CONFERENCE PROGRAM

ICECE 2025

2025 the 8th International Conference on Electronics and Communication Engineering

第八届电子与通信工程国际会议

December 26-28, 2025 | Xi'an, China

Hilton Garden Inn Xi'an High-Tech Zone (西安高新阳光城希尔顿花园酒店)

Add: No. 60, Boshi Road, Hi-Tech Zone, Xi'an, 710000, China

(地址: 中国西安高新区博世路 60 号)

Co-sponsor

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WELCOME MESSAGE

We are pleased to welcome you to attend the 2025 the 8th International Conference on Electronics and Communication Engineering (ICECE2025), to be held in Xi'an, China from December 26th to 28th, 2025 co-sponsored by Xi'an University of Technology and Xi'an University.

This event will provide a unique opportunity for international scholars, researchers and practitioners working in a wide variety of scientific areas with a common interest in electronics and communications.

This year's conferences will be composed of 4 keynote speeches successively delivered by Prof. Sajal K. Das (Missouri University of Science and Technology, USA), Prof. Zhihan Lv (Xidian University, China), Prof. Kaida Xu (University of Alcalá, Spain), Prof. Yang Yue (Xi'an Jiaotong University, China), 5 invited speeches given by Prof. Xiaogang Song (Xi'an University of Technology, China), Prof. Dawei Wang (Northwestern Polytechnical University, China), Assoc. Prof. Xiao Tang (Xi'an Jiaotong University, China), Assoc. Prof. Shushan Zhao (Central Connecticut State University, USA), Assoc. Prof. Chenglong Shao (Kyushu Institute of Technology, Japan), followed by 3 special sessions, 1 oral session, and 3 online sessions.

We would like to deeply express our heartfelt appreciation to all our delegates, keynote speakers, invited speaker, session chairs, international reviewers as well as all the committee members involved in the technical evaluation of conference papers and in the conference organization for your time, effort, and great contributions. Apart from that, we'd like to extend our thanks to all the authors and external reviewers for your contribution. It is your high competence, enthusiasm, valuable time and expertise that have enabled us to prepare the final program with high quality and make the conference a great success.

We wish to thank all attendees for participating in the conferences and hope you have a fruitful and memorable experience at ICECE 2025.

Finally, we wish you a very successful conference! Hope you will enjoy your stay in Xi'an!

With Warmest Regards,

Conference Organizing Committee

ICECE 2025

Xi'an, China

GENERAL INFORMATION

Onsite Registration

Registration desk→ Inform the staff of your paper ID→ Sign-in→ Claim your conference kit.

Devices Provided by the Organizer

Laptops (with MS-Office & Adobe Reader) / Projectors & Screen / Laser Sticks

Materials Provided by the Presenter

Oral Session: Slides (pptx or pdf version). Format 16:9 is preferred.

Official language: English.

Duration of Each Presentation

Keynote Speech: 35min, including 5 min Q&A. Invited Speech: 25min, including 5 min Q&A.

Oral & Online Session: 15min, including 3min Q&A. Poster: A1 size

Notice

- Please wear your delegate badge (name tag) for all the conference activities. Lending your participant card to others is not allowed.
- Please take good care of your valuables at any time during the conference. The conference organizer does not assume any responsibility for the loss of personal belongings of the participants during conference day.
- Program Time: **GMT+8** / **Time in Beijing**. Please be aware of time difference between this and your region/country.

Online Presentation via Zoom Meeting Platform

Room A	**Room B**
Meeting ID: 833 5271 0877	**Meeting ID: 816 5625 3209**
Meeting Link:	Meeting Link:
https://us02web.zoom.us/j/83352710877	https://us02web.zoom.us/j/81656253209

Zoom Background: https://www.icece.net/zoom-background.jpg

Conference Banner: https://www.icece.net/conf-banner.jpg

Note:

Participants who are going to do an online presentation are required to join the **rehearsal** in ZOOM on Friday, Dec. 26. Duration: 2-3min apiece. Feel free to leave after you finish the test.

We recommend to install the Zoom platform beforehand. New users can login the Zoom meeting without registration.

Please set your display name before joining the online meeting. For instance,

Author/Presenter: Paper ID-Name < EC001-Full Name >

Session Chair: <Session Chair-Full Name>

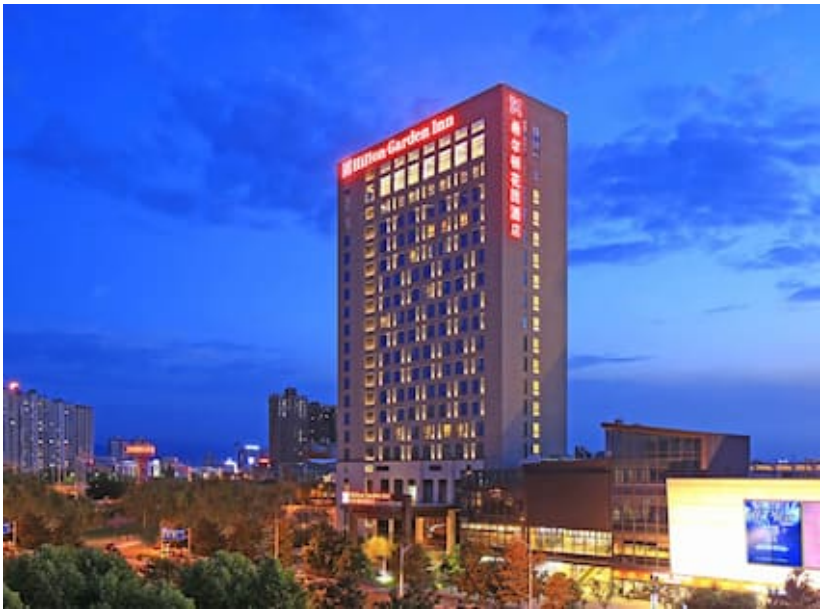
GENERAL INFORMATION

Conference Venue

Hilton Garden Inn Xi'an High-Tech Zone

Add: No. 60, Boshi Road, Hi-Tech Zone, Xi'an, 710000, China

Tel: +86 29 8819 0999



Room Reservation

Room booking: 王经理 17602978923, 会议协议价 标间含早 450 元/间

*Please kindly inform that you are participant of **ICECE 2025** in order to get the group special rate.*

Meetings Rooms

三楼阳光厅 (Sunshine Room)

二楼华岳厅 (Hua Yue Room)

二楼曲江厅 (Qu Jiang Room)

Dinning

一楼花荟餐厅(Garden Grille)

CONFERENCE COMMITTEE

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Shenghui Zhao, Beijing Institute of Technology, China

Zhiguo Wang, Xi'an Jiaotong University, China

AGENDA OVERVIEW

December 26, 2025 (Fri.)

