2025 102ND IEEE VEHICULAR TECHNOLOGY CONFERENCE

19 – 22 October 2025

Chengdu, China

VTC2025-Fall

CHENGDU

Connecting the Mobile World

FINAL PROGRAM

IEEE

IEEE VTS

Connecting the Mobile World

		Crystal Ballroom 1456 (A)	Crystal Ballroom 2 (B)	IC Ballroom (C)	Crystal Ballroom 3 (D)	Qing Yang (E)	Jin Niu (F)	Cheng Hua (G)	Xin Du (H)	Shu Han (I)	Shu Jin (J)	Virtual (V)
SUNDAY 19 October												
7:30-17:30		Registration										
8:30-17:30		Tutorials and Workshops										
18:00-20:00		Welcome Reception										
MONDAY 20 October												
7:30-17:30		Registration										
8:30-9:00		VTC Opening and Welcome										
9:00-10:30		Keynote 1: Ping Zhang, Beijing University of Posts and Telecommunications and Keynote 2: Reinaldo A. Valenzuela, Director of Wireless Communications Research, Nokia Bell Labs (Crystal Ballroom 1456)										V2X and Vehicular Networks
10:30-11:00		Refreshments and Exhibits										
11:00-12:30	(1)	Panel 1: The New Paradigm of Gigantic MIMO	Advanced Techniques in Communication I	Machine Learning for Communication I	Positioning and Tracking I	Satellite Networks I	Security and Privacy I	Channel Modeling and Antennas	Recent Results I (CAV)	Massive MIMO I	Sensing and Communication	Signal Processing and Transceiver Design
12:30-14:00		Lunch - Tianfu Room										
14:00-15:30	(2)	Panel 2: The Future of Large Language Models in Mobile Networks: Enabling Intelligence in Autonomous Vehicular Systems	Advanced Techniques in Communication II	Machine Learning for Communication II	Positioning and Tracking II	Satellite Networks II	Security and Privacy II	Channel Modeling and Estimation I	Recent Results II (Sensing, Perception, and Communication)	Massive MIMO II	Sensing and Imaging	Satellite and UAV I
15:30-16:00		Refreshments and Exhibits										
16:00-17:30	(3)	Advanced Airborne Systems	Advanced Techniques in Communication III	Machine Learning for Communication III	Positioning and Tracking III	Satellite Networks III	Security and Privacy III	Channel Modeling and Estimation II		Massive MIMO III	Sensing, Perception and Digital Twin	Sensing and Positioning
18:00-20:00		Reception - Tianfu Room										
TUESDAY 21 October												
7:30-17:30		Registration										
9:00-10:30		Keynote 3: Tie Jun Cui, Southeast University and Keynote 4: Khaled B. Letaief, HKUST (Crystal Ballroom 1456)										Security and Privacy
10:30-11:00		Refreshments and Exhibits										
11:00-12:30	(4)	Panel 3: Toward the Realization of Low Altitude Economy: Key Technologies and Challenges	Advanced Techniques in Communication IV	Machine Learning and AI Techniques	Network Performance I	Satellite and Aerial Networks I	Security and Privacy IV	Channel Modeling and Beamforming	Recent Results III (Sensing, Access and Routing)	mmWave and Antenna Design	Intelligent Driving and Sensing	Autonomous Driving and Other Applications
12:30-14:00		Awards Luncheon - Tianfu Room										
14:00-15:30	(5)	Panel 4: Industry Perspectives on Low Altitude Intelligent Networks	Advanced Techniques in Communication V	Machine Learning for Transportation	Network Performance II	Satellite and Aerial Networks II	Security and Privacy V	Beamforming/Channel Modelling	Recent Results IV (Performance Enhancement)	mmWave and THz	RIS I	RIS
15:30-16:00		Refreshments and Exhibits										
16:00-17:30	(6)	UAV and Aerial Networks	Advanced Techniques in Communication VI	Machine Learning for Vehicular Applications	Performance Analysis and Optimization	Satellite, Aerial, and V2X	Security and Other Vehicular Technologies	Beamforming/MIMO /mmWave	User Experience	Resource Allocation and Scheduling I	RIS II	Transportation and Vehicles
18:30-20:30		Banquet										
WEDNESDAY 22 October												
7:30-17:30		Registration										
9:00-10:30		Keynote 5: Wen Tong, CTO, Huawei Wireless and Keynote 6: Hao Xu, VP Engineering, Head of Qualcomm Research China (Crystal Ballroom 1456)										Radio Access and Handover
10:30-11:00		Refreshments and Exhibits										
11:00-12:30	(7)	Panel 5: AI-based 6G System Architecture and Procedure	Aerial and Vehicular Networks I	AI for Physical Layer	Network and Service Planning I	Spectrum Management	Communication Hardware and Data Processing	RIS, M-MIMO, Beamforming and Channel Estimation	Precoding/Coding	Resource Allocation and Scheduling II	ISAC	Satellite and UAV II
12:30-14:00		Lunch - Tianfu Room										
14:00-15:30	(8)	IoT and MTC I	Aerial and Vehicular Networks II	AI/Machine Learning and Applications	Network and Service Planning II	Transportation Systems	Electric Vehicles and Railway Systems	RIS/Beamforming/Waveform	Autonomous and Cooperative Driving	Resource Allocation and Scheduling III	ISAC and Radio Access	Network Resource Allocation
15:30-16:00		Refreshments and Exhibits										
16:00-17:30	(9)	IoT and MTC II	Aerial Networks	Waveform Design and Modulation	LLM and Semantic Communication	V2X	Energy-Efficient Communications and Computing	Cooperative Perception		Resource Allocation and Scheduling IV	Digital Twin and Simulations	AI for Communication and Networking

Final Program

2025 IEEE 102nd Vehicular Technology Conference

19 – 22 October 2025

InterContinental Century City Hotel

Chengdu, China

Welcome from the General Co-Chairs

On behalf of the Organizing Committee, it is our great honor and pleasure to extend a warm welcome to you for your participation in the 2025 IEEE 102nd Vehicular Technology Conference (VTC2025-Fall), held in Chengdu, China. As the flagship conference of the IEEE Vehicular Technology Society, VTC has long been recognized as a distinguished platform for scholarly contributions. We are delighted by the strong response from the community, with a substantial number of high-quality submissions forming the foundation of an outstanding technical program.

The program of VTC2025-Fall highlights the latest advancements in both academic and industrial research domains, including vehicular communications and networks, intelligent transportation systems, spectrum innovation, and integrated sensing and communication. VTC2025-Fall also features world-class keynotes, panel discussions, interactive workshops, and tutorials led by distinguished experts from academia, industry, and government, providing the research community a stimulating opportunity to grasp the recent advancements in the field that are key to IEEE VTS.

We are pleased to welcome you to Chengdu, a city renowned for its rich cultural heritage, world-class cuisine, and warm hospitality. As a rapidly growing center of science, technology, and innovation in Southwest China, Chengdu offers a vibrant setting for VTC2025-Fall. We hope you will also take the opportunity to enjoy its unique attractions, from the Chengdu Panda Base to the historic Jinli Street.

We wish to extend our heartfelt appreciation to the dedicated team whose tireless efforts have made the organization of this edition possible, including all members of the organizing committee, and in particular, the Technical Program Co-Chairs, Lian Zhao and Jie Gao. We are also grateful to our distinguished keynote speakers and panelists for sharing their expertise with the conference community. Our deep appreciation further goes to the many TPC members and reviewers who generously devoted their time to maintain the rigor and quality of the review process, as well as to our fellow members of the organizing committee for their invaluable support.

Finally, we wish to express our sincere gratitude to the VTS, whose strong support has been vital to the success of this conference. We are especially thankful to conference administrators Rodney C. Keele and Cerry Leffler, Publication Chair James Irvine, and Financial Chair J. R. Cruz for their dedicated contributions.

Welcome to Chengdu and VTC, the flagship conference of the Vehicular Technology Society.

Ying-Chang Liang and Pingzhi Fan
General Co-Chairs, IEEE VTC2025-Fall

Welcome from the TPC Co-Chairs

On behalf of the Technical Program Committee (TPC), we would like to welcome you to the 102nd IEEE Vehicular Technology Conference (VTC2025-Fall). This edition of VTC features an exciting and diverse technical program, spanning the latest research in wireless systems and networks, connected and autonomous vehicles, and emerging trends in the application of machine learning and artificial intelligence to wireless communications, as well as many other innovative topics that are shaping the future of vehicular and wireless technologies.

We received 908 paper submissions, out of which 499 outstanding papers will be presented in 12 technical tracks and the recent results track that comprise the IEEE VTC2025-Fall technical program. In addition to the regular and recent results sessions, VTC2025-Fall will present a rich and dynamic program featuring 19 topical workshops, 9 in-depth tutorials, 6 extraordinary keynote speeches, and 5 exceptional panels, covering forward-looking areas such as 6G, AI, and quantum communications.

We would like to take this opportunity to sincerely thank all track co-chairs for promoting their tracks and contributing to the decision process. We also thank the workshop organizers for proposing a set of compelling workshops and managing the review process with care and efficiency. We are grateful to the IEEE VTC2025-Fall Organizing Committee for their steadfast and prompt support throughout the entire period of technical program preparation and development, which has been vital to the success of this event. Our gratitude also goes to the TPC members for their diligent work in securing timely reviews submissions. We sincerely appreciate our distinguished keynote speakers and panelists for bringing their expertise and insights to enrich the VTC2025-Fall program. Last but not least, we would like to thank all the authors for submitting their research to VTC2025-Fall, which forms the scientific foundation of the conference.

Thank you to all contributors and attendees for making VTC2025-Fall a premier venue for innovation, collaboration, and discovery. We look forward to seeing you all in Chengdu!

Lian Zhao and Jie Gao
TPC Co-Chairs, IEEE VTC2025-Fall

Welcome from the VTS President

It is my great pleasure to welcome all of you to IEEE Vehicular Technology Conference VTC2025-Fall in Chengdu, China. The two annual editions of the IEEE Vehicular Technology Conference (VTC) are the flagship conferences of the IEEE Vehicular Technology Society (VTS) and bring together experts from the three VTS fields of interest: Mobile Radio, Motor Vehicles and Land Transportation. This portfolio is at the heart of the ongoing efforts towards a more connected, autonomous and electrified mobile world. As a consequence, VTS experiences record numbers in membership and has reached about 10.000 members recently. The VTS conferences are vital for integrating the increased membership into an active, lively, innovative and openminded international community. Likewise, the local chapters play a crucial role. We are delighted to see many local chapters and student chapters being founded all over the world. VTS strives to make membership and chapter activities rewarding und sustainable. New member events, chapter orientation events as well as technical committee workshops accompany the VTC technical program.

As an attendee of the IEEE Vehicular Technology Conference, I would like to invite and encourage you to participate in the many VTS activities.

Become involved with our technical committees and standards activities. You can raise interest in our technical committees by signing up for a committee mailing list through the VTS webpage.

Become involved in or establish your local chapter and make use of the VTS Distinguished Lecturers Program in order to invite key experts as speakers to your chapter.

Make use of the VTS educational program available in the VTS Resource Center.

Contribute to our journals as author, reviewer and editor.

Submit a paper and participate in the other VTS conferences:

The Vehicular Power and Propulsion Conference (VPPC) will take place in Hangzhou, China, right after VTC. The first edition of our new InnovaRail conference in the field of land transportation will be held in Urbana-Champaign in May 2026. And we will continue the Wireless Africa Conference (WAC) as a biannual conference in 2027.

If you are not yet a VTS member, I encourage you to join our society and become a new member or to renew your VTS membership.

Events such as the IEEE Vehicular Technology Conference would not be possible without a highly dedicated team of volunteers. I would like to express my sincere appreciation and gratitude to the organizing team and to everyone who has contributed in planning, preparation and execution of the conference.

For the four days, the technical program committee has put together an excellent combination of technical presentations, tutorials, workshops, industry perspectives, as well as panels on hot topics with high profile panelists.

I would like to particularly thank honorary chair Jun Hu, general chair Ying-Chang Liang, general co-chair Pingzhi Fan, technical program committee chair Lian Zhao, technical program committee co-chair Jie Gao, and the VTS conference team with VTS VP conferences J. R. Cruz, Cerry Leffler and Rodney C. Keele.

Finally, I hope that all attendees will have a wonderful experience and I wish all of you interesting and enlightening insights, fruitful discussions and a successful event at VTC2025-Fall.

Gerhard Bauch, *President*
IEEE Vehicular Technology Society

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Gaia Maselli
Mahdi Boloursaz Mashhadi
Barbara M. Masini
Daniel Massicotte
Aashish Mathur
David Matolak
Bho Matthiesen
Andrew Mcgordon
Meenakshi
Abbas Mehrabi
Jie Mei
Giacomo Melloni
Lingsheng Meng
Xiangyun Meng
Yun Meng
Suvidha Mhatre
Pu Miao
Sirui Miao
Konstantin Mikhaylov
Nobuhiko Miki
Minghui Min
Sunsik Min
Zhao Ming
Deepak Mishra
Amar Kumar Mishra
Jolanta Mizera-pietraszko
Ronghong Mo
Yanfang Mo
Sanaa Mohamed
Mohammadali Mohammadi
Abhishek Mondal
Sankar Mondal
Hichan Moon
Masoumeh Moradian
Boubakeur Moussaoui
Gaoze Mu
Xidong Mu
Bijoy K Mukharjee
Mehr E Munir
Alistair Munro
Seán Og Murphy
Tatsuya Nagao
Farid Nait-abdesselam
Zhaojun Nan
Nibedita Nandan
Tarak Nandy
Vikas Narang
Nancy Nayak
Neetu R. R.
Ye Neng
Telex M. N. Ngatched
Minh Dat Nguyen
Haoran Ni
Wanli Ni
Yuanhan Ni
Alexander Niedermayer
Hiroki Nishikawa
Guanchong Niu
Haibin Niu
Hong Niu
Yingtao Niu
Loutfi Nuaymi
Theshani Nuradha
Seungjoon Oh
Eiji Okamoto
Abidemi Orimogunje
Oluwadamilola Oshin
Nawaf Qasem Hamood Othman
Xiaoyu Ou
Kang Ouyang
Man Ouyang
Qiaolin Ouyang
Shuvro Pal
Arun Palpandian
Wahyu Pamungkas
Wahyu Pamungkas
Jianxiong Pan
Shengli Pan
Xiying Pan
Youcheng Pan
Rohini Poolat Parameswarath
Ali Parchekani
Hanyoung Park
Dhaval K Patel
Yash Patil
Rui R. Paulo
João Pedro Fonseca
Ibrahim Pehlivan
Jianhua Pei
Yanhua Pei
Yingying Pei
Yiyang Pei
Chaoda Peng
Guoyu Peng
Haixiao Peng
Kai Peng
Pei Peng
Qiaoyan Peng
Qihao Peng
Xingyu Peng
Xiuping Peng
Yi Peng
Yuhang Peng
Yuming Peng
Du Pengfei
David Perez Abreu
Md Ferdous Pervej
Loreto Pescosolido
Zsombor Pethő
Alex Piccioni
Pekka Pirinen
Shashidhar Reddy Polepalli
Reza Poorzare
Ranga Rao Venkatesha Prasad
Benjamin Premkumar
Richa Priyadarshani
Wei Pu
Lorenzo Pucci
Yaman Qendah
Chenhao Qi
Jiaju Qi
Weijing Qi
Jun Qian
Liping Qian
Panpan Qian
Bangbang Qiao
Yi Qiao
Meng Qin
Tian Qin
Yujie Qin
Zhihan Qin
Zhijin Qin
Chi Qiu
Chunyan Qiu
Feng Qiu
Guanqiao Qu
Wei Quan
Mohamed Amine Ould Rabah
Hany Ragab
Kazi Habibur Rahaman

