physical Review Letters, etc. He has authored and co-authored more than 190 international conference papers on OFC, ECOC, CLEO, etc. He has also given more than 140 tutorial/keynote/invited talks at international conferences, including plenary talk at PhotonicsAsia2023, invited talk at OFC2014, tutorial talk at OFC2016, and invited talk at OFC2024. He is currently an IEEE Fellow, OPTICA Fellow, SPIE Fellow and COS Fellow. He is also an IEEE Photonics Society Distinguished Lecturer.

Speech Title: Advances In Multi-Scenario Structured Light Communications

Abstract.: Structured light refers to special light beams with spatially variant amplitude, phase and polarization distribution. Optical vortics with helical phase fronts carrying orbital angular momentum (OAM) and vector beams are typical structured light beams. Structured light has given rise to many developments, especially in *optical* communications for efficient capacity scaling in recent years. This talk will present recent research progress in multi-scenario structured light

communications, including free space, underwater, fiber and chip. Moreover, we will also talk about multi-dimensional optical signal transmission and data processing, and robust structured light communications in complex environment. Advanced structured light applications beyond communications will be also discussed.

Invited Speech

09:30-10:00

Jianping Li

Guangdong University of Technology, China

Bio.: Dr. Jianping Li is the Professor of School of Information Engineering, Guangdong University of Technology, Guangzhou China. He is engaged in research on high-speed fiber communication system including optical frequency *comb* generation and optical interconnect based on spatial division multiplexing, etc.

Speech Title: Multidimensional-Division-Multiplexing Based Optical Transmission Technology

Abstract.: To break through the capacity bottleneck induced by the increasing demand of data traffic, multi-dimensional multiplexing techniques of optical signal have been studied widely. To relieve bandwidth requirements and satisfy ultra-high capacity, various technologies, including nonlinear frequency division multiplexing (NFDM), mode division multiplexing (MDM) techniques, have been proposed to achieve high-speed large-capacity transmission systems. In this talk, the studies based on the NFDM and MDM transmissions will be shown.

Oral Presentations

10:00-10:15

Paper ID: #1571124087

Paper Title: Alternating Optimization of Phase Shift and Beamforming in a RIS-aided Hybrid NOMA System

Authors: Xuenan Ni, Jianing Zhao, Changjian Song, Jianyi Zhou, Xiaoying Zhang and Yunfei Wang

Presenter: Xuenan Ni, Southeast University, China

10:15-10:30

Paper ID: #1571124582

Paper Title: Two-Dimensional Estimation Method for Bistatic MIMO Radar Assisted by Intelligent Reflecting Surfaces

Authors: Xinpeng Xue, Fangqing Wen, Han Wang

Presenter: Fangqing Wen, China Three Gorges University, China

Technical Session

TS08-Advances in Universal Wireless Communication for Internet of Things

Session Chair

Yulei Wang, South-Central Minzu University, China

09:00-10:30, May 22, 2025 **N214, 2nd Floor**

Invited Speech

09:00-09:30

Xuran Li

Shandong Normal University, China

Bio.: Xuran Li is an Associate Professor at the Shandong Normal University (SDNU), Jinan China. He received his M.Sc. degree and Ph.D. degree from the Faculty of Information and Technology of Macau University of Science and Technology (MUST) in 2015 and 2018, respectively. Since November 2018, he has been a full-time faculty member with the Physics and Electronic Science School of SDNU, Jinan China. His research interests include wireless communication networks, physical layer security, and integrated sensing and communication. He has authored 27 academic publications, including several in top-tier IEEE journals, such as the IEEE Journal on Selected Areas in Communications (JSAC). One of his papers received the 2022 Outstanding Paper Award from the Chinese Journal on Internet of Things. He holds committee memberships in both the Communication & Microwave Technology Committee and the Space-Earth Information Technology Committee of the Shandong Electronics Society. His academic service includes roles as Session/Workshop Chair for international conferences like NCIC 2024, and he has contributed as a Technical Program Committee member for various IEEE conferences.