14:00-18:00	On-site Registration/Sign-in	1F Hotel Lobby < Hilton Garden Inn Xi'an High-Tech Zone>
14:00-16:00	Zoom Test for Online Presenter	Zoom ID: 83352710877 Link: https://us02web.zoom.us/j/83352710877

Timetable for Zoom Test

14:00-14:30	EC404, EC024, EC029, EC047, EC061, EC403, EC008, EC067, EC1008
14:30-15:00	EC025, EC055, EC002, EC026, EC034, EC049, EC046
15:00-15:30	EC036, EC072, EC1001, EC057, EC027, EC040, EC043, EC005, EC501, EC1011, EC051
15:30-16:00	※Participants who are unavailable during the above allocated time can join the rehearsal at 15:30-16:00

AGENDA OVERVIEW

December 27, 2025 (Sat.) Plenary Meeting

三楼阳光厅 **(Sunshine Room) & ZOOM ID: 83352710877**

08:30-09:00	On-site Registration/Sign-in	
09:00	Chairman: Prof. Haiquan Zhao, Southwest Jiaotong University, China	
09:00-09:10	Welcome Address	**Prof. Xizheng Ke (Conference General Chair)** Xi'an University of Technology, China
	Opening Remarks	**Prof. Sheng-Uei Guan (Conference General Co-Chair)** Xi'an Jiaotong-Liverpool University, China
09:10-09:45	Keynote Speech I	**Prof. Zhihan Lv** Xidian University, China *Speech Title: The Metaverse is a Digital Twin of Everything*
09:45-10:20	Keynote Speech II	**Prof. Kaida Xu** University of Alcalá, Spain *Speech Title: Millimeter-Wave and Terahertz Components Based on Spoof Surface Plasmon Polaritons for Next-Generation Communications*
10:20-10:50	Group Photo & Coffee Break	
10:50-11:25	Keynote Speech III	**Prof. Yang Yue** Xi'an Jiaotong University, China *Speech Title: AI-Enabled Multiparameter Optical Performance Monitoring*
11:25-12:00	Keynote Speech IV	**Prof. Sajal K. Das** *(Online)* Missouri University of Science and Technology, USA *Speech Title: From Smart Sensing to Smart Living: The Era of IoT, AI/ML and Data Science*
12:00-13:00	Buffet Lunch < 一楼花荟餐厅(Garden Grille) >	

AGENDA OVERVIEW

December 27, 2025 (Sat.) Parallel Oral Session

TIME	ACTIVITY	VENUE
13:00-15:25	**Special Session 3:** Advanced Microwave and Millimeter-Wave Circuit Designs for Next-Generation Wireless and Sensing Systems *Chairman: Dr. Yiqun Liu, Xi'an University of Technology, China* Invited Talk: Prof. Dawei Wang EC045, EC302, EC028, EC075, EC069, EC202, EC076, EC078	二楼华岳厅 (Hua Yue Room)
13:00-15:35	**Special Session 4:** Next-Generation Intelligent Perception and Connectivity for Low-Altitude, Embodied AI Scenarios *Chairman:* *Assoc. Prof. Wei Cheng, Northwestern Polytechnical University, China* *Assoc. Prof. Limeng Dong, Northwestern Polytechnical University, China* *Senior Director, Fangxin Xu, Longsailing Semiconductor Co. Ltd., China* Invited Talk: Prof. Xiaogang Song, Assoc. Prof. Xiao Tang EC048, EC066, EC405, EC402, EC406, EC068, EC407	二楼曲江厅 (Qu Jiang Room)
15:35-15:50	Coffee Break	
15:50-18:30	**Special Session 5:** AI-Enhanced wireless Communication Security *Chairman: Prof. Haiquan Zhao, Southwest Jiaotong University, China* Invited Talk: Assoc. Prof. Shushan Zhao EC070, EC502, EC042, EC041, EC201, EC021, EC044, EC038, EC052	二楼华岳厅 (Hua Yue Room)
15:50-18:35	**Oral Session:** AI-driven Digital Image Analysis and Signal Processing Technologies *Chairman: Dr. Maryam Cheraghy, Wenzhou-Kean university, China* EC003, EC022, EC1007, EC056, EC053, EC012, EC058, EC065, EC074, EC019, EC050	二楼曲江厅 (Qu Jiang Room)
18:40-20:40	Buffet Dinner < 一楼花荟餐厅(Garden Grille) >	

AGENDA OVERVIEW

December 28, 2025 (Sun.) GMT+8 Online Session

TIME	ACTIVITY
09:30-12:10 **(Zoom: 833 5271 0877)**	**Online Session 1:** Wireless Communication and Data Transmission Technologies *Chairman: Assoc. Prof. Chenglong Shao, Kyushu Institute of Technology, Japan* Invited Talk: Assoc. Prof. Chenglong Shao EC404, EC024, EC029, EC047, EC061, EC403, EC008, EC067, EC1008
09:30-11:15 **(Zoom: 816 5625 3209)**	**Online Session 2:** Machine Learning and Optimization Algorithms in Digital Image Processing *Chairman: Prof. Zhen Chen, Jinan University, Guangzhou, China* EC025, EC055, EC002, EC026, EC034, EC049, EC046
11:45-13:00	Breaktime
13:00-15:45 **(Zoom: 833 5271 0877)**	**Online Session 3:** Modern Electronics and Communication Technologies *Chairman:* EC036, EC072, EC1001, EC057, EC027, EC040, EC043, EC005, EC501, EC1011, EC051

Note

* Online Meeting conference room will be open 15 mins before scheduled time.

* Online presenters are required to join the Zoom Test on **Friday, Dec. 26.** If you are very familiar with Zoom, you can skip this step after confirmation with the conference secretary.