I Nyoman Apraz Ramatryana
Kuranage Roche Rayan Ranasinghe
Jyotsna Rani
Ali Ranjha
Windhya Rankothge
Duarte Raposo
Dinith Primal P. Rathu Baduge
Carlos Ravelo
Francesco Raviglione
Naresh Ravuri
Syed Aqeel Raza
Ch Santosh Reddy
Hao Ren
Juanjuan Ren
Mengmeng Ren
Pengfei Ren
Maryam Rezvani
Ian P. Roberts
Thomas Rosenstatter
Angelos Rouskas
Malik Saad
Abdul-malik Haider Yusef Saad
Hemant Saggar
Sain Saginbekov
Kshirasagar Sahoo
Ravikant Saini
Taha Sajjad
Yasir Saleem
Shavbo Salehi
Abdoul Karim A. H. Saliah
Sumudu Samarakoon
Nadif Sami
Assane Sankara
David Santos
Ananto Tri Sasongko
Lakshmikanta Sau
Akhilesh Kumar Savita
Ravi Raj Saxena
Florian Alexander Schiegg
Anke Schmeink
Adrian Schumacher
Stefan Schwarz
Roshan Sedar
Lehlohonolo Sekokotoana
Artun Sel
Aditya S. Sengar
Miguel Sepulcre
Harshal Shah
Keyuang Shang
Pingping Shang
Liwei Shao
Shuai Shao
Xiaodan Shao
Akanksha Sharma
Ekant Sharma
Prashant Sharma
Sachin Sharma
Guman Shekhawat
Bin Shen
Heyin Shen
Li-hsiang Shen
Longlong Shen
Shanpu Shen
Shuai Shen
Zhong Shen
Zhichao Sheng
Bing Shi
Jiebei Shi
Kexin Shi
Menghao Shi
Ningzhe Shi
Shaohua Shi
You Shi
Jae-nam Shim
Takayuki Shimizu
Ali Shiri
Tushar Shivam
Meng Shuyu
Chengcheng Si
Ali Ahmed Mohamed Siddig
Samir Si-mohammed
Akshay Singh
Gurtaj Singh
Himali Singh
Jitendra Singh
Ugrasen Singh
Chetna Singhal
Praveen Kumar Singya
Jinendra Sipani
Besma Smida
Changqing Song
Dongpo Song
Lei Song
Shaoqian Song
Xiaokai Song
Yunchao Song
Yuxiao Song
Yuxin Song
Song
Laxmi Narayan Soni
Vishalya Sooriarachchi
Sharanya Srinivas
Ashvin Srinivasan
Giovanni Stanco
Xin Su
Xin Su
Yang Su
Zeping Sui
Ajmery Sultana
Chong Sun
He Sun
Junchang Sun
Lulu Sun
Rongze Sun
Ruijin Sun
Wenlong, Sun
Yan Sun
Yanglong Sun
Yijing Sun
Yu Sun
Yu Sun
Yuxuan Sun
Zeyu Sun
Himal A. Suraweera
Diego Sušanj
Akram Syed
Masahiro Takigawa
Osamu Takyu
Hongcheng Tan
Jinyue Tan
Weiqiang Tan
Aimin Tang
Qinqin Tang
Rui Tang
Zhiqing Tang
Zhixuan Tang
Yosuke Tanigawa
Masaaki Tanio
Yiwei Tao
Zhenyu Tao
Muhammad Ashar Tariq
Mahsa Tavasoli
Davide Tebaldi
Rafael Teixeira
Belayneh Abebe Tesfaw
Peyman Teymoori
Shilpa Thakur
Suravi Thakur
Gokulnath Thandavarayan
Sapna Thapar
Luu Thu
Jin Tian
Lang Tian
Wen Tian
Yafei Tian
Yuanming Tian
Zhong Tian
Jiang Tiankai
Krishan Kumar Tiwari
Neha Tiwari
Jingwen Tong
Yongju Tong
Sharda Tripathi
Shraddha Tripathi
Haoyu Tu
Ikechi A. Ukaegbu
Farhan Ullah
Insaf Ullah
Shan Ullah
Umar Jamil
Muhammad Usman
Boniface Uwizeyimana
Monireh Vamegh
Indukuri Mani Varma
Karima Velasquez
Gaurav Verma
Praveen Verma
Daniele Vignarca
Binh Vo
Jayant Vyas
Burhan Wafai
Mashiwat Waishy
Oliver Waldhorst
Michael Walter
Jialin Wan
Pengwu Wan
Zhengyu Wan
Ziwei Wan
Bin Wang
Chaowei Wang
Chen Wang
Chengzhi Wang
Danyang Wang
Dezhi Wang
Dong Wang
Fengwei Wang
Gang Wang
Geng Wang
Gongpu Wang
Haoming Wang
Hui Wang
Huizhi Wang
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Jun Wang
Junjie Wang
Kan Wang
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Zhanwei Wang
Zhonglun Wang
Zhongyu Wang
Zhuwei Wang
Zijing Wang
Zonghan Wang
Taishi Watanabe
Wei Wei
Xin Wei
Yannan Wei
Zhiwei Wei
Ziling Wei
Berihu Berhanu Weldemichael
Fangqing Wen
Jinbo Wen
Yao Wen
Zhang Wenqi
Risto Wichman
Nobel John William
Muhammad Wisal
Bibo Wu
Bincai Wu
Celimuge Wu
Chenyu Wu
Guilu Wu
Huaqing Wu
Jun Wu
Junjie Wu
Lan Wu
Linlong Wu
Mengru Wu
Mengyao Wu
Tianhao Wu
Yezeng Wu
Yuan Wu
Yubo Wu
Yuxiao Wu
Zijun Wu
Apostolis Xenakis
Huiyun Xia
Meidong Xia
Zixuan Xia
Axin Xiang
Hao Xiang
Ziye Xiang
Meng Xiao
Qikai Xiao
Yuquan Xiao
Zhiqiang Xiao
Zhang Xiaolei
Zhang Xiaoyu
Gaochang Xie
Huiqiang Xie
Jindou Xie
Junfeng Xie
Lei Xie
Mangang Xie
Mingyue Xie
Sijing Xie
Ximing Xie
Xin Xie
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Yihang Xie
Yike Xie
Zhijie Xie
Zhilan Xie
Pengzhi Xing
Xinyue Peng
Kai Xiong
Xue Xiong
Xue Xiong
Zehui Xiong
Hao Xu
Haobo Xu
Jiajie Xu
Jianpeng Xu
Le Xu
Lexi Xu
Lifan Xu
Rongtao Xu
Runchen Xu
Sheng Xu
Shu Xu
Wenhan Xu
Yiming Xu
Yiyang Xu
Zhuocheng Xu
Zihan Xu
Ziheng Xu
Jianzhe Xue
Liang Xue
Anil Yadav
Muhammet Yaser Yagan
Ge Yan
Hangyu Yan
Jia Yan
Kang Yan
Ming Yan
Peishun Yan
Xingkai Yan
Zijiang Yan
Bo Yang
Huaqing Yang
Jiahui Yang
Jiale Yang
Jingya Yang
Kun Yang
Mingjie Yang
Peng Yang
Ping Yang
Shaoshi Yang
Shuangyu Yang
Songjiang Yang
Tongzhou Yang
Wanchun Yang
Wanting Yang
Weiwei Yang
Wendong Yang
Xianjun Yang
Xiao Yang
Xue Yang
Yang Yang
Yaoqi Yang
Yinchao Yang
Yueyi Yang
Yuxi Yang
Yuxiao Yang
Yuye Yang
Yuzhi Yang
Xianghao Yao
Zhisheng Yao
Qiang (john) Ye
Junjie Ye
Zhifan Ye
Yehandai
Chien-lin Yen
Li-hsing Yen
Phee Lep Yeoh
Zenebe Melesew Yetneberk
Peng Yi
Qin Yi
Tayfun Yilmaz
Fangfang Yin
Haoran Yin
Jie Yin
Liuguo Yin
Yue Yin
Jiahao You
Danyang Yu
Genghua Yu
H. Yu
Hanxiao Yu
Jie Yu
Jinsong Yu
Kai Yu
Lisu Yu
Runze Yu
Sheng Yu
Tao Yu
Tianqi Yu
Wenjun Yu
Xuyao Yu
Guangwei Yuan
Haozhi Yuan
Jide Yuan
Longzhi Yuan
Ningze Yuan
Quan Yuan
Weimin Yuan
Xiaopeng Yuan
Yi Yuan
Yifeng Yuan
Yuan Yuan
Guodong Yue
Ming Yue
Shaohua Yue
Chau Yuen
Shi Yuhang
Sheng Yun
Shayan Zargari
Mervat Zarour
Junkai Zeng
Qi Zeng
Shuhao Zeng
Wenliang Zeng
Xianlong Zeng
Engin Zeydan
Xiangping Zhai
Xiongfei Zhai
Zijun Zhan
Benteng Zhang
Bingxin Zhang
Bingzheng Zhang
Boning Zhang
Chuan Zhang
Di Zhang
Dongliang Zhang
Fangkai Zhang
Han Zhang
Hanwen Zhang
Haobo Zhang
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Hongsheng Zhang
Hui Zhang
Jiachi Zhang
Jiaxing Zhang
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Junwei Zhang
Lechen Zhang
Lingling Zhang
Long Zhang
Lu Zhang
Manyu Zhang
Meiwen Zhang
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Qi Zhang
Qian Zhang
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Serena Zhang
Shunwai Zhang
Shupei Zhang
Songge Zhang
Songnian Zhang
Sutong Zhang
Tianqi Zhang
Weiting Zhang
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Xiaoquan Zhang
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Xichen Zhang
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Yi Zhang
Yichi Zhang
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Yiming Zhang
Yixiao Zhang
Yu Zhang
Yuan Zhang
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Yusi Zhang
Yutong Zhang
Zhanxi Zhang
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Zheng Zhang
Zhengyu Zhang
Zhikai Zhang
Zichao Zhang
Zida Zhang
Dongmei Zhao
Hang Zhao
Hui Zhao
Jianguo Zhao
Jiaqi Zhao
Jie Zhao
Lian Zhao
Mingming Zhao
Pincan Zhao
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Ruotong Zhao
Shihong Zhao
Songhan Zhao
Xingyu Zhao
Xuyang Zhao
Yangliu Zhao
Yizhe Zhao
Zhongling Zhao
Zilu Zhao
Can Zheng
Haotian Zheng
Mingxuan Zheng
Qinghe Zheng
Shuyu Zheng
Yali Zheng
Yandong Zheng
Yifan Zheng
Kangda Zhi
Hu Zhihao
Kai Zhon
Shida Zhong
Weifeng Zhong
Yangbo Zhong
Yiming Zhong
Yue Zhong
Binggui Zhou
Chengwei Zhou
Conghao Zhou
Di Zhou
Fen Zhou
Hang Zhou
Hao Zhou
Lingyou Zhou
Longyu Zhou
Momiao Zhou
Quanxi Zhou
Shuyao Zhou
Tailin Zhou
Weixi Zhou
Yajie Zhou
Yi Zhou
Yimin Zhou
Yiren Zhou
Zihao Zhou
Dehao Zhu
Feng Zhu
Fenghao Zhu
Jing Zhu
Pengqi Zhu
Qibiao Zhu
Xiaojie Zhu
Xiaozhen Zhu
Xuanhan Zhu
Yao Zhu
Ye Zhu
Yunfei Zhu
Zeyan Zhuang
Ziyang
Enrica Zola
Tianqi Zong
Liu Zongxi
Wenhao Zou
Yixuan Zou
Yulong Zou
Zhou Zou
Yong Zuo

Tutorials

A range of tutorials will be held on Sunday 19 October 2025 given by experts from industry and academia.

Sunday, 19 October 2025 9:00-12:30 Cheng Hua

T1: AI RAN: Artificial Intelligence for Radio Access Networks

Hongliang Zhang, Qingyu Liu, Shuhang Zhang, Peking University

With the rapid growth of the demands in modern wireless applications, the limitations of conventional radio access networks (RAN) in handling the complexity, scalability, and performance demands of wireless networks have become apparent. Recent advancements in generative artificial intelligence (AI) and large foundation models lead to a significant shift in how wireless networks are designed, managed, and optimized. The integration of AI and RAN heralds a transformative era, enabling the development of more adaptive, intelligent, high-performing, efficient, and versatile network systems. AI RAN is a key enabler for next-generation networks like 6G, where the complexity and demand for high performance require advanced automation and intelligent management. This tutorial will present the basic concepts/theories for addressing the research advances of AI RAN.

Hongliang Zhang received B.S. and Ph.D. degrees at the School of Electrical Engineering and Computer Science at Peking University, in 2014 and 2019, respectively, where he is currently an Endowed Boya Young Fellow Assistant Professor with School of Electronics. His current research interests include intelligent surfaces, aerial access networks, and Internet of Things. He received the best doctoral thesis award from Chinese Institute of Electronics in 2019. He is also the recipient of 2024 IEEE GLOBECOM Best Paper Award, 2024 IEEE/CIC ICCC Best Demo Award, 2023 IEEE ComSoc Asia-Pacific Outstanding Young Researcher Award, 2021 IEEE Comsoc Heinrich Hertz Award for Best Communications Letters, and 2021 IEEE ComSoc Asia-Pacific Outstanding Paper Award. He is currently an Editor for IEEE Transactions on Cognitive Communications and Networking, IEEE Internet of Things Journal, IEEE Transactions on Vehicular Technology, IEEE Communications Letters, and IET Communications. He is an exemplary editor for IEEE Communications Letters in 2023.