Speech Title: Performance Tradeoff and Security Enhancement in ISAC Networks

Abstract.: Integrated sensing and communication (ISAC) stands as a cornerstone of 6G networks, promising to unify spectrum-hungry radar sensing and ultra-reliable communications. Yet, its real-world adoption faces critical bottlenecks: dynamic interference, mobility-induced signal degradation, and vulnerability to eavesdropping. Addressing these challenges, this work proposes a unified ISAC framework that resolves the spectrum-sensing-communication trilemma through three aspects: (1) Stochastic geometry-driven interference prediction enabling proactive resource allocation, (2) Mobility-resilient beamforming with vibration-tolerant synchronization for UAV networks, and (3) Physical-layer security mechanisms that transform channel dynamics into anti-

eavesdropping shields. Validated via field trials and aligned with 3GPP standardization roadmaps, our solutions empower ISAC systems to deliver simultaneous high-precision sensing and military-grade secure communications, accelerating 6G deployment for smart cities and autonomous infrastructure.

Oral Presentations

09:30-09:45

Paper ID: #1571134732

Paper Title: Network Resource Optimization for Mobile Edge Computing: A Deep Learning Approach

Authors: Ziyan Ren, Weiwei Jiang, Ao Liu, Sai Huang, Jianbin Mu, Shang Liu and Weixi Gu

Presenter: Weiwei Jiang, Beijing University of Posts and Telecommunications, China

09:45-10:00

Paper ID: #1571134734

Paper Title: Deep Learning-based Wireless Fingerprint Representation Learning and Device Identification

Authors: Yuhan Ye, Weiwei Jiang, Ao Liu, Sai Huang, Jianbin Mu, Shang Liu and Weixi Gu

Presenter: Weiwei Jiang, Beijing University of Posts and Telecommunications, China

10:00-10:15

Paper ID: #1571138641

Paper Title: Modeling and Analyzing Periodic Sensor-Reading Modification Attacks in Cyber-Physical Systems

Authors: Wenli Duo, Shouguang Wang, and MengChu Zhou

Presenter: Shouguang Wang, Zhejiang Gongshang University, China

10:15-10:30

Paper ID: #1571133894

Paper Title: Photonic Integrated Circuit (PIC)-based Sin-Sin2 Frequency Discriminator (FD) Filter for 5G Application: SEM Engineering Analysis

Authors: Joseph T. Placiente Jr, Benjamin B. Dingel, Marinella Dennise V. Guzman, Amante Jr. Dumalus, Wayne Jasper G. Sy, John Emmanuel Santos, Tim M. Jeff Rodriguez, Alessandra Ilsa Molo, Clint Dominic Bennett, Mae M. Garcillanosa, Jennifer C. Dela Cruz

Presenter: Mae M. Garcillanosa, Mapúa Malayan Colleges Laguna, Philippines

Technical Session

TS09-Vehicle-LAA-Road-Cloud Cooperation Theory and Technologies

Session Chair

Yufeng Chen, Hubei University of Automotive Technology, China

09:00-10:30, May 22, 2025 **N316, 3rd Floor**

Oral Presentations

09:00-09:15

Paper ID: #1571124005

Paper Title: Lightning in the Dark: Scheduling Non-Clairvoyant Coflows at Wireless Edge

Authors: Yuchen Yang and Shaowei Wang

Presenter: Yuchen Yang, Nanjing University, China

09:15-09:30

Paper ID: #1571124299

Paper Title: Radio Resource Allocation for Vehicle Platooning Based on Hierarchical Deep Reinforcement Learning

Authors: Guangping Wang, Manxue Liu, Fuxin Zhang

Presenter: Manxue Liu, Shandong University of Science and Technology, China

09:30-09:45

Paper ID: #1571124535

Paper Title: MFCC-Based Radio Frequency Fingerprint Extraction and Emitter Recognition