KEYNOTE SPEAKER

Prof. Zhihan Lv

Xidian University, China

Zhihan Lyu is an IEEE Senior Member, British Computer Society Fellow, ACM Distinguished Speaker, Career-long Scientific Influence Rankings of Stanford's Top 2% Scientists, Clarivate Highly Cited Researcher. He is a Professor at Xidian University in Virtual Reality, Digital Twins and Metaverse major in Mathematics and Computer Applied Technology. His research application fields widely range from everyday life to traditional research fields (i.e. Geography and Transportation, Biology and Chemistry, Medicine and Rehabilitation, Industry and Entertainment). He has contributed 300 papers including more than 100 papers on IEEE/ACM Transactions. He has four granted patents. He is an Associate Editor of IEEE CEMAG, IEEE TITS, IEEE TNSM, IEEE TCSS, IEEE TNSE, ACM TOMM. He is General Chair, Co-Chair or TPC of 50 conferences including Area Chair of ACM MM 2021-2023, Workshop Chair of ACM MM 2023, Online Experience Chair of IEEE VR 2023, Sponsorship Chair of MobileHCI 2023, Program Committee member of ACM IUI 2015-2023. He has reviewed 400 papers. He has received more than 20 awards from China, Europe, IEEE. He has supervised the students to get more than 20 awards. He has won 10 Best Paper awards. He has given 80 invited talks for universities and companies. He has given 23 keynote talks for International conferences. His research has been featured by popular news media outlets, including AAAS, SCIENMAG, APNEWS, Fox News, ABC News, CBS News. Before joining Uppsala University, he had research experience at French National Centre for Scientific Research(CNRS)-UPR9080 at Paris in France, at Umea University at Umea in Sweden, at Virtual Environments and Computer Graphics(VECG) group at University College London(UCL) at London in UK, at Event Lab at University of Barcelona.

Speech Title: The Metaverse is a Digital Twin of Everything

Abstract. Virtual reality (VR) technology is a computer simulation system that creates and allows users to experience virtual worlds. It uses computers to generate simulated environments, immersing users in them. VR technology utilizes real-world data, electronic signals generated by computer technology, and various output devices to create phenomena that people can perceive. These phenomena can be real objects or substances invisible to the naked eye, expressed through three-dimensional models. Because these phenomena are not directly visible but rather simulated by computer technology, they are called virtual reality. Based on VR technology, a digital twin of everything in the universe is needed to create a true metaverse. This includes not only common mesoscale scales but also macroscopic, microscopic, and extreme scales. It includes not only solid matter but also liquid, gaseous, plasma, and other uncertain states of matter, such as electricity, fire, light, wind, and magnetic fields. Furthermore, beyond the material level, the metaverse also encompasses social relationships, including friendship, love, and blood ties (individual human relationships) as well as ethics, morality, religion, and law (the broader social hierarchy). This report will also introduce some principles or laws

applicable to the construction of digital twins of social relationships, such as the broken windows theory, the small-world principle, survivorship bias, and the herding effect. By describing various aspects of digital twins, both tangible and intangible elements of the real world are mapped into a meta-universe, thus creating a real-world mapped meta-universe. In my research, I have investigated the applications of virtual reality in geographic information science, molecular biology, and neurorehabilitation, and developed some augmented reality interactive technologies. I have also developed successful case studies such as digital twins of wastewater treatment plants and transportation hubs. Currently, we are researching digital twins at the cellular level.

KEYNOTE SPEAKER

Prof. Kaida Xu

University of Alcalá, Spain

Kai-Da Xu (IEEE Senior Member) received the B.E. and first Ph.D. degrees in electromagnetic field and microwave technology from University of Electronic Science and Technology of China (UESTC), Chengdu, China, in 2009 and 2015, respectively, and the second Ph.D. degree in communications engineering from Tohoku University, Sendai, Japan, in 2024. From 2012 to 2014, he was a Visiting Researcher with the Duke University, Durham, NC, USA. From 2015 to 2018, he was an Assistant Professor with Xiamen University, Xiamen, China. From 2016 to 2017, he was a Post-Doctoral Fellow with the City University of Hong Kong, Hong Kong. From 2018 to 2019, he was an Honorary Fellow with the University of Wisconsin-Madison, Madison, WI, USA. From 2019 to 2021, he was a Japan Society for the Promotion of Science (JSPS) Fellow with Tohoku University. Since 2020, he has been with Xi'an Jiaotong University, Xi'an, China, where he is currently a full Professor. From August 2023 to September 2023, he was a Visiting Professor at Yokohama National University, Yokohama, Japan, under the financial support by JSPS. Since 2024, he has been a European Marie Curie Fellow with the University of Alcalá, Alcalá de Henares, Spain, supported by European Union's Program Horizon Europe Marie Skłodowska-Curie Actions Fellowship. He has authored and co-authored over 120 articles in IEEE Transactions/Letters/Journals. He was in the list of "Most Cited Chinese Researchers" for 3 years announced by Elsevier in 2023, 2024 and 2025. He was listed among the world's top 2% of scientists in the Career-Long Impact ranking published by Stanford University. His current research interests include microwave/millimeter-wave/THz devices, integrated circuits, and antenna arrays. Dr. Xu received two fellowships from the JSPS. He was the winner of the *Electronics* 2023 Young Investigator Award. He has been serving as a Youth Editorial Board Member for the *Nano-Micro Letters* and *InfoMat*, an Editorial Board Member for the *AEÜ-International Journal of Electronics and Communications*,and *International Journal of Circuit Theory and Applications*. Also, he has been serving as an Associate Editor for *IET Microwaves, Antennas & Propagation*, and *Electronics Letters*. As a Guest Editor, he has organized several special issues in some journals, such as *Materials & Design*, *Frontiers in Physics*, *ACES Journal* and so on. He was an Associate Editor of the IEEE ACCESS from 2017 to 2025.

Speech Title: Millimeter-Wave and Terahertz Components Based on Spoof Surface Plasmon Polaritons for Next-Generation Communications

Abstract. Surface plasmon polaritons (SPPs) are highly confined electromagnetic surface waves that exist at a metal–dielectric interface, typically at optical frequencies. Spoof SPPs (i.e., SSPPs) at microwave or terahertz frequencies propagate along subwavelength periodic structures on metal surfaces, which inherit the properties of natural SPPs, including dispersion characteristics, field confinement, and low-loss transmission. Therefore, it can offer new solutions for advanced components and circuits with high integration, compact size, and excellent performance. This talk mainly introduces the works of Prof. Xu's group on this research area within

the past five years, including SSPPs based on-chip/rectangular waveguide (RWG) components (e.g. filters, diplexers and antennas) at millimeter-wave and terahertz frequencies for next-generation communication systems.