Qingyu Liu received the Ph.D. degree in computer engineering from Virginia Tech, Blacksburg, VA, USA, in 2019. He is currently an Assistant Professor with the School of Electronic and Computer Engineering, Peking University, where he joined in June 2023. Prior to joining Peking University, he was a Postdoc and then a Research Assistant Professor of electrical and computer engineering with Virginia Tech, from September 2019 to May 2023. His research interests include wireless networking, mobile networking, edge AI, and the Internet of Things. He received the best paper award candidate of MILCOM 2022, and the best paper award finalist of ACM e-Energy 2018. He has been serving on TPC of IEEE INFOCOM since 2021, and was awarded as a Distinguished Member of the INFOCOM TPC in 2023. He now serves as the Secretary for the IEEE ComSoc Asia/Pacific Region Board.

Shuhang Zhang received the Ph. D degree and B.S. degree in electronic engineering from the School of Electrical Engineering and Computer Science, Peking University, Beijing, China, in 2021 and 2016, respectively. Since 2023, he has worked in Peng Cheng Laboratory as a research scientist and doctoral supervisor. Before joining Peng Cheng Laboratory, he worked in Huawei Technology Co. Ltd. from 2021 to 2023 as a senior engineer. His current research interests include space-air-ground integrated network, artificial intelligence, signal processing, etc. His first-author papers have won the 2021 IEEE ComSoc Heinrich Hertz Award, and the 2021 IEEE ComSoc Asia-Pacific Outstanding Paper Award. He has also won the First Prize of 2019 IEEE ComSoc Student Competition, and the Silver Prize of 2019 ACM SIGCOMM Student Research Competition. He has published over 20 papers in IEEE/ACM Journals, including multiple ESI hot papers and ESI highly cited papers. He has served as the TPC member of over 10 IEEE conferences.

Sunday, 19 October 2025 14:00-17:30 Cheng Hua

T2: Digital twins, Resources, and Innovative tools for Vehicular networks (DRIVE) Tutorial

Francesco Linsalata, Eugenio Moro, Politecnico di Milano; Marco Rapelli, Francesco Raviglione, Politecnico di Torino

In the landscape of Intelligent Transportation Systems, Connected and Autonomous Vehicles (CAVs) increasingly rely on Vehicle-to-Everything (V2X) communication and AI-driven decision-making. Designing, validating, and deploying such systems demands rigorous testing environments that combine simulation flexibility with the realism of emulation and field trials.

This tutorial presents open-source frameworks for simulating and emulating V2X systems, focusing on ms-van3t—a modular, multi-stack platform for virtual validation of vehicular communications.

Supporting realistic mobility, ETSI-compliant message stacks, and multiple radio access technologies, ms-van3t is ideal for large-scale, heterogeneous V2X testing. A key innovation is the integration of the Sionna Ray Tracer, enabling accurate physical-layer modeling in complex urban settings. This extends ms-van3t beyond basic propagation models toward 3Daware channel simulations, laying the groundwork for realistic digital twin environments.

We also cover hybrid methodologies, including hardware-in-the-loop and dataset-in-the-loop approaches, using OScar (Open Stack for car)—a full ETSI-compliant C-ITS stack for vehicular field testing, runnable on Linux PCs and embedded On-Board Units. We demonstrate how OScar enables seamless integration between simulation and real hardware. Participants will engage in hands-on sessions using open datasets—such as mobility traces and 3D city models—to experiment with full-stack V2X setups and coexistence scenarios.

By uniting simulation, emulation, and hardware integration through interoperable open-source tools, this tutorial responds to the critical need for flexible yet realistic validation environments. It provides a reproducible, extensible foundation for both academic research and industrial deployment of next-generation connected mobility systems.

The tutorial will have four sessions:

1. Foundations of V2X Simulation and Emulation
2. Simulation Frameworks for Vehicular Networking
3. Full-Stack Integration and Digital Twin Concepts
4. Hands-On Demo with ms-van3t and OScar

Francesco Linsalata received his M.Sc. and PhD degrees cum laude in Telecommunication engineering from Politecnico di Milano, Milan, Italy, in 2019 and 2022, respectively. He is a researcher at the Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano. His main research interests focus on V2X communications and waveforms design for B5G wireless networks. He was the co-recipient of the best-paper award and recipient of the best student paper award at BalkanCom'19. He serves as TPC member in several IEEE and ACM conferences.

Eugenio Moro received his PhD in Information Technology cum laude from Politecnico di Milano, Milan, Italy in 2023. Currently, he is an assistant professor at Politecnico di Milano. His research focuses on wireless networks, with a particular interest on network economics, optimization, smart propagation environment, Open RAN and vehicular communications. He was a visiting researcher in Nokia Bell Labs, Stuttgart, Germany and Northeastern University, Boston, USA.

Marco Rapelli received his B.Sc. in Telecommunications Engineering (2015) and his M.Sc. in Computer and Communication Networks Engineering (2017) both at Politecnico di Torino. He took part of FULL (Future Urban Legacy Lab), an inter-disciplinary center of Politecnico di Torino, where, in March 2021, he received his Ph.D. cum laude in Electronics and Telecommunication Engineering. During his Ph.D., he also spent a eight-month visiting period at the Computer and Communication Systems Labs at Technische Universität Berlin, in

Berlin, Germany. He is now an Assistant Professor with time contract at Computer and Communication Network Department (DAUIN) of Politecnico di Torino. His main research interests focus on mobility studies, large-scale urban traffic simulators and vehicular networks.

Francesco Raviglione received a B.Sc. degree in Computer Engineering from Politecnico di Torino, followed by an M.Sc. degree in Mechatronics Engineering, with a focus on automotive and embedded systems. He then got a Ph.D. cum laude in Electronics and Telecommunication Engineering in Politecnico di Torino, presenting a final thesis work titled "Open platforms for connected vehicles". He is currently an assistant professor with time contract at the Department of Electronics and Telecommunications in Politecnico di Torino. He is currently working in the field of developing and evaluating platforms able to provide vehicular connectivity, on open source, customizable, solutions for wireless networking use cases, and on network measurements and performance assessment.

Sunday, 19 October 2025 14:00-17:30 Xin Du

T4: Empowering Mobile Networks with Large Language Models: from Network Modelling to Optimization

Antonio De Domenico, Fadhel Ayed, Nicola Piovesan, Huawei Technologies

The emergence of large language models (LLMs) and generative artificial intelligence (GenAI) has introduced significant capabilities in processing vast amounts of data and generating contextually accurate responses in natural language, and hence, paved the way for new methodologies and applications across various industries. This trend has recently given a rise to reasoning models trained on extensive datasets to make complex decisions possibly in real time. Among other industries, the use of LLMs holds significant potential for realizing automation and enhancing the performance in the Telecommunication industry, paving the way for full autonomous networks. In this tutorial, we will discuss the journey towards this goal, presenting in details challenges, solutions, and results for GenAI models in telecom networks.

Antonio De Domenico (Senior Member, IEEE) received the M.Sc. degree in telecommunication engineering from the University of Rome La Sapienza in 2008, and the Ph.D. degree in telecommunication engineering from the University of Grenoble in 2012. From 2012 to 2019, he was a Research Engineer with CEA LETI MINATEC, Grenoble, France. In 2018, he was a Visiting Researcher with the University of Toronto, Canada. Since 2020, he has been a Principal Engineer with Huawei Technologies France SASU, Paris, France. Dr. De Domenico has organized several workshops/special sessions in IEEE flagship conferences including IEEE Globecom and IEEE ICC, and he has been a member of the technical program committee of a number of IEEE conferences, and guest editor or IEEE journal special issues. Antonio is the main inventor or a co-inventor of more than 25 patents, and the co-author of more than 80 publications. Since 2023, he has been coleading the network energy efficiency activities within the green future network project of the NGMN Alliance. His research interests include heterogeneous wireless networks, machine learning, and green communications.

Fadhel Ayed is a Senior Researcher at Huawei Technologies, Paris. He received a B.Sc. and M.Sc. degree in applied mathematics from Ecole Polytechnique Paris, and an M.Sc. degree in machine learning from Ecole Normale Superieure Paris-Saclay in 2016. In 2020, he received his Ph.D. in Statistics from the university of Oxford. His current research interests include mathematical foundations of deep learning, reinforcement learning and generative AI for network automation.

Nicola Piovesan is a Senior Researcher at Huawei Technologies in Paris. He earned his Ph.D. in Network Engineering from the Polytechnic University of Catalonia (UPC) in 2020 and holds B.Sc. and M.Sc. degrees from the University of Padova, Italy. Before joining Huawei, he was an Assistant Researcher at CTTC, Barcelona, where he worked on integrating renewable energy into mobile networks under an European Union Marie Skłodowska-Curie fellowship. His research covers sustainable wireless technologies, large-scale network modeling and AI-based network automation. He has contributed to multiple industrial and academic projects, published over 40 research articles, and is co-inventor of more than 10 patents. His work has been recognized with the Huawei GTS President Award (2021) and the Huawei Quality Star Award (2024), reflecting his successful translation of research into real-world applications. He is actively involved in collaborative initiatives on AI and energy efficiency in next-generation networks.

Mohamed Sana received the M.Sc. degree in signal processing and wireless communications from the Grenoble Institute of Technology (Grenoble INP Phelma) in 2018. In 2021, he received the Ph.D. degree from the University of Grenoble Alpes, France. His thesis focused on distributed learning for 5G-and-beyond network management and orchestration. From 2021 to 2024, he worked as a research scientist at CEA-Leti. Since October 2024, he has been a research engineer at Huawei Paris Research Center. He has authored several publications in international conferences and journals, including patents. He has made strong technical contributions to European Projects (CSP4EU, 5G-CONNI, HEXA-X, 6G-GOALS). In addition, he was part of the scientific community of the Multidisciplinary Institute in Artificial Intelligence (MIAI) in Grenoble, which provides a framework for scientific mentorship, collaboration, and inter-disciplinarity. His current research interests include machine learning and reinforcement learning applied to wireless communication systems, signal processing, millimeter-waves networks, network management, and resource allocation.

Sunday, 19 October 2025 Online

T5: Integrated Sensing, Communications and Computation Empowered Low-Altitude Intelligent Networks

Yuan Wu, University of Macau; Suzhi Bi, Shenzhen University; Liping Qian, Zhejiang University of Technology; Yingjun Angela Zhang, The Chinese University of Hong Kong

The low-altitude economy (LAE) aims to leverage low-altitude airspace up to 3000 meters above ground to revolutionize future smart-city systems such as transportation, logistics, entertainment, etc. As a key framework that integrates low-altitude non-terrestrial and conventional terrestrial networks, low-altitude intelligent networks (LAINs) aim to provide multi-functions covering low-altitude accurate sensing and perception, low-latency and high throughput data transmission, real-time task computation/processing, as well as intelligent resource management and reliable control. To this end, the recent advanced integrated sensing, communication, and computation (ISCC) is expected to play a fundamental role in enabling LAINs. This tutorial focuses on illustrating the ISCC empowered LAINs. Firstly, it will provide a comprehensive introduction to the fundamentals and backgrounds of LAINs, covering their key functionalities, service requirements, potential applications, as well as the current technical challenges. Then, this tutorial will systematically illustrate the state of the art of technical advances of LAINs by leveraging the ISCC. We will illustrate the network architecture and infrastructure for accommodating ISCC empowered LAINs. Several key technologies that enable LAINs services will be presented, including integrated sensing and communications (ISAC), joint sensing/communication/computing resource management, as well as edge-cloud collaborative intelligence and generative artificial intelligence (GenAI). The tradeoff among the system efficiency, service robustness, and security will be illustrated, accounting for different quality requirements in LAE services. Overall, we believe that this tutorial will attract interest from academic researchers, graduate students, as well as industrial professionals in the relevant areas.

Yuan Wu received the PhD degree in Electronic and Computer Engineering from the Hong Kong University of Science and Technology in 2010. He is currently an Associate Professor with the State Key Laboratory of Internet of Things for Smart City, University of Macau, Macau SAR, China, and also with the Department of Computer and Information Science, University of Macau. His research interests include resource management for wireless networks, edge computing and edge intelligence, and integrated sensing, communication, and computation networks. He received the Best Paper Awards from the IEEE ICC'2016, IEEE TCGCC'2017, IWCMC'2021, and WCNC'2023. He served as the Track/Symposium Co-Chairs for IEEE VTC'2017-Fall, VTC'2022-Spring, GLOBECOM'2024, VTC'2025-Spring, and ICCC'2025. He is currently on the editorial boards of IEEE Transactions on Vehicular Technology, IEEE Transactions on Network Science and Engineering, and IEEE Internet of Things Journal. He

currently serves as the Vice-Chair of the Macau Chapter, IEEE Communications Society, and the Vice-Chair of the Meetings and Conference Committee, IEEE Communications Society Asia/Pacific Region. He is the Senior Member of IEEE, the Distinguished Member of China Computer Federation, and the Distinguished Lecturer of IEEE Vehicular Technology Society.

Suzhi Bi is a Full Professor with the College of Electronics and Information Engineering, Shenzhen University, China. He received his Ph.D. degree in Information Engineering from The Chinese University of Hong Kong in 2013, and his B.E. degree in Communications Engineering from Zhejiang University, China, in 2009. From 2013 to 2015, he was a post-doctoral research fellow with the Department of Electrical and Computer Engineering, National University of Singapore. His research interests mainly involve optimization and machine learning techniques for wireless resource allocation, mobile computing, and wireless sensing. Dr. Bi received the 2019 IEEE ComSoc Asia-Pacific Outstanding Young Researcher Award, the 2021 IEEE ComSoc Asia-Pacific Outstanding Paper Award, and conference Best Paper Awards of IEEE SmartGridComm 2013, IEEE/CIC ICCC 2021, IEEE VTC-Spring 2022, and WCSP 2024. He is an Editor of IEEE Transactions on Wireless Communications and IEEE Wireless Communications Letters. Dr. Bi is the Senior Member of IEEE.