Authors: Chen Wang, Jianing Zhao, Xinming Zhao, Changjian Song, Xuenan Ni, Pubo Bao and Yunfei Wang

Presenter: Chen Wang, Southeast University, China

09:45-10:00

Paper ID: #1571133943

Paper Title: Utility Aware Collaborative Edge Inference for Fog Computing Networks: A Neural Bandits Approach

Authors: Yuhao Feng, Yulei Wang

Presenter: Yulei Wang, South-Central Minzu University, China

10:00-10:15

Paper ID: #1571133764

Paper Title: Novel Nested Cross-Coupled Microring Resonator Architecture for Optical Sensors and Optical Communication Networks Applications

Authors: Mae M. Garcillanosa, Wayne Jasper G. Sy, Benjamin B. Dingel, Jennifer C. Dela Cruz

Presenter: Mae M. Garcillanosa, Mapúa Malayan Colleges Laguna, Philippines

10:15-10:30

Paper ID: #1571123663

Paper Title: Robust Vehicle Trajectory Prediction via Counterfactual Intervention for Autonomous Driving

Authors: Ang Duan, Shiming Fu, Zhi Li, Ce Zhang, Duo Chen, Ke Song

Presenter: Ang Duan, Chongqing University of Education, China

Technical Session

TS10-Wireless Networks and Communications

Session Chair

Huiqin Wang, Lanzhou University of Technology, China

10:50-12:05, May 22, 2025 **N212, 2nd Floor**

Oral Presentations

10:50-11:05

Paper ID: #1571127831

Paper Title: Private Coded Caching in Hierarchical Satellite Networks

Authors: Wenjie Guan, Jinbei Zhang

Presenter: Wenjie Guan, Sun Yat-sen University, China

11:05-11:20

Paper ID: #1571134793

Paper Title: SwinMDR: Swin-Transformer-based Multi-Degradation Restoration for Planetary Images

Authors: Songhao Zhang, Xiaoping Lu, Rui Li, Huijia Zhao, Jianqing Li

Presenter: Songhao Zhang, Macau University of Science and Technology, China

11:20-11:35

Paper ID: #1571123447

Paper Title: Design and Application of Physical Layer ACK frame for WiFi to ZigBee Cross Technology Communication

Authors: Haoyan Guo, Li Feng, Yuan Xiang, Zhongyao Ouyang

Presenter: Haoyan Guo, Macau University of Science and Technology, China

11:35-11:50

Paper ID: #1571132240

Paper Title: HBF Implementation and Multi-Beam System Testing with a Compact Sparse Array Designed for the U6G Band

Authors: Xiaoying Zhang, Jianing Zhao, Jianyi Zhou, Zhiqiang Yu, Xuenan Ni, Zhaoyi Wang and Yiqiu Liang

Presenter: Xiaoying Zhang, Southeast University, China

11:50-12:05

Paper ID: #1571128225

Paper Title: Optimal Model Partition with Privacy Protection for Split Federated Learning in Wireless Mobile Networks

Authors: Yanbing Xu, Zhentao Chen, Jiawei Cai, Guoliang Cheng, Qinghua Zhong, Maoqiang Wu,

Presenter: Maoqiang Wu, South China Normal University, China

Technical Session

TS11-Advanced Technologies for Space-Air-Ground-Sea Integrated Networks

Session Chair

Lin Chen, Macao Polytechnic University, China

10:50-12:20, May 22, 2025 **N214, 2nd Floor**

Invited Speech

10:50-11:20

Lin Chen

Macao Polytechnic University, China

Bio.: Lin Chen received his B. Sc. degree in Radio Engineering in 2002 from Southeast University, Nanjing, China, his M. Sc. in Networking in 2005 from University of Paris 6, his engineer and Ph. D. degree in Computer Science and Networking in 2005 and 2008 from Telecom ParisTech, Paris, and the Habilitation in 2017 from University of Paris-Sud. From 2009 to 2019, he was an associate professor at University of Paris-Sud. From 2019 to 2025, he was a professor at Sun Yat-sen University. Since 2025, he has been a professor at Macao Polytechnic University. He worked as a Postdoc Researcher at Telecom ParisTech during 2008-2009 and a visiting researcher at NICTA in 2008. He was a member of the Institut Universitaire de France (class 2018) and received the CNRS Bronze Medal in 2018. His research interests are centered around algorithm design and analysis in networked systems.