KEYNOTE SPEAKER

Prof. Yang Yue

Xi'an Jiaotong University, China

Yang Yue received the B.S. and M.S. degrees in electrical engineering and optics from Nankai University, China, in 2004 and 2007, respectively. He received the Ph.D. degree in electrical engineering from the University of Southern California, USA, in 2012. He is currently a Professor with the School of Information and Communications Engineering, Xi'an Jiaotong University, China. He is the founder and current PI of Intelligent Photonic Application Technology Laboratory (iPatLab). Dr. Yue's current research interest is intelligent photonics, including optical communications, optical perception, and optical chip. He has published >300 journal papers (including **Science**) and conference proceedings with >14,000 citations, two books (Elsevier, Springer Nature), eight edited books, two book chapters, >50 issued patents (including 30 U.S. patents and 6 European patents), >200 invited presentations (including 1 tutorial, >30 plenary and >100 keynote talks). Dr. Yue is a **Fellow of Optica and SPIE**. He is also among the Top 2% Scientists List Worldwide by Stanford University. He is an Associate Editor for IEEE Access and Frontiers in Physics, Editor Board Member for four other scientific journals, Guest Editor for >10 journal special issues. He also served as Chair for >100 international conferences, Reviewer for >80 prestigious journals.

Speech Title: AI-Enabled Multiparameter Optical Performance Monitoring

Abstract. In recent years, machine learning has come to the forefront as a promising technology to aid in optical performance monitoring for multiparameter communications channels. In this talk, we will introduce CNN-based techniques to effectively monitor multiple system performance parameters of optical channels using eye diagram measurements. Experimental results demonstrate this method achieves a prediction accuracy >98% when tasked with identifying the modulation format (QPSK, 8-QAM, or 16-QAM), as well as the optical signal-to-noise ratio (OSNR), roll-off factor (ROF), and timing skew for 32 GBd coherent channels. For PAM-based intensity-modulation direct detection (IMDD) channel eye-diagram-based CNN method maintain >97% identification accuracy for 432 classes under different combinations of probabilistic shaping (PS), ROF, baud rate, OSNR, and chromatic dispersion (CD) by each modulation format. Furthermore, we undertake on an extensive comparison of ResNet-18, MobileNetV3 and EfficientNetV2. Our designed VGG-based model of reduced layers, alongside the lightweight MobileNetV3, demonstrates enhanced cost-effectiveness while maintaining high accuracy. Finally, we use GBDT method combined with AAH to demonstrate PAM signal performance monitoring, achieving a 97.54% accuracy for jointly monitoring 4 parameters, and by using moving average preprocessing, the accuracy of dispersion monitoring is above 93%.

KEYNOTE SPEAKER

Prof. Sajal K. Das

Missouri University of Science and Technology, USA

Dr. Sajal K. Das is a Curators' Distinguished Professor and Daniel St. Clair Endowed Chair in Computer Science at Missouri University of Science and Technology, Rolla. He served the NSF as a Program Director in Computer and Network Systems Division. His broad interdisciplinary research spans CPS, IoT, UAVs, wireless sensor networks, cybersecurity, AI, machine learning, data analytics, mobile and pervasive computing, smart environments, edge-cloud computing, applied graph theory and game theory. He has made fundamental contributions to these areas and published extensively in top-tier journals and peer-reviewed conference proceedings. His h-index is 104 with more than 46,000 citations according to Google Scholar. Dr. Das coauthored 5 US patents, 59 book chapters, and 4 books – *Smart Environments: Technology, Protocols, and Applications*; *Handbook on Securing Cyber-Physical Critical Infrastructure: Foundations and Challenges*; *Mobile Agents in Distributed Computing and Networking*; and *Principles of Cyber-Physical Systems: An Interdisciplinary Approach*. He directed over USD $25 million funded research projects. He is the founding Editor-in-Chief of Elsevier's *Pervasive and Mobile Computing* journal and serves as Associate Editor of *IEEE Transactions on Sustainable Computing*, *IEEE Transactions on Dependable and Secure Computing*, *ACM Transactions on Sensor Networks*, and *IEEE Transactions on Networking*. A founder of IEEE PerCom, WoWMoM, SMARTCOMP and ACM ICDCN conferences, he has served as General Chair and Program Chair of numerous conferences. Dr. Das is a recipient of 14 Best Paper Awards and several awards for teaching, mentoring and research including the IEEE Computer Society's Technical Achievement Award and the University of Missouri System President's Award for Sustained Career Excellence. He has mentored numerous colleagues around the world, and graduated 12 postdoctoral fellows, 54 Ph.D., 31 MS thesis, and more than 45 undergraduate research students. Currently he is supervising 11 Ph.D. students and 4 postdocs. Dr. Das is a Distinguished Alumnus of the Indian Institute of Science, Bangalore, and a Fellow of the IEEE, National Academy of Inventors (NAI), and Asia-Pacific Artificial Intelligence Association (AAIA).

Speech Title: From Smart Sensing to Smart Living: The Era of IoT, AI/ML and Data Science

Abstract. We live in an era in which our physical and cyber environments are increasingly intertwined owing to the advent of smart devices, sensors, Internet of Things (IoT), drones, cyber-physical systems (CPS), wireless communications, AI/ML, and data science. These technologies help collect and analyze multi-modal heterogeneous data on events of interest, resulting in actionable inferences and decisions in what is called *Smart Living* CPS. The goal is to improve *quality of life* in a variety of smart environments, such as smart homes and cities, smart grid, smart transportation, smart manufacturing, smart health, smart agriculture, etc. However, such systems pose significant challenges due to scale, complexity, heterogeneity, uncertainty, interdependence, resource limitations, human behavior randomness, security, privacy, and trust issues. This

talk will highlight unique challenges and novel solutions to design and model resilient, secure and trustworthy smart living CPS. Our innovative approaches are based on rich theoretical and practical design principles, such as AI/ML algorithms, time-series data analytics, sensor fusion, uncertainty reasoning, information theory, prospect theory, reputation/belief models, graph theory, and game theory. Experimental results for real-world case studies will be presented for smart energy, transportation, water distribution networks, healthcare, and agriculture applications. The talk will be concluded with directions of future research.

INVITED SPEAKER

Prof. Wang Dawei

Northwestern Polytechnical University, China

Wang Dawei, Research Fellow and Doctoral Supervisor at the School of Electronic Information, Northwestern Polytechnical University, recipient of the Shaanxi Province Outstanding Doctoral Thesis Award, obtained his PhD in Information and Communication Engineering from Xi'an Jiaotong University in 2018. His research encompasses wireless secure communications, satellite communications, unmanned aerial vehicle communications, and integrated communication-sensing systems. He has published nearly 100 academic papers in these fields, including over 40 in premier communications journals such as TWC, TCOM, and TVT. He holds more than 30 invention patents, both applied for and granted. He has led seven major research projects, including the National Natural Science Foundation of China (NSFC) General Programme, NSFC Young Scientist Programme, National Innovation Special Zone Project, and Shaanxi Provincial Key R&D Programme. As a key contributor, he has participated in national-level equipment pre-research, defence fundamental research, and NSFC projects concerning unmanned swarm systems and wireless reliable communications.