Li Ping Qian received the Ph.D. degree in information engineering from The Chinese University of Hong Kong in 2010. From 2010 to 2011, she was a Post-Doctoral Research Associate with The Chinese University of Hong Kong, China. Since 2011, she has been with the College of Information Engineering, Zhejiang University of Technology, Hangzhou, China, where she is currently a Full Professor. Her research interests include wireless communication and networking, resource management in wireless networks, massive IoTs, mobile edge computing, emerging multiple access techniques, and machine learning oriented toward wireless communications. She was a co-recipient of the IEEE Marconi Prize Paper Award in Wireless Communications in 2011 and the Best Paper Award from IEEE ICC 2016, the IEEE Communication Society GCCTC 2017, the Digital Communications and Networking in 2021, and the IEEE WCNC 2023. She was an Associate Editor of the IET Communications from 2016 to 2022. She is currently on the editorial board of IEEE Transactions on Cognitive Communications and Networking. Dr. Qian is the Senior Member of IEEE and the Distinguished Lecturer of IEEE Vehicular Technology Society.

Ying-Jun Angela Zhang received the Ph.D. degree from the Department of Electrical and Electronic Engineering, The Hong Kong University of Science and Technology. She joined the Department of Information Engineering, The Chinese University of Hong Kong, in 2005, where she is currently a Professor. Her research interests include optimization and learning in wireless communication systems. Prof. Zhang is currently a Member-at-Large of IEEE ComSoc Board of Governors, the Steering Committee Chair of IEEE Wireless Communications Letters, and a member of the Steering Committees of IEEE Transactions on Mobile Computing and IEEE SmartgridComm Conference. She was a co-recipient of the 2021 and 2014 IEEE ComSoc Asia–Pacific Outstanding Paper Award, the 2013 IEEE SmartgridComm Best Paper Award, and the 2011 IEEE Marconi Prize Paper Award on Wireless Communications. As the only winner from engineering science, she won the Hong Kong Young Scientist Award 2006, conferred by the Hong Kong Institute of Science. She served as the Editor-in-Chief for IEEE Open Journal of Communications Society, the Chair for the Executive Editor Committee of IEEE Transactions on Wireless Communications and many years on the editorial boards of IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Journal on Selected Areas in Communications special issues, IEEE Internet of Things Journal special issues, and IEEE Communications Magazine special issues. She served on the organizing committees for many top conferences, such as IEEE GLOBECOM, ICC, VTC, and SmartgridComm. She was the Founding Chair of the IEEE ComSoc Technical Committee of Smart Grid Communications. Dr. Zhang is the Fellow of IEEE and the Fellow of IET.

Sunday, 19 October 2025 Online

T8: Multi-functional Reconfigurable Intelligent Surfaces for 6G and Beyond

Yuanwei Liu, The University of Hong Kong; Xidong Mu, Queen's University Belfast; Jiguang He, Great Bay University

Reconfigurable intelligent surfaces (RISs) and their diverse variants have emerged as promising techniques for sixth-generation (6G) wireless networks. Comprising of a large number of low-cost reconfigurable elements, both the phase and even the amplitude of the incident signals can be beneficially adjusted, thus realizing the smart radio environment. Given the rapidly increasing trend of capacity demands shows no sign of slowing down in the next decade as well as additional stringent and diverse requirements (e.g., sensing, localization, and computing) imposed by 6G and beyond (B6G) wireless networks, the novel concept of multi-functional reconfigurable intelligent surfaces (MF-RISs) has been recently proposed. This tutorial will introduce MF-RISs from two aspects. (1) Beyond Reflection – STARS: Simultaneously transmitting and reflecting surfaces (STARS) can transmit (refract) and reflect at the same time to provide full-space coverage compared to conventional reflection-only RISs; (2) Beyond Communications – Sensing-RIS: By being equipped with sensor components or assisting sensing links, sensing-RIS can be deployed to support integrated sensing and communications (ISAC). For each aspect, the tutorial will introduce their basic principles, fundamental designs, recent advances, and open problems.

Yuanwei Liu (https://www.eee.hku.hk/~yuanwei/) is a tenured full Professor in Department of Electrical and Electronic Engineering (EEE) at The University of Hong Kong (HKU) and a visiting professor at Queen Mary University of London (QMUL). Prior to that, he was a Senior Lecturer (Associate Professor) (2021-2024) and a Lecturer (Assistant Professor) (2017- 2021) at QMUL, London, U.K, and a Postdoctoral Research Fellow (2016-2017) at King's College London (KCL), London, U.K. He received the Ph.D. degree from QMUL in 2016. His research interests include non-orthogonal multiple access, reconfigurable intelligent surface, near field communications, integrated sensing and communications, and machine learning. Yuanwei Liu is a Fellow of the IEEE, a Fellow of AAIA, a Web of Science Highly Cited Researcher, an IEEE Communication Society Distinguished Lecturer, an IEEE Vehicular Technology Society Distinguished Lecturer, the rapporteur of ETSI Industry Specification Group on Reconfigurable Intelligent Surfaces on work item of "Multi-functional Reconfigurable Intelligent Surfaces (RIS): Modelling, Optimisation, and Operation", and the UK representative for the URSI Commission C on "Radio communication Systems and Signal Processing" (2023-2024). He was listed as one of 35 Innovators Under 35 China in 2022 by MIT Technology Review. He received IEEE ComSoc Outstanding Young Researcher Award for EMEA in 2020. He received the 2020 IEEE Signal Processing and Computing for Communications (SPCC) Technical Committee Early Achievement Award, IEEE Communication Theory Technical Committee (CTTC) 2021 Early Achievement Award. He received IEEE ComSoc Outstanding Nominee for Best Young Professionals Award in 2021. He is the co-recipient of the 2024 IEEE Communications Society Heinrich Hertz Award, the Best Student Paper Award in IEEE VTC2022-Fall, the Best Paper Award in ISWCS 2022, the 2022 IEEE SPCC-TC Best Paper Award, the 2023 IEEE ICCT Best Paper Award, and the 2023 IEEE ISAP Best Emerging Technologies Paper Award. He serves as the Co-Editor-in-Chief of IEEE ComSoc TC Newsletter, an Area Editor of IEEE Transactions on Communications and IEEE Communications Letters, an Editor of IEEE Communications Surveys & Tutorials, IEEE Transactions on Wireless Communications, IEEE Transactions on Vehicular Technology, IEEE Transactions on Network Science and Engineering, and IEEE Transactions on Cognitive Communications and Networking.

Xidong Mu is a lecturer (assistant professor) with the Centre for Wireless Innovation (CWI), Queen's University Belfast, U.K. since August 2024. His research interests include non-orthogonal multiple access (NOMA), IRSs/RISs-aided communications, integrated sensing and communications, semantic communications, and optimization theory. He received the IEEE ComSoc Outstanding Young Researcher Award for the EMEA region in 2023 and is the recipient of the 2024 IEEE Communications Society Heinrich Hertz Award, the Best Paper Award in ISWCS 2022, the 2022 IEEE SPCC-TC Best Paper Award, and the Best Student Paper Award in IEEE VTC2022-Fall. He also serves as an Editor of IEEE Transactions on Communications, a Guest Editor for the IEEE Internet of Things Journal Special Issue on "Next Generation Multiple Access for Internet-of-Things", and the "Mobile and Wireless Networks" symposium co-chair of IEEE GLOBECOM 2025.

Jiguang He Mu received his Ph.D. in Communications Engineering from the University of Oulu, Finland, in 2018. He serves currently as an Associate Professor at Great Bay University in Dongguan, Great Bay Area, China, and holds a Docentship (a.k.s adjunct professor) at the University of Oulu. He conducted research in multiple universities and institutes, such as Chalmers University of Technology, Macau

University of Science an Technology, and Technology Innovation Institute. He has actively contributed to numerous international and national projects, including EU FP7 RESCUE, EU H2020 ARIADNE, the 6G Flagship, and FDCT-GDST joint research project. He is recognized as an Exemplary Reviewer for IEEE Transactions on Communications and IEEE Communications Letters, and he serves as a Technical Program Committee (TPC) member for various IEEE conferences. Currently, he serves as an Associate Editor for IEEE Transactions on Vehicular Technology. He received the Best Paper Award from IEEE ICCT 2023 and IEEE ICC workshop 2024. His research interests span integrated sensing and communications, reconfigurable intelligent surfaces and its variants, mmWave/THz communications, and AI for communications and networking.

Sunday, 19 October 2025 9:00-12:30 Xin Du

T9: Multiple Access Techniques for 6G

Bruno Clerckx, Imperial College London; Yijie (Lina) Mao, Kangchun Zhao, ShanghaiTech University

Multiple access (MA) is essential in wireless systems, using dimensions like time, frequency, power, antennas, and code to serve multiple users efficiently. As wireless networks evolve to support communication, sensing, localization, and computing—along with the rise of machine learning and artificial intelligence (AI)— MA techniques are expected to undergo major changes in 6G and future networks. This tutorial offers a comprehensive overview of past, emerging, and future MA techniques, emphasizing how wireless intelligence and multifunctionality will reshape them. The tutorial begins with an overview of orthogonal and non-orthogonal MA schemes across various domains, including the physical layer, space domain, power domain, rate-splitting, code domain, and other emerging dimensions. It emphasizes the importance of researching universal multiple access to unify our understanding of MA schemes across all resource dimensions—aiming to consolidate rather than expand the current fragmented knowledge tree. The tutorial then delves into the design and resource allocation strategies developed for MA, along with the growing integration of MA with AI. This includes model-based and AI-driven approaches for MA, such as resource allocation, optimization, channel estimation, receiver design, and user behavior prediction across various MA schemes. It also explores how MA enables AI, including applications in federated learning, edge intelligence, and over-the-air computation. Finally, the tutorial explores various applications of multiple access MA, with a particular emphasis on its role in enabling multifunctionality. It examines the interplay between MA and integrated sensing, localization, and communication, highlighting how MA facilitates joint sensing and communication systems.

Bruno Clerckx is Professor of Wireless Communications and Signal Processing, the Head of the Communications and Signal Processing Group, and the Head of the Wireless Communications and Signal Processing Lab at Imperial College London. He spent many years in industry with Silicon Austria Labs (SAL), Austria, where he was the Chief Technology Officer (CTO) responsible for all research areas of Austria's top research center for electronic based systems, and with Samsung Electronics, South Korea, where he actively contributed to 4G (3GPP LTE/LTE-A and IEEE 802.16m) standardization. He has authored two books on "MIMO Wireless Communications" and "MIMO Wireless Networks", 300 peer reviewed international research papers, and 150 standards contributions, and is the inventor of 80 issued or pending patents among which several have been adopted in the specifications of 4G (and still in use in 5G) standards and are used by billions of devices worldwide. His research spans the general area of wireless communications and signal processing for wireless networks. He has been a Technical Program Committee (TPC) member, a symposium chair, or a TPC chair of many symposia on communication theory, signal processing for communications and wireless communications for several leading international IEEE conferences. He was an Elected Member of the IEEE Signal Processing Society SPCOM (Signal Processing for Communications and Networking) Technical Committee. He is the founding chair of IEEE special interest groups on Rate Splitting Multiple Access (RSMA) and Beyond Diagonal Reconfigurable Intelligent Surface (BD-RIS), both being promising technologies for 6G and beyond. He received the prestigious Blondel Medal 2021 from France for exceptional work contributing to the progress of Science and Electrical and Electronic Industries, the 2021 Adolphe Wetrems Prize in mathematical and physical sciences from Royal Academy of Belgium, multiple awards from Samsung, IEEE best student paper award, and the EURASIP (European Association for Signal Processing) best paper award 2022. He is a Fellow of the IEEE and the IET, and an IEEE Communications Society Distinguished Lecturer 2021-2023. He received the M.Sc. and Ph.D. degrees in Electrical Engineering from the Université Catholique de Louvain (UCLouvain), Belgium, and the Doctor of Science (DSc) degree from Imperial College London, U.K. He is also the founder and vice-chair of ETSI Industry Specification Group on Multiple Access Techniques for 6G.

Yijie (Lina) Mao is an Assistant Professor at the School of Information Science and Technology, ShanghaiTech University, Shanghai, China. She received the B.Eng. degree from the Beijing University of Posts and Telecommunications, and the B.Eng. (Hons.) degree from the Queen Mary University of London (London, United Kingdom) in 2014. She received the Ph.D. degree in the Electrical and Electronic Engineering Department from the University of Hong Kong (Hong Kong, China) in 2018. She was a Postdoctoral Research Fellow at the University of Hong Kong (Hong Kong, China) from Oct. 2018 to Jul. 2019 and a postdoctoral research associate with the Communications and Signal Processing Group (CSP), Department of the Electrical and Electronic Engineering at the Imperial College London (London, United Kingdom) from Aug. 2019 to Jul. 2021. Her research interests include the design of future wireless communications and artificial intelligence-empowered wireless networks. She is a senior member of China Institute of Communications. Dr. Mao receives the Best Paper Awards of EURASIP Journal on Wireless Communications and Networking (JWCN) 2022 and IEEE International Mediterranean Conference on Communications and Networking (MeditCom) 2023, the Exemplary Reviewers for IEEE Transactions on Communications 2021 and IEEE Communications Letters 2022, 2023. She is currently serving as an associate editor for IEEE Communications Surveys & Tutorials and IEEE Communications Letters, and the lead guest editor for one special issue of IEEE Transactions on Green Communications and Networking. She was a guest editor for two special issues of IEEE Journal on Selected Areas in Communications and IEEE Open Journal of the Communications Society. She has been a workshop co-chair for 2020-2022 IEEE ICC, 2021-2023 IEEE WCNC, and 2020-2022 IEEE PIMRC, and she has been a Technical Program Committee (TPC) member of many symposia on wireless communication for several leading international IEEE conferences. She has been recognized as the World's Top 2% Scientists by Stanford University in 2023, 2024.

Sunday, 19 October 2025 Online

T14: Task-Oriented and Trustworthy Communications for Connected Intelligence Systems

Wei Chen, Beijing Jiaotong University; Weisi Guo, Cranfield University; Yuxuan Sun, Beijing Jiaotong University

Connected intelligence systems have been widely deployed in industrial, medical, and urban governance domains. These systems rely on real-time environmental perception and collaborative decision-making, thus requiring the timely delivery of useful and trustworthy information. In this tutorial, we present the recent research advances in task-oriented and trustworthy communications for connected intelligence systems. The tutorial is mainly divided into three parts. Firstly, we provide a tutorial on adaptive semantic communications, covering its fundamental design principles, system architecture, performance metrics, and adaptivity to practical systems. Additionally, we will explore its potential use cases in delay sensitive tasks in 6G, e.g., massive MIMO CSI feedback, video question-answering and various generation applications. Secondly, we provide a comprehensive tutorial on timeliness-oriented communications, covering the basic concepts, performance metrics, fundamental analysis and optimization under various mission-critical tasks. Thirdly, we introduce recent advances of trustworthy AI in 6G networks, including the motivation for trust across ethical, legal, and social impact dimensions, the development of Quality-of-Trust KPIs, and cutting-edge research on explainable AI and agentic LLMs.