Speech Title: Entanglement Distribution in Quantum Networks - An Algorithmic Perspective

Abstract.: Recently emerged as a disruptive networking paradigm, quantum networks rely on the mysterious quantum entanglement to teleport qubits without physically transferring quantum particles. However, the state of quantum systems is extremely fragile due to environment noise. A promising technique to combat against quantum decoherence is entanglement purification. To fully exploit its benefit, two fundamental research questions need to be answered: (1) given an entanglement path, what is the optimal entanglement purification schedule? (2) how to compute min-cost end-to-end entanglement paths subject to fidelity constraint? In this talk, I will introduce our work on algorithmic analysis on both questions.

Invited Speech

11:30-11:50

Fan Li

Sun Yat-sen University, China

Bio.: Fan Li is a Professor with the School of Electronics and Information Technology at Sun Yat-sen University. He received the Ph.D. degree in 2014 and joined ZTE Corporation's U.S. Research Institute. Since 2016, he has been with the School of Electronics and Information Technology, Sun Yat-sen University, Guangzhou, China. He is an associate editor of Optics Express and Optical Fiber Technology, and a TPC member of OFC. He has undertaken a number of projects such as the Youth Fund of the National Natural Science Foundation of China, the Basic and Applied Basic Research Program of Guangzhou Municipality, and the Hundred Talents Program of Sun Yat-sen University. His research interests include high-speed short-distance optical interconnect, optical-wireless convergence and novel high-speed optical access networks and 5G mobile forward transmission networks.

Speech Title: Real-time Frequency Offset Compensation Scheme for Coherent Optical Communication Systems

Abstract.: To address the issue of effective signal loss caused by frequency offset under baud sampling rate coherent optical communication system, a real-time frequency offset compensation method for coherent optical communication system is proposed in our work. By combining the residual carrier modulation at the transmitter side and the optical phase-locked loop technique, the output frequency of the slave laser is continuously adjusted to track the frequency of the master laser in real time, so as to realize the compensation of the frequency deviation. This method enables fast locking of the master and slave lasers with a residual frequency deviation of less than 20 MHz after locking.

Oral Presentations

11:50-12:05

Paper ID: #1571127200

Paper Title: A Novel GNN-TCN Framework for Enhanced Turbulent Flow Predictions

Authors: Yinghao Zhang, Jianxiong Guo

Presenter: Jianxiong Guo, Beijing Normal University, China

12:05-12:20

Paper ID: #1571133848

Paper Title: Group Neural Bandits for Dynamic Collaborative Inference in Maritime Edge Intelligence Networks

Authors: Letao Wang, Yulei Wang

Presenter: Yulei Wang, South-Central Minzu University, China

Technical Session

TS12-Machine Learning and Artificial Intelligence Symposium

Session Chair

Derick Miller, Stevens Institute of Technology, USA

10:50-11:50, May 22, 2025 **N316, 3rd Floor**

Oral Presentations

10:50-11:05

Paper ID: #1571124551

Paper Title: Enhancing YOLOv8 for Fabric Defect Detection with Advanced Feature Fusion

Authors: Zhongyao Ouyang, Li Feng, Yuan Xiang, Haoyan Guo

Presenter: Zhongyao Ouyang, Macau University of Science and Technology, China

11:05-11:20

Paper ID: #1571126977

Paper Title: Diffusion Model-based RSSI Fingerprint Generation for Indoor Localization in Dynamic Environments

Authors: Liuyi Yang, Patrick Finnerty, and Chikara Ohta

Presenter: Liuyi Yang, Kobe University, Japan

11:20-11:35

Paper ID: #1571124570

Paper Title: Research on the Forward and Inverse Problem Fitting Method of Distributed Raman Amplifiers Based on Kolmogorov-Arnold Network