Speech Title: Optimization of Secure Communication and Sensing Systems (ISAC) Supported by Aerial Active Reflective Intelligent Surfaces

Abstract. This report investigates optimization methods for secure communication and sensing systems (ISAC) assisted by aerial Active Reflective Intelligent Surfaces (ARIS). By introducing super-diagonal RIS technology and combining deep learning with optimization algorithms, the goal is to enhance the security, efficiency, and target localization accuracy of communication systems. First, the study proposes a high-precision target tracking and prediction method by jointly optimizing base station beamforming and RIS reflection coefficients, utilizing Extended Kalman Filtering (EKF) to improve localization accuracy. Secondly, to address non-convex issues, deep reinforcement learning (DDPG) and convex optimization techniques are employed to optimize UAV positioning and enhance information transmission security. Finally, simulation experiments validate the effectiveness of the proposed method in multi-user ISAC frameworks, demonstrating its potential for wide applications in smart cities, low-altitude economies, and other fields.

INVITED SPEAKER

Prof. Xiaogang Song

Xi'an University of Technology, China

Xiaogang Song, Professor and Doctoral Supervisor at the School of Computer Science and Engineering, Xi 'an University of Technology. He is a leading talent in scientific and technological innovation under the "Sanqin Talent" program in Shaanxi Province, the executive vice president of the Interdisciplinary Modern Industry College of Artificial Intelligence, the full-time vice president of the Future Technology College, and the deputy director of the Shaanxi Engineering Research Center for Human-Machine Co-integration Intelligent Robots. He concurrently serves as a Distinguished Member of the China Computer Federation (CCF), an executive committee member of the CCF Xi 'an Branch, the chairperson of the CCF YOCSEF Xi 'an Branch, the secretary-general of the Member Development Committee of the Shaanxi Computer Society, and a young editorial board member of the Acta Electronica Sinica and Navigation, Positioning and Timing journals.

His research encompasses autonomous navigation of unmanned systems and intelligent operation and maintenance of rail transit, etc. He has presided over 22 projects, including key projects and general projects of the National Natural Science Foundation of China Joint Fund, pre-research funds of the Equipment Development Department, and sub-projects of the National Key Research and Development Program. Won the First Prize of National Defense Science and Technology Progress, the Gold Award of Shaanxi Province Postdoctoral Innovation and Entrepreneurship Competition, the Second Prize of Entrepreneurship Achievement of China Association of Invention, the Second Prize of Excellent Scientific and Technological Research Achievements of Shaanxi Province Higher Education Institutions, First Prize for Teaching Achievements of Shaanxi Province, etc.

Speech Title: Visual Enhancement and Target Perception Technology Under Degraded Observation Conditions

Abstract. This report studies visual enhancement and target perception techniques under degraded observation conditions, including visual enhancement and restoration under degraded observation, visual positioning under GNSS rejection conditions, and task-oriented multimodal target perception, etc.

INVITED SPEAKER

Assoc. Prof. Xiao Tang

Xi'an Jiaotong University, China

Xiao Tang is a Research Fellow at the School of Information and Communication Engineering, Xi'an Jiaotong University. His primary research interests lie in wireless communication and information security. In recent years, he has conducted extensive research in areas such as integrated space-air-ground communications, physical layer security, metasurface-aided communications, and wireless AI. He has presided over 10 research projects, and was selected for the National Postdoctoral Innovative Talents Support Program. He has published over 100 scientific papers, with 30 papers as the first or corresponding author in prestigious journals such as IEEE JSAC, TWC, TMC, TCOM, etc. He has two articles recognized as ESI Highly Cited Papers, and he holds 10 authorized patents as the first inventor. Furthermore, He has co-edited one book, authored one book chapter, translated one technical volume, and contributed to the formulation of one national standard. His honors include the 2021 Shaanxi Province Excellent Doctoral Dissertation Award, the Second Prize of the 2022 CSAA Science and Technology Award, and the Best Paper Award at IWCMC 2024.

Speech Title: Graph Reinforcement Learning Enabled Security Enhancement for UAV Communication Networks

Abstract. Unmanned Aerial Vehicles (UAVs) are envisioned as key enablers for ubiquitous coverage in future 6G networks. However, their open operating environments and high mobility make them particularly vulnerable to security threats, ranging from malicious jamming attacks to unauthorized eavesdropping. Traditional optimization-based security solutions often struggle to adapt to the rapid topology changes and complex interference patterns inherent in UAV networks. This lecture presents a novel Hierarchical Learning Framework designed to address these challenges by decoupling the security problem into two timescales: small-scale beamforming and large-scale deployment. We introduce a methodology that fuses Graph Neural Networks (GNNs) with Deep Reinforcement Learning (DRL) to achieve robust physical layer security. First, we address multi-user anti-eavesdropping communications. We show how a GNN-based approach can represent user-eavesdropper interactions to maximize secrecy rates, integrated with a Soft Actor-Critic (SAC) algorithm for dynamic UAV positioning. Second, we explore anti-jamming communications modeled as a zero-sum game between legitimate UAVs and intelligent jammers. We demonstrate how a Graph Attention Network (GAT) can capture complex interference topologies to optimize beamforming, while a Multi-Agent DDPG framework governs UAV deployment to mitigate jamming. The talk will highlight how this graph-based hierarchical approach offers superior scalability, generalization to new network configurations, and real-time inference capabilities compared to conventional optimization methods.

INVITED SPEAKER

Assoc. Prof. Shushan Zhao

Central Connecticut State University, USA

Shushan Zhao received his BSc degree in Computer Science and Engineering from Shandong University, and MSc degree in Computer Science and Engineering from Helsinki University of Technology. He completed his PhD degree in Computer Science from School of Computer Science, University of Windsor in 2012.
Before joining Central Connecticut State University, he taught at Vanier College, Bishop's University and University of Pittsburgh (Bradford Campus). Also having worked as a software developer at VMWare, Mavenir, Ericsson, and Nuance, he has rich experience in telecommunication and software industry.

Speech Title: An Attack against E-commerce Networks and Countermeasures

Abstract. E-commerce networks are attractive targets for fraudulent activities. Network security is paramount for E-commerce. In this speech, we study an under-assessed and working scam and security vulnerability in real life --- fake tracking number scam. We will explain how it works and how to prevent its success with technical countermeasures. The technical countermeasures are based on widely used cryptographic primitives that are compatible with most in-use shipping and e-commerce systems, and can easily be integrated. Analysis shows the countermeasures are sufficient to defeat the scam. We also hope this speech will inspire more people to realize various vulnerabilities in e-commerce systems and focus on and improve the security of them.