Prof. Wei Chen received the B.Eng. degree and M.Eng. degree from Beijing University of Posts and Telecommunications, China, in 2006 and

2009, respectively, and the Ph.D. degree in Computer Science from the University of Cambridge, UK, in 2013. Later, he was a Research Associate with the Computer Laboratory, University of Cambridge from 2013 to 2016. He is currently a Professor wit Beijing Jiaotong University, Beijing, China. He is the recipient of the 2023 IEEE/CIC ICCC Best Paper Award, the 2022 China's Top 10 scientific and technological developments in the field of information and communication, the 2019 CCF-Tencent Rhino Bird Innovation Award, the 2017 International Conference on Computer Vision (ICCV) Young Researcher Award, the 2013 IET Wireless Sensor Systems Premium Award. He is an IEEE Communication Society Distinguished Lecturer. His current research interests include massive access, semantic communications, AL/ML for PHY and sparse signal processing.

Prof. Weisi Guo obtained MEng, MA, and PhD degrees from the University of Cambridge. From 2012 to 2019, he built an award-winning team at the University of Warwick. Since 2019, he joined Cranfield University (Engineering: REF UK 2021 #7, Mech/Aero Engineering: QS Top-30 world 2022-24), where he is Head of Centre of Assured & Connected Autonomy at Cranfield University. He has published over 270 papers in the field of networks, machine learning, and data science. He currently co-leads UK's strategic projects in Trustworthy Autonomous Systems and 6G future networks. He has co-led over £35m of research funding and is an editor on multiple IEEE and Royal Society journals.

Dr. Yuxuan Sun is an Associate Professor with the School of Electronic and Information Engineering, Beijing Jiaotong University, China. She received the Ph.D. degree in Electronic Engineering from Tsinghua University in 2020. She has been a Post-Doctoral Researcher with Tsinghua University, and a Visiting Researcher with Imperial College London. Her research mainly focuses on task oriented communications and edge intelligence. She has published more than 40 journal and conference papers in these areas. She has received the Distinguished Ph.D. Thesis Award by China Institute of Communications (CIC) in 2022. She has served as the Assistant to the Editor-in-Chief of IEEE Transactions on Green Communications and Networking (2020-2022). She has been the secretary of the IEEE ComSoc Emerging Techinologies Committee since 2022. She has served as a publicity co-chair of ITC'35-36.

Sunday, 19 October 2025 Online

T15: Towards Integrated Positioning and Communication: From 6G Terrestrial to Non-Terrestrial Networks

Henk Wymeersch, Yu Ge, Chalmers University of Technology; Yuchen Zhang, Tareq Y. Al-Naffouri, King Abdullah University of Science and Technology

Integrated positioning and communication (IPAC) is a key enabler for 6G, where wireless communication systems are jointly optimized for high-precision positioning and data transmission. Building upon integrated sensing and communication (ISAC), IPAC leverages positioning and sensing to significantly enhance communication performance and reliability. Both terrestrial networks (TNs) and non-terrestrial networks (NTNs) play crucial roles in 6G networks. TNs refer to conventional ground-based communication infrastructures, including base stations, access points, and core networks, offering robust and high-speed connectivity across urban, suburban, and rural areas. NTNs encompass spaceborne, airborne, and maritime communication systems, including satellites (LEO, MEO, GEO), high-altitude platforms (HAPs), and unmanned aerial vehicles (UAVs), providing global coverage and connectivity to remote, rural, and underserved regions. Integrating IPAC within both TNs and NTNs enhances overall network performance, enabling seamless global connectivity and precise positioning critical for future applications. This tutorial aims to provide attendees with a comprehensive understanding of IPAC for 6G, highlighting fundamental principles, key enabling technologies, current challenges, and future research directions. Through theoretical insights and practical examples, attendees will explore the benefits and integration strategies of IPAC across TNs and NTNs. Four sections will be covered in this tutorial: (i) Introduction to ISAC and its evolution into IPAC within the 6G context; (ii) Fundamentals and advancements of IPAC for 6G TN; (iii) Fundamentals and advancements of IPAC for 6G NTN; (iv) Integration strategies, future research directions, and a comprehensive outlook on IPAC-enabled integrated TN and NTN systems.

Henk Wymeersch (Fellow, IEEE) obtained the Ph.D. degree in Electrical Engineering/Applied Sciences in 2005 from Ghent University, Belgium. He is currently a Professor of Communication Systems with the Department of Electrical Engineering at Chalmers University of Technology, Sweden. He is also a Distinguished Research Associate with Eindhoven University of Technology. Prior to joining Chalmers, he was a postdoctoral researcher from 2005 until 2009 with the Laboratory for Information and Decision Systems at the Massachusetts Institute of Technology. Prof. Wymeersch served as Associate Editor for IEEE Communication Letters (2009-2013), IEEE Transactions on Wireless Communications (since 2013), and IEEE Transactions on Communications (2016-2018) and is currently Senior Member of the IEEE Signal Processing Magazine Editorial Board. During 2019-2021, he was an IEEE Distinguished Lecturer with the Vehicular Technology Society. His current research interests include the convergence of communication and sensing, in a 5G and Beyond 5G context.

Yu Ge (Member, IEEE) received his Ph.D. Degree in the Department of Electrical Engineering from Chalmers University of Technology, Gothenburg, Sweden in 2024, his M.Sc. degree from KTH Royal Institute of Technology in 2019, and his B.E. degree from Zhejiang University in 2017. He is currently a Postdoctoral Researcher at Chalmers University of Technology, Gothenburg, Sweden. To date, he has published over 30 IEEE journal and conference papers, authored 2 book chapters, and holds 2 US patents. He also received the "FUSION 2021 Best Paper" award. Yu has served as a TPC member for several conferences, and as a Reviewer for several journals and conferences. His research interests focus on integrated sensing and communication, wireless localization systems, and radio simultaneous localization and mapping (SLAM), with particular emphasis on 5G and beyond 5G scenarios.

Yuchen Zhang (Member, IEEE) received his B.E. and Ph.D. degrees in communication engineering from the University of Electronic Science and Technology of China in 2018 and 2024, respectively. His Ph.D. research was supervised by Prof. Wanbin Tang, Head of the National Key Laboratory of Wireless Communications. From 2022 to 2023, he was a visiting Ph.D. student at the Weizmann Institute of Science, working on integrated sensing and communication (ISAC) under the guidance of Prof. Yonina C. Eldar. Since October 2024, he has been a postdoctoral researcher at King Abdullah University of Science and Technology, collaborating with Prof. Tareq Y. Al-Naffouri. He has served as a TPC member for several conferences, and as a Reviewer for multiple journals and conferences. His current research interests focuse on 6G LEO communication and positioning, radio positioning, ISAC, and reconfigurable antenna-enabled communications, sensing, and positioning.

Tareq Y. Al-Naffouri (Fellow, IEEE) received the B.S. degree (Hons.) in mathematics and electrical engineering from the King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, in 1996, the M.S. degree in electrical engineering from Georgia Institute of Technology, Atlanta, GA, USA, in 1998, and the Ph.D. degree in electrical engineering from Stanford University, Stanford, CA, USA, in 2004.,He was a Visiting Scholar with California Institute of Technology, Pasadena, CA, USA, in 2005 and summer 2006. He was a Fulbright Scholar with the University of Southern California, Los Angeles, CA, USA, in 2008. He is currently a Professor with the Electrical and Computer Engineering Program, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia. He has over 300 publications in journals and conference proceedings and 20 issued/pending patents. His research interests lie in the areas of sparse, adaptive, and statistical signal processing and their applications to wireless communications and localization, machine learning, and network information theory., Dr. Al-Naffouri was a recipient of the IEEE Education Society Chapter Achievement Award in 2008, the Al-Marai Award for Innovative Research in Communication in 2009, and Abdul Hameed Shoman Arab Researchers Award in 2022. He was an Associate Editor of IEEE Transactions on Signal Processing from 2013 to 2018.

Sunday, 19 October 2025 Online

T16: Trustworthy and Efficient Generative AI and Pretrained LLMs for Next-Generation Communications

Dusit Niyato, Nanyang Technological University; Yijing Lin, Beijing University of Posts and Telecommunications; Jiacheng Wang, Ruichen Zhang, Nanyang Technological University

This tutorial aims to explore the intersection of generative artificial intelligence (AI), large language models (LLMs), and next-generation communication networks such as 6G, Semantic Communication, and ISAC. As generative AI technologies become increasingly central to intelligent networking, ensuring their trustworthiness and efficiency is of paramount importance. The tutorial is structured into six focused modules. It begins with the use of generative diffusion models as autonomous network planners, highlighting their ability to guide scheduling, routing, and resource optimization through reinforcement learning. Next, we explore the role of generative AI in integrated sensing and actuation for ISAC systems, emphasizing multimodal signal synthesis and communication-perception co-design. A central highlight of the tutorial is unlearning in pretrained LLMs, where we present recent advances in removing sensitive or outdated knowledge via fine-tuning removal, black-box unlearning, and federated collaboration. It can address both privacy and compliance in adaptive communication environments. We also discuss hallucination in LLM-generated outputs, an increasingly relevant challenge in Telecom applications, and introduce mitigation techniques spanning both model-side fine-tuning and system-level optimization using mobile-edge architectures. In addition, we examine scalable deployment strategies for LLMs in resource-constrained mobile and edge networks, presenting compression techniques and performance metrics validated by real-world case studies. This tutorial is ideal for researchers, engineers, and practitioners seeking to develop and deploy trustworthy and efficient generative AI models in modern communication infrastructures.

Dusit Niyato is a professor in the College of Computing & Data Science, at Nanyang Technological University, Singapore. He received Ph.D. in Electrical and Computer Engineering from the University of Manitoba, Canada. Dusit's research interests are in the areas of sustainability, edge intelligence, decentralized machine learning, and incentive mechanism design. Dusit won the IEEE Communications Society (ComSoc) Best Survey Paper Award, IEEE Asia-Pacific Board (APB) Outstanding Paper Award, the IEEE Computer Society Middle Career Researcher Award for Excellence in Scalable Computing and Distinguished Technical Achievement Recognition Award of IEEE ComSoc Technical Committee on Green Communications and Computing. Dusit also won a number of best paper awards including IEEE Wireless Communications and Networking Conference (WCNC), IEEE International Conference on Communications (ICC), IEEE ComSoc Communication Systems Integration and Modelling Technical Committee and IEEE ComSoc Signal Processing and Computing for Communications Technical Committee 2021. Currently, Dusit is serving as Editor-in-Chief of IEEE Communications Surveys and Tutorials (impact factor of 35.6 for 2023), an area editor of IEEE Transactions on Vehicular Technology, editor of IEEE Transactions on Wireless Communications, associate editor of IEEE Internet of Things Journal, IEEE Transactions on Mobile Computing, IEEE Wireless Communications, IEEE Network, IEEE Transactions on In- formation Forensics and Security (TIFS), and ACM Computing Surveys. He is a Member-at-Large to the Board of Governors for 2024-2026, and was a Distinguished Lecturer of the IEEE Communications Society for 2016-2017. He was named the 2017-2022 highly cited researcher in computer science. He is a Fellow of IEEE and a Fellow of IET.

Yijing Lin is a postdoc researcher with the State Key Laboratory of Networking and Switching Technology, Beijing University of Posts and Telecommunications (BUPT), where she received the Ph.D degree in 2024. She received the B.E. degree from North China Electric Power University (NCEPU) in 2019. From 2022 to 2023, she was a visiting researcher with College of Computing and Data Science, at Nanyang Technological University, Singapore. She has published more than 20 papers including WWW, IJCAI, IEEE TSC, TCOM, TNSE, TVT etc. Her publications include ESI highly cited papers, IEEE ComSoc Best Readings and received four Best Paper Awards including IEEE OJCS, IEEE IWCMC, IEEE-CCF Service Computing Technical Committee. Her current research interests include blockchain and data unlearning.

Jiacheng Wang received the M.S and Ph.D. degrees in the School of Communication and Information Engineering, Chongqing University of Posts and Telecommunications, in 2018 and 2022, respectively. From 2021 to 2022, he was a visiting researcher with College of Computing and Data Science, at Nanyang Technological University, Singapore, where he is now the Postdoc Research Fellow. His research interests include Generative AI, Integrated Sensing and Communications, Network Optimization, and Edge Intelligence. He has published more than 50 papers including IEEE JSAC, IEEE TMC, IEEE TWC, IEEE TCCN, IEEE TVT, IEEE CMOST, IEEE WCM, IEEE Network, IEEE WCL, IEEE GLOBECOM, IEEE ICC, and IEEE WCNC. He was a Guest Editor of IEEE Wireless Communications, Open Journal of the Communications Society, IEEE Internet of Things Magazine, and IEEE Networking Letters.

Ruichen Zhang received the B.E. degree from Henan University (HENU), China, in 2018, and the Ph.D. degree from Beijing Jiaotong University (BJTU), China, in 2023. He is currently a Post-Doctoral Research Fellow with the College of Computing and Data Science, Nanyang Technological University (NTU), Singapore. In 2024, he was a Visiting Scholar with the College of Information and Communication Engineering, Sungkyunkwan University, Suwon, South Korea. His research interests include the Internet of Agents, LLM-empowered networking, reinforcement learning-enabled wireless communication, generative AI models, and heterogeneous networks. He has published more than 40 papers including IEEE JSAC, IEEE TWC, IEEE TCOM, IEEE TCCN, IEEE TVT, IEEE CMOST, IEEE WCM, IEEE Transactions on Cognitive Communications and Networking, IEEE WCL, IEEE GLOBECOM, IEEE ICC, etc. He is the Managing Editor of IEEE Transactions on Network Science and Engineering (TNSE) from 2025.

Registration

Registration will take place in the foyer outside the Crystal Ballroom. Hours are:

- Sunday 19 October 0730 – 1730
- Monday 20 October 0730 – 1730
- Tuesday 21 October 0800 – 1730
- Wednesday 22 October 0800 – 1730

Social Events

Coffee breaks will take place in the foyer outside the Crystal Ballroom. Lunches are included in the full registration, and requires the red, blue, or purple badge or a lunch ticket – don't loose your tickets! ☺ The lunches will be in the Tianfu Room.

The reception on Sunday evening, which is also in the Tianfu Room, is open to all attendees, including student and life registrations.

A banquet dinner is scheduled on Tuesday evening. The banquet is available for those with full conference registration or those who have purchased extra tickets. Again you must have a red or blue badge or bring your ticket with you to access the banquet. The banquet will take place at the Shunxing Teahouse and features a menu that showcases the essence of Sichuan cuisine. The Shunxing Teahouse is walkable from the conference center.