Authors: Shuai Liang, Binqi Zhang, Shuhe Liu, Guijun Hu

Presenter: Shuai Liang, Jilin University, China

11:35-11:50

Paper ID: #1571133102

Paper Title: MobStream: An Reinforcement-Learning Driven Mobile Streaming Methodology Based on Multipath QUIC

Authors: Zicong Huang, Ding Ma, Mu Wang, Peng Guo

Presenter: Zicong Huang, Beijing University of Posts and Telecommunications, China

Poster Session

Board No.	Paper Info.
01	**Paper ID: #1571135077** **Paper Title:** Optimization of the Phase Mask for LP11 Mode Light Using the Simulated Annealing Algorithm **Authors:** Zhiwen Li, Chao Sun, Haojie Cai **Presenter: Zhiwen Li,** Nanjing University, China
02	**Paper ID: #1571123957** **Paper Title:** Dynamic Container Placement at Serverless Edge: An Online Convex Optimization Method **Authors:** Shichen Cao and Shaowei Wang **Presenter: Shichen Cao,** Nanjing University, China
03	**Paper ID: #1571134008** **Paper Title:** Minimizing Age of Information via Variable Deep Coding for X-Relay Status Update Networks **Authors:** Mengen Zou and Haoyuan Pan **Presenter: Mengen Zou,** Shenzhen University, China
04	**Paper ID: #1571127132** **Paper Title:** ATC-KD: Audio-Text Cross-modal Knowledge Distillation for Data-efficient Speech Recognition in Air Traffic Control Communications **Authors:** Jin Ren, Shuting Ge, Shunzhi Yang, Lu Dai, Zhenhua Huang, Yujun Zhang, Qinling Zhou, Jinfeng Yang **Presenter: Shunzhi Yang,** Shenzhen Polytechnic University, China
05	**Paper ID: #1571133586** **Paper Title:** Adaptive Accented Speech Recognition via Feature Disentanglement and Meta-learning **Authors:** Jin Ren, Rongjie Yin, Shunzhi Yang, Lu Dai, Zhenhua Huang, Qinling Zhou, Guibing Guo, Jinfeng Yang **Presenter: Shunzhi Yang,** Shenzhen Polytechnic University, China
06	**Paper ID: #1571122667** **Paper Title:** Study on Microwave Frequency Hopping Signal Technology Grounded in Coherent Multi-optical-comb Systems **Authors:** Guang Li, Ruohan Yin and Jianqing Li **Presenter: Guang Li,** Guangdong Polytechnic of Science and Technology, China

Board No.	Paper Info.
07	**Paper ID: #1571124027** **Paper Title:** Enabling High-Throughput and Energy-Efficient Underwater Networks through Acoustic-Magnetic Multimodal MIMO Communications **Authors:** Hong Guan, Haochen Hu, Zhangyu Li **Presenter: Zhangyu Li,** South-central Minzu University, China
08	**Paper ID: #1571124488** **Paper Title:** In-phase/Quadrature Imbalance Mitigation in 100Gb/s Coherent Passive Optical Network Based on Alamouti-OFDM Modulation **Authors:** Qiang Yin, Fan Shi, Yuan Li, Ming Luo, Tianye Huang, Xiang Li **Presenter: Xiang Li,** China University of Geosciences (Wuhan), China
09	**Paper ID: #1571133641** **Paper Title:** Optimization Strategy for Power Control in C+L+S Band Transmission Using Particle Swarm Optimization **Authors:** Min Ran, Miao Gong, Qiang Yin, Ming Luo, Tianye Huang, Xiang Li **Presenter: Xiang Li,** China University of Geosciences (Wuhan), China
10	**Paper ID: #1571124078** **Paper Title:** An Efficient Fully Connected Tensor Network for QoS Prediction **Authors:** Dianfen Guo, Zhentao Peng, Huaqiang Yuan **Presenter: Dianfen Guo,** DongGuan University of Technology, China
11	**Paper ID: #1571125318** **Paper Title:** Low-Loss Reverse Tapering of Antiresonant Hollow-Core Fibers With Submicron-Tailored Elliptical-Shaped Tubes **Authors:** Jie Zhu, Yu Qin, Cong Xiong, Caoyuan Wang, Wei Ji, Yichun Shen, Limin Xiao **Presenter: Yu Qin,** Fudan University, China
12	**Paper ID: #1571127826** **Paper Title:** Intrusion Detection Model for In-vehicle CAN Bus Based on TPE-LightGBM Algorithm **Authors:** Lewei Liang, Xianfeng Weng, Jianxin Lv, Jingzheng Tan, Chenxu Du, Zhengtao Xiang, Yufeng Chen **Presenter: Yufeng Chen,** Hubei University of Automotive Technology, China
13	**Paper ID: #1571127639** **Paper Title:** Delay-Oriented Caching Strategy for LEO Satellite-Assisted Edge Caching Network **Authors:** Chunyi Ma, Jiajie Xu, Jianhua Yang **Presenter: Chunyi Ma,** Northwestern Polytechnical University, China