INVITED SPEAKER

Assoc. Prof. Chenglong Shao

Kyushu Institute of Technology, Japan

Chenglong Shao is an Associate Professor in the Department of Computer Science and Networks at Kyushu Institute of Technology, Japan, a position he has held since 2023. He received his B.S. in Information and Communications Engineering from Xi'an Jiaotong University, China, in 2010, and his Ph.D. in Computer Science and Engineering from Korea University, South Korea, in 2019. He previously served as a Research Professor at Korea University in 2019, a JSPS International Research Fellow at Kyushu University from 2021 to 2023, and a Visiting Scholar at the University of California, Riverside, in 2024. His research interests span wireless networking, IoT-enabled mobile computing, wireless security, and networked embedded systems. He has authored over 30 first-author papers in leading international journals and conferences, including IEEE Transactions on Mobile Computing and IEEE/ACM Transactions on Networking. His work has been recognized with more than 10 international awards, such as the CANDAR 2022 Best Paper Award, the 25th Samsung Humantech Paper Award – Bronze Prize in 2019, and the 1st Place Transactions Award of 2018 Annual IEEE Consumer Electronics Society Chester W. Sall Memorial Awards in 2018. He serves as an editor for Computers, Materials & Continua (CMC) and the Journal of Information and Intelligence. He is an active member of the research community, contributing as a TPC member at over 20 international conferences and as a reviewer for more than 40 academic journals. He is a Senior Member of IEEE and ACM.

Speech Title: CoWiL: Combating Cross-Technology Interference in LoRaWAN

Abstract. This talk explores LoRaWAN (Long-Range Wide Area Network), a leading wireless technology for IoT (Internet of Things) applications such as smart agriculture, asset tracking, and factory automation. To enable globally compatible products, LoRaWAN has been adapted to operate on the 2.4 GHz unlicensed band, replacing traditional region-specific sub-GHz bands (e.g., 868 MHz and 920 MHz). However, this shift increases vulnerability to cross-technology interference (CTI) from coexisting Wi-Fi networks using the same spectrum. This talk introduces CoWiL, a physical-layer solution that mitigates Wi-Fi-induced CTI without affecting Wi-Fi performance. Unlike existing methods that reduce Wi-Fi throughput or assume weak interference, CoWiL remains robust under varying CTI conditions. Implemented at the LoRa receiver, it recovers LoRa data by correlating demodulation results from the signal's preamble and payload. A novel frequency bin mask, generated from the preamble, is applied during payload decoding. Experiments across real-world environments show that CoWiL reduces LoRa packet error rates by up to 96%, outperforming existing approaches.

SPECIAL SESSION 3

December 27, 2025 (Sat.) 13:00-15:25	二楼华岳厅(Hua Yue Room)

Special Session 3: Advanced Microwave and Millimeter-Wave Circuit Designs for Next-Generation Wireless and Sensing Systems

Chairperson: Dr. Yiqun Liu, Xi'an University of Technology, China

Time	Paper ID	Speech Title & Presenter
13:00-13:25	**Invited Speech**	Optimization of Secure Communication and Sensing Systems (ISAC) Supported by Aerial Active Reflective Intelligent Surfaces ***Dawei Wang, Northwestern Polytechnical University, China***
13:25-13:40	EC045	S-Band GaAs-Based Bandpass Filter with Multiple Transmission Zeros *Chiyue Yin, Xi'an University of Technology, China*
13:40-13:55	EC302	Design and Realization of a 2~18GHz Broadband Receiving Front-end *Wenqiang Jia, China Academy of Space Technology, China*
13:55-14:10	EC028	UAV Target Localization in Cluttered Environments Based on FMCW MIMO Radar Qiuyu Qin, Hainan University, China
14:10-14:25	EC075	PointNet-Based 3D Pattern Point Cloud Compensation for Phased Array Antenna Faults Ke Huang, Wuhan Maritime Communication Research Institute, China
14:25-14:40	EC069	RIS-Enhanced Secure mmWave UAV Communications with Directional Modulation Shibo Sun, Hebei University of Engineering, China
14:40-14:55	EC202	Numerical Analysis of Turbulence Effect in FSO Communications: A Wavelength Comparison Study Yuheng Cao, Zhejiang University, China
14:55-15:10	EC076	Design of Active Frequency Selective Surface with Multi-dimensional and Dual-passband Tunability Xuanye Wu, Xi'an University of Architecture and Technology, China
15:10-15:25	EC078	Reconfigurable Metasurface: A Review Yize Qi, Xi'an University of Architecture and Technology, China

SPECIAL SESSION 4

December 27, 2025 (Sat.) 13:00-15:35	二楼曲江厅(Qu Jiang Room)

Special Session 4: Next-Generation Intelligent Perception and Connectivity for Low-Altitude, Embodied AI Scenarios

Chairperson: Assoc. Prof. Wei Cheng, Northwestern Polytechnical University, China
Assoc. Prof. Limeng Dong, Northwestern Polytechnical University, China
Senior Director, Fangxin Xu, Longsailing Semiconductor Co. Ltd., China

Time	Paper ID	Speech Title & Presenter
13:00-13:25	**Invited Speech**	Visual Enhancement and Target Perception Technology under Degraded Observation Conditions ***Prof. Xiaogang Song, Xi'an University of Technology, China***
13:25-13:50	**Invited Speech**	Graph Reinforcement Learning Enabled Security Enhancement for UAV Communication Networks ***Assoc. Prof. Xiao Tang, Xi'an Jiaotong University, China***
13:50-14:05	EC048	Path Topology-Based Robust Ant Colony Algorithm for Vehicle Routing Problem with Uncertain Demands *Haoyang Jiao, Beijing University of Technology, China*
14:05-14:20	EC066	Service-based User Plane and Performance Analysis Model for Future Mobile Communication Network *Huimin Zhang, China Mobile Research Institute, China*
14:20-14:35	EC405	A Hybrid Lemming Algorithm and Particle Swarm Optimization Method for 3D UAV Path Planning *Junhua Yang, Xi'an University of Posts and Telecommunications, China*
14:35-14:50	EC402	A CSI-Based Respiration Monitoring Method for Broadband Wi-Fi *Ao Li, Northwestern Polytechnical University, China*
14:50-15:05	EC406	Enabling Device-Agnostic Wi-Fi Sensing via a Unified CSI Acquisition Platform *Chengkai Zhu, China Mobile (Hangzhou) Information Technology Co., Ltd, China*
15:05-15:20	EC068	A Multi-Link Optimization Strategy for USV Based on Reinforcement Learning *Zikun Wang, Wuhan Maritime Communication Research Institute, China*
15:20-15:35	EC407	AoI-guaranteed Multi-Task Allocation for CrowdHMT in a Space–Air–Ground–Sea Integrated Network