Keynotes

Monday, 20 October 2025, 9:00–9:45 Crystal Ballroom 1456

ComAI: A Convergence Road of Communication and Artificial Intelligence

Ping Zhang, *Professor, Beijing University of Posts and Telecommunications*

The convergence of Communication and Artificial Intelligence (ComAI) represents one of the most significant trends in modern information technology, with semantic communication emerging as one of its most prominent technical approaches. This talk provides an in-depth exploration of the multi-layered relationship between semantic communication and artificial intelligence. First, we review the technological evolution of classical communication, highlighting that current communication technologies are approaching their theoretical limits and facing persistent performance bottlenecks. Then, we introduce the fundamental concept of semantic information, outline its measurement framework and coding theorems, and demonstrate that modern semantic communication technologies guided by semantic information theory offer an innovative pathway to break through the limitations of classical communication. Furthermore, we elaborate on the intrinsic connection between semantic communication and artificial intelligence and introduce the core principles and methodological framework of ComAI. Finally, we briefly present experimental scenarios and performance evaluations for semantic communication, showcasing its significant performance advantages. In summary, this talk reveals the inherent relationship between semantic communication and artificial intelligence, highlighting that the integration of communication and intelligence will serve as the cornerstone for the future development of information technology.

Ping Zhang is an academician of Chinese Academy of Engineering, IEEE Fellow, Professor with Beijing University of Posts and Telecommunications, Ph.D. supervisor, and director of State Key Laboratory of Networking and Switching Technology. He is the Editor-in-Chief of Journal on Communications. He is a member of IMT-2020 (5G) Experts Panel, a member of Experts Panel for China's 6G development, and has received many awards and honors including the Grand Prize for the National Science and Technology Progress Award. He is one of the most well-known key contributors to the development of China-pioneered mobile communication technologies, which have been widely adopted on a global scale. His research interests include next-generation mobile networks, semantic communications, and intellicise communication system.

Monday, 20 October 2025, 9:45–10:30 Crystal Ballroom 1456

6G Wireless: Challenges and Opportunities

Reinaldo A. Valenzuela, *Director Wireless Communications Research, Bell Labs*

6G brings great opportunities for new, engaging, sustainable and value generating mobile networks applications and services. These will be enabled by sustained technology evolution. Starting with "Extreme Connectivity" delivering improved coverage, capacity and coverage at reduced cost per bit. Followed by "AI-Native" designs propelling automation and AI for, and on, the Radio Access Network. Leading to "Beyond Connectivity" fostering value generating and transformative applications taking advantage of new capabilities such as localization and sensing, programmability and an API frame network. I will discuss in further detail essential elements and technology enablers for this near, medium and long term 6G vision as well as 6G challenges and opportunities.

Reinaldo A. Valenzuela: Member National Academy of Engineering, Fellow IEEE. IEEE Eric E. Sumner Award. Bell Labs Fellow. WWRF Fellow, 2014 IEEE CTTC Technical Achievement Award, 2015 IEEE VTS Avant Garde Award. B.Sc. U. of Chile, Ph.D. Imperial College. Director, Communication Theory Department, Distinguished Member of Technical Staff, Bell Laboratories. Engaged in propagation measurements and models, MIMO/space time systems achieving high capacities using transmit and receive antenna arrays, HetNets, small cells and next generation air interface techniques and architectures. He has published 247 papers and 44 patents. He has over 35,800 Google Scholar citations and is a 'Highly Cited Author' In Thomson ISI and a Fulbright Senior Specialist.

Tuesday, 21 October 2025, 9:00–9:45 Crystal Ballroom 1456

Amplifying information meta-surfaces for wireless transfers of information and power

Tie Jun Cui, *Professor, Southeast University*

Space-time-coding information metasurfaces have great capabilities in controlling the phases, amplitudes, frequency spectra, polarization, waveforms, and spatial beams of electromagnetic (EM) waves, and modulating digital information in the EM space. Integrating amplifiers into metasurface units, a new function of wireless power transfers is added to the amplifying information metasurfaces. In this talk, I will introduce the principles and techniques to use the amplifying information metasurfaces for wireless communication and wireless power transfer independently and simultaneously.

Tie Jun Cui is a Chief Professor of Southeast University, Nanjing, China, Director of State Key Laboratory of Millimeter Waves, and Founding Director of Institute of Electromagnetic Space, Southeast University. He proposed the concepts of digital coding and programmable metamaterials and established the new direction of information metamaterials, which can bridge the physical world and digital world, and are easy to integrate with the artificial intelligence. He published over 700+ peer-reviewed journal papers that have been cited by more than 81000 times (H-factor 137), and received many awards, including the National Natural Science Awards of China in 2014 and 2018, the Frontiers of Science Award in the First International Congress of Basic Science in 2023, the IEEE ComSoc Marconi Prize in 2024, the Tan Kah Kee Information Science Award in 2024, the Leading Technology (Natural Science) Award in 2024 World Internet Conference, and the ACES Technical Achievement Award in 2025. Dr. Cui is an Academician of Chinese Academy of Science and IEEE Fellow.

Tuesday, 21 October 2025, 9:45–10:30 Crystal Ballroom 1456

AI and Foundation Models: The Next Wireless Revolution

Khaled B.Letaief, *Senior Advisor to the President, Hong Kong University of Science and Technology*

The emergence of 6G wireless networks heralds a transformative era in our digital landscape, characterized by the need for not only ultra-fast data rates but also significant advancements in ultra-reliable low-latency communications, massive device connectivity, and seamless intelligence at the network edge. As these next-generation networks evolve to support diverse applications—from hyper-realistic virtual environments to autonomous cities and interconnected industries—the demands for seamless communication, robust security, and agile automation become increasingly critical. At this pivotal moment, artificial intelligence is poised to become the driving force behind wireless innovation, enabling predictive analytics, adaptive resource allocation, and real-time network self-management. This talk will explore some of the key technologies that will shape the future of wireless networks, with a particular focus on foundation models—massive AI engines with generative, multimodal, and autonomous capabilities designed to thrive in the dynamic landscape of wireless environments. These foundation models usher in a new era of universality and adaptability, empowering intelligent agents to predict communication channels, optimize beamforming, enhance network security, automate lifecycle management, and navigate unpredictable scenarios with agility. Global research collaborations and industry competitions are accelerating progress, bringing foundational AI into practical 6G applications and establishing new benchmarks for performance and adaptability. Ultimately, this talk will illustrate how foundation models are redefining next-generation connectivity, enabling wireless systems to perceive, decide, and act with human-like intelligence.

Dr. Khaled B. Letaief is an internationally recognized leader in wireless communications and networks with research interest in 6G, AI, task-oriented and semantic communications, along with integrated sensing and communications. He is a Member of the United States National Academy of Engineering, Fellow of IEEE, and Member of the Hong Kong Academy of Engineering. He is also recognized by Thomson Reuters as an ISI Highly Cited Researcher with over 62,000 citations and an exceptional 110 h-index.

He is the founding Editor-in-Chief of the prestigious IEEE Transactions on Wireless Communications. He is the recipient of many distinguished awards and honors including the 2024 Purdue University Distinguished Engineering Alumni Award; 2024 IEEE James Evans Avant Garde Award; 2022 IEEE Edwin Howard Armstrong Achievement Award; 2019 IEEE Communications Society and Information Theory Society Joint Paper Award; and 2016 IEEE Marconi Prize Award in Wireless Communications. He is well recognized for his dedicated service to professional societies and in particular IEEE where he has served in many leadership positions. These include IEEE Communications Society President, the world's leading organization for communications professionals with headquarter in New York City and members in 162 countries. Since 1993, he has been with HKUST in Hong Kong where he has held many administrative positions, including Acting Provost and Dean of Engineering.

Dr. Letaief received the BS degree with distinction, MS and Ph.D. Degrees in Electrical Engineering from Purdue University at West Lafayette, Indiana, USA. He also received a Ph.D. Honoris Causa from the University of Johannesburg, South Africa.

Wednesday, 22 October 2025, 9:00–9:45 Crystal Ballroom 1456

Token Communications

Wen Tong, *CTO, Wireless Network, Huawei Technologies Co., Ltd.*

The foundation for the AI revolution is based on the LLM technology, in addition to the text-centric Generative-AI, the LLM enables the AI-Reasoning capability to automate the work flow for all business, it enables the Agentic-AI for the intent-centric autonomous applications, with the rise of Agentic Internet, Agent-to-Agent communications will eventually become the dominant networking technology. Since the LLM-GPT Based Agent is computing intensive, and in particular, the LLM requires massive parallel SIMD/SIMT computing with specific constraints, such as stringent synchronization for token-by-token prediction, this leads to the new communications challenges, we call this Token Communications.

In this talk, we present two principles of the Token Communication design, first, the on-time-in-order transmission protocol to maximize the computing and communication efficiency, second, attention derivative token, rather than the plain text token to ensure the privacy. We also present the scaling-law in terms of the Token Communication with the perspective of the scaling law for LLM.

Wen Tong is the CTO, Huawei Wireless, he is the chief scientist for Huawei 5G/6G. He is a Huawei Fellow and an IEEE Fellow. Prior to joining Huawei in 2009, Dr. Tong was the Nortel Fellow and head of the Network Technology Labs at Nortel. He joined the Wireless Technology Labs at Bell Northern Research in 1995 in Canada. For the past three decades, he had pioneered fundamental technologies from 1G to 6G wireless and WiFi. His current research focus is AI-Wireless. He is a Fellow of Canadian Academy of Engineering, and a Fellow Royal Society of Canada.

Wednesday, 22 October 2025, 9:45–10:30 Crystal Ballroom 1456

Keynote

Hao Xu, *VP Engineering, Head of Research China, Qualcomm Inc.*

Dr. Hao Xu is the Vice President of Engineering, Head of Qualcomm Research China and IEEE Fellow. Since 2003, he has been working at Qualcomm R&D, where he has led many research and standardization projects from 3G to 5G. His current research focus is 6G, AI and robotics. Prior to Qualcomm, he worked at Bell Lab's Wireless Communication Research Lab. In 2003, he received the Bell-Labs President Gold Metal Award for his contributions to MIMO technology, including the early near field MIMO research.

Dr. Xu has 870+ US issued patents, numerous journal publications and over 20000 citations. In 2018, he received the Top Ten 5G Leading Figures Awards in China. He also won numerous industry awards for various 5G trials. He currently serves on IEEE Communications Society Awards Standing Committee, Industry Communities Board, Emerging Technologies Standing Committee, and the technical advisory board for HKUST ECE department.

Dr. Xu received his B.S and M.S. from Moscow Power Engineering Institute and Technical University, Russia, in 1994 and 1996. He received his Ph.D. from Virginia Tech in 2000. During his Ph.D., he pioneered the millimeter-wave propagation research at 38 GHz and 60 GHz with Dr. Rappaport. In 1999, he received the IEEE Communications Society Steve Rice Award.

Demos

Sunday, 19 October 2025, 17:30-18:00 Shu Feng repeated at
Monday, 20 October 2025, 17:30-18:00 Shu Feng

Unlocking 6G Potential with Ranplan's Wireless Digital Twin

This demo showcases how Ranplan's Wireless Digital Twin software empowers industries to move from 6G theory into practical planning and deployment by creating a 3D high-fidelity virtual replica of real-world wireless environments.

Panels

Monday, 20 October 2025, 11:00-12:30 Crystal Ballroom 1456

The New Paradigm of Gigantic MIMO

Moderator:	**Boyu Ning**	*Huawei*
Panelists:	**Fengwei Liu**	*Huawei*
	Guangyi Liu	*CMCC*
	Xiangyang Duan	*ZTE*
	Gen Cao	*China Unicom*
	Emil Björnson	*KTH*

The Upper 6 GHz (U6G) and 7-8 GHz frequency bands are critical for the next generation of communication systems. These bands provide more spectrum resources compared to sub-6 GHz bands and superior propagation characteristics to mmWave bands. The successful deployment of upper mid-band frequencies in next-generation systems depends on achieving enhanced spectral efficiency with similar coverage capability as in current networks.

The implementation of U6G and 7-8 GHz bands necessitates the adoption of novel Gigantic MIMO (gMIMO) technologies with at least 4x the antenna elements and ports than in the 3 GHz band, which introduce specific challenges and research opportunities in the areas of air-interface and algorithm technologies, as well as system architecture technologies. This industry panel focuses on the following practical challenges for deploying future gMIMO systems:

1. **Advanced Channel Acquisition Techniques**: How to effectively utilize the measurement capabilities of both the base station (BS) and user equipment (UE), along with the potentially sparse characteristics of the channel, to accurately obtain high-dimensional channels at minimal cost when the coherence time shrinks.
2. **Advanced Precoding Techniques**: Discuss on high-performance precoding techniques for gMIMO, under various single-panel and distributed architectures, with the goal of fully exploiting the performance potential of gMIMO while maintaining manageable computational and hardware complexity.
3. **Advanced Architecture Techniques**: Development of low-cost, high-performance gMIMO hardware architectures, including but not limited to hybrid beamforming architecture with phase-shifters or metamaterial. This approach can help address the cost and power consumption issues associated with traditional digital beamforming systems.

By addressing these challenges, we can pave the way for the successful deployment of gMIMO technologies in the U6G and 7-8 GHz bands, leading to more efficient and effective next-generation communication systems.

Monday, 20 October 2025, 14:00-15:30 Crystal Ballroom 1456

The Future of Large Language Models in Mobile Networks: Enabling Intelligence in Autonomous Vehicular Systems

Moderators:	**Dusit Niyato**	*Nanyang Technological University, Singapore*
	Ruichen Zhang	*Nanyang Technological University, Singapore*
Panelists:	**Xiao Lu**	*Ericsson, Canada*
	Lin Cai	*University of Victoria, Canada*
	Abbas Jamalipour	*The University of Sydney, Australia*
	Sumei Sun	*Institute for Infocomm Research (I2R), A*STAR, Singapore*

The rise of Large Language Models (LLMs) marks a paradigm shift in artificial intelligence, with profound implications for mobile and wireless communication systems. In the context of autonomous vehicular networks, LLMs offer unprecedented capabilities for enabling intelligent, adaptive, and cooperative behavior across connected vehicles, infrastructure, and edge computing nodes.

This industry panel will bring together leading researchers and industry experts to explore the evolving role of LLMs in shaping the future of autonomous vehicular systems. With the increasing complexity and mobility of vehicular networks, traditional rule-based or narrowly trained AI systems struggle to keep pace. LLMs, with their powerful reasoning, contextual understanding, and multimodal capabilities, offer a compelling foundation for applications such as natural language-based vehicle-to-everything (V2X) communication, real-time situational awareness, cooperative perception, traffic prediction, and autonomous decision-making.