Board No.	Paper Info.
14	**Paper ID: #1571124257** **Paper Title:** Study on the Usability of FBG Sensor Network-Based Triangulation Method of Impact Positioning for Honeycomb Panels **Authors:** Yongqiang Hu, Xin Xu, Tilei Shan, Kexia Peng, Yihong Han, Liangjie Guo **Presenter: Liangjie Guo,** China University of Geosciences, China
15	**Paper ID: #1571127465** **Paper Title:** Identifying Human Cytochrome P450 Inhibitors Using Multimodal Data and Transformer Encoder **Authors:** Lihua Shi, Qi Kang **Presenter: Lihua Shi,** Tongji University, China
16	**Paper ID: #1571126704** **Paper Title:** A Two-Stage Spatiotemporal Prediction Framework for Sea Level Anomaly **Authors:** Kefan Wang, Qi Kang **Presenter: Kefan Wang,** Tongji University, China
17	**Paper ID: #1571127792** **Paper Title:** Knowledge Transfer-based Large-scale Routing Scheduling Framework for Satellite Networks **Authors:** XiaoLing Wang, Lihua Shi, Cheng Gao, Xiao Dou, Siqi Wu, Qi Kang **Presenter: Kefan Wang,** Tongji University, China
18	**Paper ID: #1571124577** **Paper Title:** Two-Dimension DOA Estimation Base on HOSVD under the Fully-Polarized RIS Architecture **Authors:** Yuehao Guo, Xianpeng Wang, Han Wang, Fangqing Wen, Linqiang Wen **Presenter: Yuehao Guo,** Hainan university, China
19	**Paper ID: #1571123461** **Paper Title:** Prediction of Ammonia Concentration Under The Influence of Temperature and Humidity Based on LSTM-FNN Algorithm **Authors:** Quanfu Li, Fuqian Li, Xudong Luo and Xiaohao Wen **Presenter: Xudong Luo,** Guangxi Normal University, China