		Yang Liu, Guangdong Baiyun University, China

SPECIAL SESSION 5

December 27, 2025 (Sat.) 15:50-18:30	二楼华岳厅(Hua Yue Room)

Special Session 5: AI-Enhanced wireless Communication Security

Chairperson: Prof. Haiquan Zhao, Southwest Jiaotong University, China

Time	Paper ID	Speech Title & Presenter
15:50-16:15	**Invited Speech**	An Attack against E-commerce Networks and Countermeasures ***Assoc. Shushan Zhao, Central Connecticut State University. USA***
16:15-16:30	EC070	Vital Signs Monitoring Using mmWave Signals *Jinbao Li, Inner Mongolia University, China*
16:30-16:45	EC502	Device-Free Gait Recognition Based on mmWave Signal *Shigeng Sun, Inner Mongolia University, China*
16:45-17:00	EC042	Optical Fiber Fault Prediction Enhanced by Graph Neural Networks under a Federated Learning Framework *Lian Yu, Qinghai Minzu University, China*
17:00-17:15	EC041	UAV Trajectory Optimization via Improved Noisy Deep Q-Network *Hengyu Zhang, Wenzhou-Kean university, China*
17:15-17:30	EC201	Characterization of Mid-Infrared Free-Space Optical Signal Propagation in Atmospheric Channel *Zhuoyan Zhang, Zhejiang University, China*
17:30-17:45	EC021	A Hybrid Algorithm for High-Precision BLE Ranging Under Wireless Interference Environments *Yuan Nie, Southeast University, China*
17:45-18:00	EC044	An IoT-Enabled, Privacy-Preserving Cyber-Physical-Social System for In-Home Caregiver Stress and Fatigue Monitoring *Sinan Chen, Kobe University, Japan*
18:00-18:15	EC038	AVPF: Enhancing Viewport Prediction Efficiency in Panoramic Video via Joint Adaptive Frequency and Algorithm Control *Yang Cheng, Beijing University of Posts and Telecommunications, China*
18:15-18:30	EC052	RRFusion-RAG: Reciprocal Rank Fusion for Retriever Ensemble in Open-Domain QA *Huan Phong Thai, FPT University, Viet Nam*

ORAL SESSION

December 27, 2025 (Sat.) 15:50-18:35	二楼曲江厅(Qu Jiang Room)

Oral Session: AI-driven Digital Image Analysis and Signal Processing Technologies

Chairperson: Dr. Maryam Cheraghy, Wenzhou-Kean university, China

Time	Paper ID	Speech Title & Presenter
15:50-16:05	EC003	A DETR-Based Model for Object Detection of Wiring Harness Connectors *Chudong Lei, Universiti Teknologi Malaysia, Skudai, Malaysia*
16:05-16:20	EC022	Accurate Rebar Counting via Multimodal Image Synthesis and an Enhanced YOLOv8s Network *Xinyue Tang, Anhui University of Technology, China*
16:20-16:35	EC1007	Evaluation of Fingerprint Quality Assessments on Wild Latents *Xinwei Liu, Zhejiang Wanli University (ZWU), Ningbo, Zhejiang, China*
16:35-16:50	EC056	Sound-Based OLTC Mechanical Condition Monitoring with LightGBM Algorithm *Jisheng Li, Shaanxi Normal University, China*
16:50-17:05	EC053	Research on Rubidium Clock Control Algorithm Based on LSTM and Attention Mechanism *Zanhai Hu, The Fifth Research Institute of Telecommunications Science and Technology, China*
17:05-17:20	EC012	One-Bit Target Detection in MIMO Radar under Colored Noise and Interference *Ying-Ying Li, State Key Laboratory of Radio Frequency Heterogeneous Integration, Shenzhen University, China*
17:20-17:35	EC058	Signal Standard Recognition Method Based on Frame Feature Matching Detection *Yu Xu, Chongqing Radio Monitoring Station, China*
17:35-17:50	EC065	A Neural Network Approach to Computing Orthant Probabilities for One-Bit Signal Processing *Yichao Yang, Shenzhen University, China*
17:50-18:05	EC074	Fast IAA Based on Peak-Domain DBSCAN Clustering *Jiahao Tian, Shenzhen University, China*

18:05-18:20	EC019	Testing Disaster Recovery and Backup Strategies in a Cloud *Shushan Zhao, Central Connecticut State University, USA*
18:20-18:35	EC050	Optimizing Few-Shot Learning through MAML: A Comparative Evaluation of ResNet andEfficientNet Backbones *Lenh Phan Cong Pham, FPT University, Vietnam*

POSTER DISPLAY

December 27, 2025 (Sat.)	2F Corridor 序厅

Paper ID	Paper Title & Authors
EC035	A Nonlinear Equalization Method Based on Fully Connected Neural Network and Multi-head Self-attention in Coherent Optical System *Xinran Zhou, Yongjun Wang, Haifeng Yang, Shuaihang Wang, Shaonan Hong and Hengda Gao* *Beijing University of Posts and Telecommunications, China*
EC039	An Improved Signal Peak Extraction Algorithm for RFID Pipeline Surface Defect Detection *Mianfeng Liu and Jixuan Zhu* *School of Automation, China University of Geosciences, Wuhan, China*
EC059	A 3 GHz Charge Pump PLL with Calibration Achieving 58.6 fs Jitter and -83.1 dBc Reference Spur *Jun Liu[1], Ning Ning[1], Qian Ma[2], Linqing Huang[2], Dan Ma[3], Dongbing Fu[2]* *1. University of Electronic Science and Technology of China, Chengdu, China* *2. Chongqing GigaChip Technology Co.Ltd., China* *3. Sichuan Institute of Solid-State Circuits, China*
EC060	Research on Intelligent Go-Around Decision of Shipborne Aircraft Based on Bagging Algorithm *Lei Ma[1], Jihong Xu[1], Xianlong Ma[2], Zeyao Feng[2]* *1. Shanghai Electro-Mechanical Engineering Institute, China* *2. Northwestern Polytechnical University, China*
EC401	A Fusion ConvNet for HRRP-Based Corner Reflector Jamming Recognition *Hanlin Liu, Ke Du*, Qian Li, Jingchun Qi* *Shanghai Radio Equipment Research Institute, China*

ONLINE SESSION 1

December 27, 2025 (Sun.) GMT+8	**Zoom Meeting ID: 833 5271 0877**
09:30-12:10	Link: https://us02web.zoom.us/j/83352710877