The panel will cover key research frontiers, including model optimization for low-latency inference at the edge, federated and continual learning across vehicular nodes, secure and privacy-preserving LLM deployment, and the integration of LLMs with 5G/6G and Mobile Edge Computing (MEC) infrastructures. It will also address the challenges of deploying LLMs in highly dynamic, bandwidth-constrained, and safety-critical environments.

Participants will gain insights into cutting-edge research, practical deployment strategies, and future roadmaps for embedding LLMs into the fabric of intelligent transportation systems. This seminar aims to foster cross-disciplinary dialogue and collaboration to realize the vision of AI-native, autonomous, and human-centric vehicular networks

Tuesday, 21 October 2025, 11:00-12:30 Crystal Ballroom 1456

Toward the Realization of Low Altitude Economy: Key technologies and challenges

Moderators:	**Shuguang Cui**	*CUHK-SZ*
	Huang Chuan	*CUHK-SZ*
Panelists:	**Liuqing Yang**	*Hong Kong University of Science & Technology (Guangzhou)*
	Xiang Cheng	*Peking University*
	Rongke Liu	*Beihang University*
	Yuanwei Liu	*The University of Hong Kong*
	Yuan Wu	*University of Macau*

Tuesday, 21 October 2025, 14:00-15:30 Crystal Ballroom 1456

Industry Perspectives on Low Altitude Intelligent Networks

Moderator:	**Zhisheng Niu**	*Tsinghua University*
Panelists:	**Sheng Zhou**	*Tsinghua University*
	Qi Bi	*China Telecom*
	Shanzhi Chen	*China Information & Communication Technology Group (CICT)*
	Yinian Mao	*Meituan*
	Yu Su	*China Mobile*

Low-altitude intelligent networks are emerging as a critical enabler for the next generation of urban mobility, logistics, and public services. As drone delivery, low-altitude air traffic management, and unmanned aerial vehicle (UAV) communications move from pilot projects to large-scale deployment, the demand for reliable, secure, and intelligent network infrastructure has never been greater.

This industry panel will convene thought leaders from China Telecom, China Mobile, Meituan, and China Information and Communication Technology Group to discuss the evolving ecosystem of low-altitude networks. Panelists will share their perspectives on connectivity requirements, spectrum allocation, and the integration of terrestrial, satellite, and aerial networks to support high-density UAV operations. The discussion will also highlight advances in AI-driven airspace management, edge-cloud collaboration for real-time decision-making, and the role of 5G/6G in enabling ultra-reliable low-latency communications (URLLC) for safety-critical applications.

Key topics will include network architecture design, interoperability standards, security and privacy considerations, and lessons learned from early commercial deployments such as drone-based logistics. Attendees will gain a comprehensive view of both the technological opportunities and regulatory challenges shaping this fast-growing sector, as well as insight into how cross-industry collaboration can accelerate the realization of a safe, efficient, and intelligent low-altitude economy.

Wednesday, 22 October 2025, 11:00-12:30 Crystal Ballroom 1456

AI based 6G System Architecture and Procedure

Moderators:	**Yang Ning**	*OPPO*
Panelists:	**Zhang Wanqiang**	*3GPP SA2 Vice Chair, Huawei*
	Gao Yin	*Standardization Director, ZTE*
	Sun Tao	*3GPP SA Vice Chair, CMCC*
	XiaXu	*Standardization Director, China Telecom*
	Erlin Zeng	*3GPP RAN2 Vice Chair, CATT*
	Cao Gen	*Standardization Director, China Unicom*

In 2025 June, 3GPP approved the 6G study items for RAN and System Architecture. This marks the official start of the 6G standardization work.

The study of 6G RAN aims to develop one non-backward compatible radio access technology, with the newly design 6G radio interface architecture and procedure. AI is a promising tool which can be potentially used to enhance the protocol and procedures. Meanwhile, new services based on AI may bring potential new requirements on the design of the 6G air interface protocol and procedure.

The study of 6G System Architecture aims to define a system architecture for 6G mobile networks for improvement of existing services and support of new services. How to support and enable use of AI in 6G (e.g. AI agent, framework) is an important aspect to enable native AI in the 6G system architecture.

Workshops

Sunday, 19 October 2025 9:00 - 10:30 Shu Han

W1: 2nd Workshop on Real-Time Communications Toward 6G (WRTC)

The Internet of Things (IoT) and pervasive fifth-generation (5G) and beyond communications, linked with significant computational capabilities, are posed to revolutionize almost every aspect of our daily life, including products such as smartphones and intelligent vehicles and crucial tasks such as precision agriculture and environmental monitoring. As a new paradigm shift towards sixth generation (6G) communication systems, Real-time communications (RTC) will enable systems to be designed to generate, process and transmit only a small fraction of the most important information, thereby consuming less energy and channel resources without compromising system efficiency. In this context, the Age of Information (AoI) is now present in several 3GPP standardization proposals as a KPI for 6G systems, and the focus on machine-to-machine communications will only increase its relevance. However, most of the research on AoI and its variants has been purely theoretical: For the concept to be fully integrated into the emerging IoT, research needs to consider practical aspects tied to energy consumption, short packet decoding, and protocol design.

The research community has shown interest in these challenges. However, they have lacked a venue, as more theoretical papers have often been preferred: our workshop aims at bridging the gap between the more theoretical research of the past few years and actual implementation by fostering discussion and welcoming case studies and practical measurements as well as analytical work.

Workshop Organizers
Tianhao Liang, Harbin Institute of Technology
Jie Cao, Harbin Institute of Technology
Nikolaos Pappas, Linköping University
Zhongxiang Wei, Tongji University

Program

1 **A Cross-Domain Cooperative Scheduling Scheme for End-to-End Deterministic Communication in 5G-TSN Integrated Networks**
Yuhang Peng, Yan Yang, Beijing Jiaotong University

2 **Age of Information Analysis for Single Relay Assisted Health Monitoring Systems**
Yue Wang, Mangang Xie, Yaping Wang, Jing Wei, Wenpeng Dong, Qianqian Wang, Northwest Normal University

3 **AoI-Aware Scheduling and Resource Control via Hierarchical DRL in Beam Hopping LEO Satellite**
Xia Xie, Bowen Feng, Zhang Chen, Lirong An, Zhang Qinyu,Harbin Institute of Technology (Shenzhen)

4 **Coupled UL-DL Framework with Beamforming Optimization for Near-Field ISAC**
Wenjun Hou, Xu Zhu, Yufei Jiang, Harbin Institute of Technology (Shenzhen)

5 **Joint Optimization of Reliability and Age of Information for Short Packet-based Industrial IoT**
Jingling Peng, Zhihao Dong, Xu Zhu, Harbin Institute of Technology (Shenzhen)

6 **Robust Beamforming with UAV-Assisted Artificial Noise for Secure LEO Communications**
Zhihan Qin, Harbin Institute of Technology (Shenzhen); Zhikai Zhang, Pengcheng Laboratory; Tingting Zhang, Harbin Institute of Technology (Shenzhen)

Sunday, 19 October 2025 9:00 - 12:30 Jin Niu

W2: 4th International Workshop on Mission Critical Communications

The advent of 5G and the prospect for 6G have paved the way for new applications in mission critical communications and navigation, including disaster monitoring, train/traffic controls, and public safety. Mission critical communication provides reliable communication even in extreme environments. High accuracy positioning for a vehicle or a mobile phone has extended its applications to unmanned vehicles/drones, emergency rescue, and navigation in GPS-denied areas like tunnels, underground motorways, and parking lots. Security in mission critical communications is highly required, since they are used for many businesses as well as public safety responders and organizations. It greatly increases the reliability of communications and navigation from disruption or attack.

The demand to support safety-critical systems increases the requirements for highly reliable, secure, and low latency communications. These requirements generate significant challenges in several areas in communications systems including network architecture, air protocol, security, and positioning and navigation systems. This Workshop focuses on several technologies related to mission critical communications and navigation to satisfy these challenges.

Workshop Organisers
Hichan Moon, Hanyang University
Carmela Cozzo, Samsung Electronics America
Momiao Zhou, Hefei University of Technology

Papers

1 **A Fully Independent MARL for Collision Avoidance in Distributed Channel Access**
Sungweon Hong, Yeonseo Jeong, Ukjo Hwang, Songnam Hong, Hanyang University

2 **Blocker-Aware Beamforming and Dynamic Power Allocation for Multicarrier ISAC-NOMA Systems**
Abdulahi Abiodun Badrudeen, Nakyung Lee, Adam Dubs, Sunwoo Kim, Hanyang University

3 **Deep Learning-Based Angle of Arrival Estimation for Ultra-Wideband Radios**
Xingkun Wang, Beijing University of Posts and Telecommunications

4 **Deep Reinforcement Learning for Resource Allocation in RIS-Assisted NOMA-MEC Vehicular Networks**
Shunyao Wang, Wenjuan Yu, Lancaster University; Chuan Heng Foh, University of Surrey; Qiang Ni, Lancaster University; Qiao Cheng, Lehu Wen, Brunel University London

5 **High-accuracy Perception Algorithm Based on AFDM-ISAC System**
Shuhan Chen, Harbin Institute of Technology; Xinyue Ren, Shanghai Aerospace Electronic Technology Institute; Xu Lin, Zhiyang Li, Wei Li, Lin Mei, Harbin Institute of Technology

6 **Mobility-Aware Relay Selection and Resource Allocation for Long-Platoon Communications**
Feng Yu, Momiao Zhou, Yimin Zhou, Yanshi Sun, Zhengqiong Liu, Hefei University of Technology

7 **Motion Parameter Estimation for Far-Field UAV Based on TDOA Measurements**
Pengwu Wan, Xi'an University of Posts and Telecommunications

8 **Network Quality Prediction System Stabilizing Video Transmission for Autonomous Driving**
Kotaro Ono, Taichi Kawano, Tsuyoshi Fueki, Takehiro Fujinaga, Takuya Tojo, Takeshi Kuwahara, NTT Network Service Systems Laboratories

9 **Passive Sensing and Target Localization Using a Dual-Functioning mmWave Communication System: Prototype Design and Field Experiment**
Menglei Luo, Zhengzhou University; Jingya Yang, High-Speed Railway Operation Engineering Research Center

10 **Physical Layer Security for NOMA-OFDM using Power Hopping**
Tasneem Mohammad Assaf, Khalifa University; Arafat Al-Dweik, Khalifa university; Youssef Iraqi, Mohammed VI Polytechnic University

11 **Reliable Wireless Robotic Communications under Impulsive Interference in a Smart Factory**
Yousef Alanezi, Kwang-Cheng Chen, University of South Florida

Sunday, 19 October 2025 11:00 - 12:30 Shu Han

W3: 6G-Enabled Large Models: Architecture, Optimization, and Deployment s

With the rapid advancement of artificial intelligence (AI) technologies, particularly the rise of large models such as Deepseek and GPT, it is foreseeable that a huge number of AI phones deploying large models will emerge in the near future. The deployment, inference, and updating of these large models require ubiquitous massive computing power, ultra-low latency connectivity, and ultra-high bandwidth data transmission. This poses new communication and beyond communication capability requirements for future wireless network. The 6G network is expected to integrate multidimensional resource elements such as communication, sensing, computing, and intelligence, natively supporting intelligent orchestration, control, and scheduling of various AI applications. This will achieve comprehensive integration of the network and AI, supporting large-scale model operations across various industries to meet the growing demands of AI applications. However, to fully harness the potential of 6G in empowering large AI models, key challenges such as network architecture design, multi-dimensional resource management, protocol development, and security risks must be addressed.

Workshop Organisers
Guangyi Liu, China Mobile Research Institute
Yang Yang, Hong Kong University of Science and Technology
Chenghui Peng, Huawei Technologies Co., Ltd.
Nan Cheng, Xidian University

Papers

1 **End-to-End Edge AI Service Provisioning Framework in 6G ORAN**
Yun Tang, Udhaya Chandhar Srinivasan, Benjamin James Scott, Dennis Kevogo, Obumneme Umealor, Weisi Guo, Cranfield University

2 **MAHs: Multi-Adaptation Hubs for Online Learning in Large Network Models**
Liexiang Yue, Qingbi Zheng, Min Zhang, China Mobile; Na Li, China Mobile Research Institute; Guangyi Liu, China Mobile

3 **Multi-objective AI Service Quality Optimization for Generative AI Inference in Native AI Wireless Networks**
Tianjiao Chen, Juan Deng, Yaru Li, China Mobile Research Institute; Tao Chen, MediaTek Inc.; Qixing Wang, China Mobile Research Institute

4 **Multivariate Time Series Prediction with Quantum Tiny Time Mixer in Mobile Networks**
Chengkang Pan, Yongmei Li, China Mobile Research Institute; Yun Zhu, Gannan Normal University; Chunyang Luan, China Mobile Research Institute; Xiang Zhao, TuringQ Co., Ltd.; Fei Wang, China Mobile Research Institute

5 **Research on the Application of AI Large Models in 6G Network Operations and Maintenance**
Zhousheng, Qujun, Wang Xi, China Mobile Communications Group, Fujian Co., Ltd.

Sunday, 19 October 2025 14:00 - 15:30 Shu Han

W4: Advanced Techniques in Synergetic Digital Twins and Pervasive Intelligence for ISAC in Next-Gen Vehicular Networks

As vehicular systems evolve toward ultra-autonomous, hyper-connected ecosystems, the fusion of sensing and communication into unified integrated sensing and communication (ISAC) architectures is critical to address escalating demands for real-time responsiveness, environmental cognition, and adaptive coordination. These networks face multifaceted challenges: dynamic topographies in urban or remote environments, signal interference from high-density vehicle-to-everything (V2X) interactions, and the need for ultra-reliable, low-latency data exchange to support applications like autonomous platooning, collision avoidance, and immersive in-vehicle services. Here, digital twins (DTs) emerge as transformative tools, creating dynamic virtual replicas of vehicular systems—from individual sensors to entire traffic ecosystems—to enable real-time simulation, predictive analytics, and lifecycle optimization. When coupled with Pervasive Intelligence, which embeds AI/ML-driven decision-making across edge devices and cloud platforms, this synergy unlocks proactive resource allocation, energy-efficient routing, and self-healing network capabilities. However, integrating these paradigms introduces complexities, such as harmonizing heterogeneous sensor

data streams (lidar, radar, V2X) into precise DTs models, ensuring algorithmic efficiency in distributed edge environments, and balancing computational load across resource-constrained vehicular nodes. These challenges necessitate the design of frameworks, technologies and protocols to ensure reliable operation across both physical and virtual infrastructure components. The integration of DTs and pervasive intelligence with sensing and communication systems represents a strategic advancement that enhances vehicular networks ' capabilities beyond conventional data transmission and environmental monitoring. The event will explore innovations in adaptive ISAC waveform design, federated learning for privacy-preserving vehicular intelligence, and edge-native synergetic DT and pervasive intelligence that optimize 6G-enabled vehicular networks.