Board No.	Paper Info.
20	**Paper ID: #1571124216** **Paper Title:** A Multimodal Information-based Knowledge Distillation Method for Small Facial Acne Detection **Authors:** Shoulin Huang, TingHan Liu, Jinjie Bi and Xiaohao Wen **Presenter: Xiaohao Wen,** Guangxi Normal University, China
21	**Paper ID: #1571123952** **Paper Title:** Plug-and-Play AMC: Context Is King in Training-Free, Open-Set Modulation with LLMs **Authors:** Mohammad Rostami, Atik Faysal, Reihaneh Gh. Roshan, Huaxia Wang, Nikhil Muralidhar, Yu-Dong Yao **Presenter: Huaxia Wang,** Rowan University, USA
22	**Paper ID: #1571127916** **Paper Title:** Enhancing UAV Surveillance in VLRC Systems: A Unitary CP Factorization Approach for OFDM-Based Passive Radar **Authors:** Chujun Wang, Yufeng Chen **Presenter: Chujun Wang,** Hubei University of Automotive Technology, China
23	**Paper ID: #1571137699** **Paper Title:** Fine-Grained Image Classification Algorithm Based on Channel Attention Enhancement **Authors:** Bei Xie, Mingzhu Luo **Presenter: Bei Xie,** Guangdong University of Science and Technology, China
24	**Paper ID: #1571131808** **Paper Title:** Bidirectional Long Short-Term Memory Networks for Efficient Network Intrusion System Classification **Authors:** Lili Huang, Chai Wen Chuah∗ , Rundan Zhen **Presenter: Chai Wen Chuah,** Guangdong University of Science and Technology, China
25	**Paper ID: #1571137784** **Paper Title:** A Comparative Study of YOLOv8 and YOLOv5 in Traffic Environments **Authors:** Huanglin Chen, Yong Fan, Runfan Luo, Ruxia Wang, Yiqiao Su **Presenter: Yong Fan,** Guangdong University of Science and Technology, China
26	**Paper ID: #1571137790** **Paper Title:** Stock Price Prediction via Feature Optimization and SVM-Random Forest Multi-Model Fusion **Authors:** Mingrui Liao, Lei Yang, Yuling Fu, Huanyan Liu, Yanwen Chen and Zixuan Wen **Presenter: Mingrui Liao,** Guangdong University of Science and Technology, China

Board No.	Paper Info.
27	**Paper ID: #1571126687** **Paper Title:** Class Incremental Learning via Feature Knowledge Prompts **Authors:** Jun Ma, Chaoyu Fan, Lihua Shi, Kefan Wang and Qi Kang **Presenter: Lihua Shi,** Tongji University, China
28	**Paper ID: #1571126997** **Paper Title:** Research on Triple Difference Model Based on Dual Machine Learning in Green Transformation and New Quality Productivity Improvement **Authors:** Haiteng Lin; Qiheng Liang; Yisong Wei; Dong Jiang; Hongyuan Wang **Presenter: Hongyuan Wang,** Guangdong University of Science and Technology, China
29	**Paper ID: #1571134796** **Paper Title:** Diabetic Retinopathy Aided Diagnosis System Based on Improved P-ResNet50 **Authors:** Simin Zheng, Xueri Li, Yixuan Xu, Fengyi Chena, Lei Yang **Presenter: Xueri Li,** Guangdong University of Science and Technology, China
30	**Paper ID: #1571130630** **Paper Title:** Subsidence Risk Assessment in Guangdong, China via SBAS-InSAR and LightGBM: Dongguan Metro Line 2 **Authors:** Jiaxin He, Hanqiang Liang, Bin Liu*, Shuhua Li, Yong Fan, Guihua Huang, Jiandong Huang, Jian Sun **Presenter: Bin Liu,** Guangdong University of Science and Technology, China
31	**Paper ID: #1571146030** **Paper Title:** Predicting Extreme Precipitation Events Using Analogues: Henan, China **Authors:** Sifan Wei, Peipei Dai, Xiaobo Fu **Presenter: Sifan Wei,** Wuxi Institution of Technology, China
32	**Paper ID: #1571135207** **Paper Title:** A Study on Classification of Students Depression Based on Gradient Boosting Algorithm **Authors:** Junming Zeng, Xueri Li, Simin Zheng, Lei Yang **Presenter: Xueri Li,** Guangdong University of Science and Technology, China
33	**Paper ID: #1571134641** **Paper Title:** Noise Modeling and Compensation of Low-Cost IMU Based on Allan Variance-Transformer Model **Authors:** Yueying Li, Bin Liu*, Weijun Zhuo, Suping Liu, Liwei Tian, Guihua Huang, Jian Sun, Jiandong Huang **Presenter: Bin Liu,** Guangdong University of Science and Technology, China