Online Session 1: Wireless Communication and Data Transmission Technologies

Chairperson: Assoc. Prof. Chenglong Shao, Kyushu Institute of Technology, Japan

Time	Paper ID	Speech Title & Presenter
09:30-09:55	**Invited Speech**	Combating Cross-Technology Interference in LoRaWAN ***Assoc. Prof. Chenglong Shao, Kyushu Institute of Technology, Japan***
09:55-10:10	EC404	Distributed Routing for Delay-Constraint Cooperative Sensing Tasks in UAV Swarms *Wenzhe Xiao, Huazhong University of Science and Technology, China*
10:10-10:25	EC024	Spectral Efficiency for non-Stationary XL-RIS Assisted Multi-User System with VR Estimation *Haiwei Shao, Nanjing University of Posts and Telecommunications, China*
10:25-10:40	EC029	Energy Efficiency Optimization for Active RIS-NOMA Assisted Vehicular Networks *Jing Zeng, Nanjing University of Posts and Telecommunications, China*
10:40-10:55	EC047	Covert Beamforming Design in STAR-RIS-Aided NOMA Systems under Hardware Impairments *Jinju Sun, Hainan University, China*
10:55-11:10	EC061	Robust Rate Maximization in RIS-Assisted Multi-User Uplink URLLC Systems *Yi Lu, Xichang University, China*
11:10-11:25	EC403	Embodied Intelligence in Wireless Time-Sensitive Networking: A Survey *Tong Jin, Shenzhen Pengcheng Technician College, China*
11:25-11:40	EC008	FVIM-DRFDB: A Dynamic-Random Fitness- Distance Balance Algorithm for WSN Coverage Optimization *Zhiheng Cui, Shanxi University, China*
11:40-11:55	EC067	A Secure Communication Method for Firefighting IoT Based on Random Challenge and Dynamic Round Key *Ao Xing, Shenyang Fire Science and Technology Research Institute of MEM, China*

11:55-12:10	EC1008	Hybrid Architecture for Indoor Environment Digital Twin Using Fuzzy Logic-Based Swarm Optimization and Wireless Sensor Networks *Kartheek Arangi, Illinois State University, Normal, IL, USA*

ONLINE SESSION 2

December 27, 2025 (Sun.) GMT+8	**Zoom Meeting ID: 816 5625 3209**
09:30-11:15	Link: https://us02web.zoom.us/j/81656253209

Online Session 2: Machine Learning and Optimization Algorithms in Digital Image Processing

Chairman: Prof. Zhen Chen, Jinan University, Guangzhou, China

Time	Paper ID	Speech Title & Presenter
09:30-09:45	EC025	Unsupervised Machine Anomalous Sound Detection via Multi-Pretrained Model Fusion *Jiafeng Li, North China University of Technology, China*
09:45-10:00	EC055	MW-DETR++: Transformer for Real-Time Container Detection and Multi-View 3D Localization in Port Cranes *Weixing Xu, Shanghai Jiao Tong University, China*
10:00-10:15	EC002	A Medical Image Recognition Method for Empty Nose Syndrome (ENS) Based on Efficient Aggregated Residual Network (R-ELAN): Integrating Explainable Heatmaps and Hyperparameter Optimization Algorithms *Chun-Yu Chu, National Dong Hwa University, Taiwan, China*
10:15-10:30	EC026	Specific Target Dehazing Algorithm Based on Complementary Dual Attention *Xiao Xu, North China University of Technology, China*
10:30-10:45	EC034	GDBEV: Elevating Multi-View Detection and Tracking with Geometry and Depth Cues *Jianxin Zheng, Guangdong University of Technology, China*
10:45-11:00	EC049	MSA-VMUNet: Multi-Scale Augmented Visual Mamba UNet for Medical Image Segmentation *Chenhang He, Lanzhou University, China*
11:00-11:15	EC046	A Machine Learning Approach for Predicting Customer Purchase Propensity Using Behavioral Ratios and Trend Features *Busra Ozdenizci Kose, Gebze Technical University, Turkey*

ONLINE SESSION 3

December 27, 2025 (Sun.) GMT+8	**Zoom Meeting ID: 833 5271 0877**
13:00-15:45	Link: https://us02web.zoom.us/j/83352710877

Online Session 3: Modern Electronics and Communication Technologies

Chairperson:

Time	Paper ID	Speech Title & Presenter
13:00-13:15	EC036	A Semi-Supervised AI Framework for Intelligent Decision Support in Real-Time Payment Networks *Busra Ozdenizci Kose, Gebze Technical University, Turkey*
13:15-13:30	EC072	Comparative Analysis of Rectifier Designs for Wireless Power Transfer in Sustainable Smart Cities *Aziza Ibrahim Hussein, Electrical and Computer Engineering Department, College of Engineering, Effat University, Jeddah, Saudi Arabia*
13:30-13:45	EC1001	Adaptive adjustment model of temporal database index structure based on genetic algorithm optimization *Sheng Jiang, Nanjing University of Posts and Telecommunications, China*
13:45-14:00	EC057	A Planar Ultrawideband Modular Antenna with Multilayer Radiation Structure *Zhenwei Liu, Guilin University of Electronic Science and Technology, China*
14:00-14:15	EC027	Joint Estimation for IQ Imbalance and Frequency Offset Based on Particle Swarm Optimization *Zhijian Dong, Nanjing University of Posts and Telecommunications, China*
14:15-14:30	EC040	Physics-Informed Transformer for Real-Time Battery SoC Estimation in 5G and IoT Systems *Innocent Izabayo, Southwest Jiaotong University, China*
14:30-14:45	EC043	Constrained Multi-Objective Optimization ofCommon Aperture Shaped Dual-Reflector Antennas *Chengkun Yang, Chengdu Aircraft Industrial (Group) Co., Ltd, China*
14:45-15:00	EC005	Design of a ±45° Dual-Polarized MIMO Antenna Array *Linghao Ge, Nanjing University of Posts and Telecommunication, China*
15:00-15:15	EC501	A Progressive Dual-Branch Attention Network for Unsupervised HDR Tone Mapping *Peijun Tong, Hubei University of Automotive Technology, China*

15:15-15:30	EC1011	UAVs and eVTOLs with Non-Terrestrial Network: Reshaping the Value Chain of Low-altitude economic by High altitude platform stations supported IoT *Hang SONG, Guangdong Baiyun University, China & Xidian University, China*
15:30-15:45	EC051	Speech Recognition for Low-Resource Languages A Case Study on Vietnamese Using Whisper and Wav2Vec 2.0 *Nhu Huynh Thi Le, FPT University, Viet Nam*

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