Board No.	Paper Info.
34	**Paper ID: #1571135524** **Paper Title:** Swarm Optimization Feature Selection Algorithm for Real-Valued Information System Under Mutual Information **Authors:** Sheng Xu, Zhaowen Li, Suping Liu **Presenter: Zhaowen Li,** Guangdong University of Science and Technology, China
35	**Paper ID: #1571140130** **Paper Title:** Research on the Application of Purchasing Management in W Company Based on Deep Learning **Authors:** Yuhao Liu, Yu Sun, Liwei Tian, Baoping wang **Presenter: Yuhao Liu,** Guangdong University of Science and Technology, China
36	**Paper ID: #1571126794** **Paper Title:** Towards Cross-Technology Spectrum Efficiency: Exploiting Residual Channel Resources via Reinforcement Learning **Authors:** Shumin Yao, Leiyu Wang, Yaping Sun, Hao Chen, Aihua Zhu, Xiaodong Xu and Nan Ma **Presenter: Shumin Yao,** Pengcheng Laboratory, China
37	**Paper ID: #1571124083** **Paper Title:** Predicting FGR at Early Pregnancy via a HDC-based Encoding Method **Authors:** Tianci Zhou, Xiaowei Huang, Yiheng Zhang, Peiming Tang, Mengjie Chen **Presenter: Tianci Zhou,** Dongguan University of Technology, China
38	**Paper ID: #1571141556** **Paper Title:** Balancing Anonymity and Accountability: Electronic Voting Scheme Using Traceable Ring Signatures **Authors:** Kunrui Chen; Yungui Chen; Dingyun Sui; Liwei Tian **Presenter: Yungui Chen,** Guangdong University of Science and Technology, China
39	**Paper ID: #1571123939** **Paper Title:** Penetrating Spatiotemporal Correlations in Event-stream Data via Tensor Factorization **Authors:** Shengchao Guan, Weiling Li, HuaqiangYuan, Yan Fang **Presenter: Shengchao Guan,** DongGuan University of Technology, China
40	**Paper ID: #1571146545** **Paper Title:** A New Design for QoS Support in Full-Duplex IoT Networks **Authors:** Zijie Liu, Shuhan Qi, Li Feng, Jian Zhu, Yu Luo, Qinglin Zhao **Presenter: Zijie Liu,** Macau University of Science and Technology, China

Visiting Activity

MUST LIU's Innovation and Technology Center
澳科大康澤創新科技中心

To showcase the University's latest scientific research developments and achievements, the Inauguration Ceremony of the "MUST LIU's Innovation and Technology Center" of Macau University of Science and Technology was successfully held on October 31, 2023. The "MUST LIU's Innovation and Technology Center", located in the Coloane Concórdia Industrial Park in Macao, is a collaboration between Macau University of Science and Technology and Liu's Commerce and Industry Ltd. It is in line with the policy direction of the Macao SAR government to optimize industrial land and revitalize the development of the Coloane Parque Industrial da Concórdia. This includes the promotion of industrial upgrading and transformation, building a series of industrial R&D experimental and demonstration bases and innovation and technology centers, as well as an off-campus academic research center that integrates high-end manufacturing technology, research and development results, and the transformation of industry-university-research scientific research results to promote the moderately diversified development of Macao's economy.

The "MUST LIU's Innovation and Technology Center" represents MUST's most innovative industry-university-research platform. It has already housed scientific research teams from the Faculty of Innovation Engineering and the Faculty of Medicine, together with the Key Laboratory of River Basin Digital Twinning of Ministry of Water Resources, and the Respiratory Disease AI Laboratory on Epidemic Intelligence and Medical Big Data Instrument Applications, and many other new scientific research platforms.

Visiting Time: May 22, 2025

Assembly Time: 14:00

Place to Assemble: The Seasons Restaurant on Block N, i.e. Conference Lunch Restaurant

Scan the QR code to register the visit

Memo