This workshop aims to explore the integration of DTs and pervasive intelligence to drive advancements in next-generation vehicular networks, focusing on enhancing energy efficiency, ultra-reliable communications, and ultra-low latency. By addressing key challenges and presenting innovative solutions, it offers a platform for experts to collaborate on accelerating digital transformation in the Internet of Vehicles (IoV) and intelligent transportation systems.

Workshop Organizers
Yu Cheng, Illinois Institute of Technology
Tom H. Luan, Xi'an Jiaotong University
Fengye Hu, Jilin University
TPC Co-chairs:
Qihao Li, Jilin University
Qiang (John) Ye, University of Calgary, Canada
Hongliang Zhang, Peking University
Mushu Li, Lehigh University
Yanglong Sun, Jimei University
Zhuang Ling, Jilin University
Workshop Publicity Co-chairs:
Junling Li, Southeast University
Haixia Peng, Xi'an Jiaotong University

Papers

1 **Deep Active Learning-based Jamming Detection in Wireless IoT Networks**
Ahmed Hmdan, Fatma Gamal, Assuit University; Mostafa Korashy, Mahmoud Elsaadany, Ghyslain Gagnon, Mohamed Cheriet, École de technologie supérieure Univeristy of Québec

2 **Digital Twin-enabled Intelligent Congestion Control for QUIC-based E2E Communication**
Tongzhou Yang, College of Communication Engineering, Jilin University; Qihao Li, Chongyang Guo, Mingyang Wang, Chao Liang, Jilin University; Hui Liang, Dongguan University of Technology

3 **Energy Efficiency in 6G Native AI Networks: Task Schedule based on NOMA Transmission**
Meihui Hua, Qixing Wang, Guangyi Liu, Tianjiao Chen, Juan Deng, Na Li, China Mobile Research Institute; Jiangzhou Wang, University of Kent; Tao Chen, MediaTek Inc.

4 **HGSTA: Leveraging Hypergraph Computing for Effective Collaborative Perception Feature Fusion**
Shaolong Zheng, Shanhao Zhan, Xiamen University; Zhibin Gao, Jimei University; Lianfen Huang, Xiamen University

5 **NOMA for Self-Powered Sensor in HSR Communication Systems: Intelligent Decision-Making and Resource Optimization**
Jixiang Wang, Fengye Hu, Zhuang Ling, Jilin University

6 **Optimizing Post-Quantum Secure Communication via DL-Based KEM Selection in VANETs**
Tariq Qayyum, United Arab Emirates University; Asad Waqar Malik, Mississippi State University,; Asadullah Tariq, United Arab Emirates University; Mohamed Adel Serhani, University of Sharjah; Zouheir Trabelsi, United Arab Emirates University

Sunday, 19 October 2025 9:00 - 15:30 Qing Yang

W5: Advancements & Innovations in Electric Vehicles, Vehicular Electronics & Intelligent Tran. Systems

This workshop brings together leading experts, researchers, industry professionals, and policymakers to explore cutting-edge developments shaping the future of transportation. With rapid urbanization and increasing environmental concerns, sustainable mobility solutions are more critical than ever. Participants will delve into the latest innovations in electric vehicle battery technologies, charging infrastructure, vehicle-to-everything (V2X) communications, autonomous driving technologies, and IoT applications within intelligent transportation systems through technical paper presentations highlighting groundbreaking research, interactive panel discussions addressing current challenges, and poster sessions that foster networking and collaboration. The goal of the workshop is to provide an interdisciplinary platform to exchange knowledge, discuss innovative approaches, and develop solutions for real-world transportation challenges. Topics will also address intelligent power electronics, renewable energy integration, fleet optimization strategies, cybersecurity, privacy issues, and relevant policy frameworks.

Organizers:
Zahid Khan, Prince Sultan University
Donghong Cai, Jinan University
Wadii Boulila, Prince Sultan University
Pingzhi Fan, Southwest Jiaotong University
Technical Program Committee:
Asad Malik, Monash University
Fakher Abbas, National University of Singapore
Lisu Yu, Nanchang University
Amin Ullah, Boeing Research & Technology
Muhammad Diyan, Teesside University
Muhammad Babar, Prince Sultan University
Haleem Farman, Prince Sultan University
Jawad Ahmad, Prince Mohammad Bin Fahd University
Farhan Ullah, Northwestern Polytechnical University
Nauman Khan, Malakand University

Papers

1 **A Federated Intrusion Detection Framework with Random Neural Networks for Securing Intelligent Transportation Systems**
Jawad Ahmad, Prince Mohammad Bin Fahd University

2 **A Study on E2E Performance Improvement of Platooning Using Outdoor LiFi**
Zhiyi Zhu, Kobe University; Eiji Takimoto, Nara Women's University, Patrick Finnerty, Chikara Ohta, Kobe University

3 **A Synergistic Framework for High-Volume Image Acquisition and Transmission Through Semantic-Optical Communication in UIoT Networks**
Lisu Yu, ChenLiu, Zipeng Li, Qibiao Zhu, Zhen Wang, Nanchang University

4 **A Vision-assisted Point Cloud Data Association Method for Multiple Target Tracking in Roadside 4D Radar-Camera System**
Shuo Liu, Zhiqun Hu, Jiaqi Xu, Gengchen Zhang, Beijing University of Posts and Telecommunications

5 **Congestion-Aware UAV Deployment with Q-Learning based Routing for VANETs**
Prangya Priyadarshini, National Institute of Technology Rourkela; Lopamudra Hota, BIT Mesra; Arun Kumar, NIT; Peter Han Joo Chong, Auckland University of Technology

6 **Dynamic Scheduling of Demand-Responsive Transit via Multi-Agent Deep Reinforcement Learning**
Zhuo Lin, Sun Yat-sen University; Jieli Yin, Jianping Luo, Collaborative Innovation Center for Transportation of Guangzhou; Xijun Wang, Xiang Chen, Sun Yat-sen University

7 **Efficient Intrusion Detection with Improved Attention-Based CNN-BiGRU Architecture for Intelligent Vehicular Networks**
Amna Naeem, QMuazzam A. Khan, Quaid-i-Azam University, Islamabad; Muhammad Hanif, Örebro Universitet; Tamara Zhukabayeva, L.N. Gumilyov Eurasian National University; Jawad Ahmad, Prince Mohammad Bin Fahd University; Muhammad Shahbaz Khan, Edinburgh Napier University

8 **Energy-Efficient Consensus for V2V Communication via VDF-Enabled PoA and Secret-Sharing-Based CH Selection**
Hamid Ullah, Qian Ning, Xiangrong Tang, Yongnan Xu, Sichuan University; Qurat ul Ain, Fudan University

9 **Federated Learning-Driven Hybrid TCN-Transformer Model for Accurate State of Charge Estimation in Electric Vehicles: A Multi-Scenario Study**
Nadia Dahmani, Zayed University; Syed Muhammad Salman Bukhari, Capital University of Science and Technology; Sujan Gyawali, Lamar University

10 **From Classical to Quantum: Route Discovery Evolution with Grover's Search and Legacy Algorithms**
Abdullah Fahad Alobaid, Zahid Khan, Sultan Almogbil, Muhammad Babar, Wadii Boulila, Prince Sultan University; Adel Ben Mnaouer, University of Prince Mugrin

11 **SDN-Enabled UAV-ITS: Challenges, Solutions, and Future Prospects**
Nauman Khan, Prince Sultan University; Ahmed Khalfan Salim Alqasmi, Universiti Malaya; Zahid Khan, Prince Sultan University; Anis Koubaa, Alfaisal University; Asad Malik, Monash University

12 **SSVM: Successive Support Vector Machine-based Anomaly Detection in EV Charging Piles**
Youfei Lu, Guangdong Power Grid Co.; Fangming Zou, Yiqing Zhai, The Hong Kong University of Science and Technology (Guangzhou); Zehao Wang, Shirong Zou, Guangdong Power Grid Co.; Ying Cui, The Hong Kong University of Science and Technology (Guangzhou)

13 **The X-in-the-Loop Approach in P-CAR for Verification and Validation of of Automated Vehicles**
Yuri Stangherlin, Andrea Rofini, Vincenzo Sulli, Valeria Ioannucci, University of L'Aquila and Radiolabs; Francesco Valentini, Elena Cinque, Marco Pratesi, University of L'Aquila

14 **Towards a Simulation Framework for Performance Evaluation of RIS-Assisted Collective Perception Message Exchange**
Rimsha Saeed, National University of Science and Technology, Islamabad; Marios Lestas, Frederick University, Nicosia, Cyprus; Michele Segata, University of Trento

15 **Towards Infant Sleep-Optimized Driving: Synergizing Wearable and Vehicle Sensing in Intelligent Cruise Control**
Ruitao Chen, Western University

Sunday, 19 October 2025 9:00 - 12:30 IC Ballroom

W6: AI RAN

The radio access network (RAN) plays a pivotal role in our increasingly connected world. As the demands of modern applications and connected devices have grown rapidly over time, the limitations of conventional RAN in handling the complexity, scalability, and performance demands of wireless networks have become apparent. The integration of AI and RAN heralds a transformative era, enabling the development of more adaptive, intelligent, high-performing, and versatile network systems. AI RAN is a key enabler for next-generation networks like 6G, where the complexity and demand for high performance require advanced automation and intelligent management.

Although early explorations of AI RAN concepts and applications are promising, many research challenges still exist, such as how to leverage AI to improve spectral and operational efficiency, optimize radio resource management, and enable predictive maintenance. Other challenges include: application of generative models or large models for RAN to improve efficiency, capacity, and performance metrics; evolution paradigms to optimize the performance of models for RAN; security and privacy for AI RAN.

The future AI RAN cannot operate efficiently, unless these challenges are properly addressed. This workshop brings together industry leaders, research institutions, and academia to present and discuss the problems, challenges, and directions in the fields of AI RAN. It deals with architectural issues, theoretical studies, new paradigms, enabling technologies, practical implementations, and policy issues for AI RAN. Besides the technical insights, the workshop will provide a supportive environment for technical discussions between like-minded researchers and engineers.

Workshop Organizers
Hongliang Zhang, Peking University
Aryan Kaushik, Manchester Metropolitan University
Qingyu Liu, Peking University

Program

Sunday, 19 October 2025 9:00 - 10:30 IC Ballroom

Session 1

1 **AI-Enhanced CSI Feedback via Exploiting Multi-user Shared Information in mMIMO Systems**
Yekang Wang, Shanzhi Chen, China Academy of Telecommunication Technology; Shaoli Kang, Xianjun Yang, CICT Mobile; Mingyu Jia, Yuqi Xue, China Academy of Telecommunications Technology

2 **Deep Learning based Unified CSI Feedback for TDD and FDD Massive MIMO Systems**
Mingyu Jia, China Academy of Telecommunications Technology; Shaoli Kang, CICT Mobile; Yuqi Xue, Yekang Wang, China Academy of Telecommunications Technology; Xianjun Yang, CICT mobile

3 **Deep Reinforcement Learning based Coordinated Resource Scheduling for Live Streaming**
Mingcheng Mo, Qiang Li, Zishuo You, Huazhong University of Science and Technology; Xiaotian Zhou, Shandong University; Xiaohu Ge, Huazhong University of Science and Technology

4 **Edge-Cloud Collaborative Model Inference for Aerial Networks with Distributionally Diverse Data**
Nanqian Jia, Shuhang Zhang, Lingyang Song, Peking University

5 **Environment-Adaptive Access Control Scheme Design in Smart Factories Enabled by Deep Reinforcement Learning**
yueyutong, Zhuocheng Xu, Boya Di, Lingyang Song, Peking University

Sunday, 19 October 2025 11:00 - 12:30 IC Ballroom

Session 2

1 **Fine-Grained Radio Map Construction from Ultra-Sparse Sampling: An Edge-Cloud Model Collaboration Paradigm**
Shuai Shao, Peking University; Lu Cheng, Peking University Shenzhen Graduate School; Ke Chen, PengCheng Laboratory; Shuhang Zhang, Lingyang Song, Peking University

2 **Generative Adversarial Network-Enhanced Hybrid Autoencoder Design for Downlink SCMA Systems**
Lisu Yu, Mingli Zhang, Xiaoman Zhou, Gaoyang Dong, Qiegen Liu, Nanchang University

3 **Multi-Agent DRL for Distributed Task Offloading in Energy Harvesting Enhanced Hierarchical MEC**
ChunYu Guo, Peking University Shenzhen Graduate School; Boya Di, Lingyang Song, Peking University

4 **Satellite Service Prediction via Spatial-Temporal GNN Integrated with Orbital Context**
Xue Yin, Peking University; Zhiwei Wei, Tongji University; Tianyu Wang, Pengcheng Laboratory; Rongqing Zhang, Tongji University; Lingyang Song, Peking University

5 **STOTO: Spatio-Temporal Transformer-Based Opportunistic Task Offloading for LEO Networks**
Yuqi Cong, Zhiwei Wei, Jiarui Chen, Tongji University; Jiayu Sun, Shanghai Aerospace Electronic Technology Institute; Rongqing Zhang, Tongji University; Lingyang Song, Peking University

Sunday, 19 October 2025 14:00 - 17:30 IC Ballroom

W9: Emerging Physical-layer Security Technologies and Applications for B5G and 6G

This workshop mainly focuses on the development of physical-layer security (PLS) technologies and their potential applications for the future beyond fifth-generation (B5G) and sixth-generation (6G) networks. The tremendous growth in connectivity and the ubiquity of wireless communications have led to an unprecedented awareness of the importance of security and privacy. Achieving secure and trusted communications is vital for the deployment of future intelligent connected applications, especially life-critical vehicle-to-everything (V2X) applications. However, the heterogeneous, dynamic and decentralized architecture of these networks results in difficulties for cryptographic key management and distribution. By exploiting the physical characteristics of devices, wireless channels and noise, PLS offers reliable and post-quantum secure solutions against eavesdropper attacks as complementary approaches to cryptographic techniques.

The workshop will share advancements in the PLS field and spreading the adoption in scenarios of B5G and 6G, sharing insights into the topics of physical layer security model, mechanisms, and applications in B5G and 6G networks.

Workshop Organizers:
Trung Q. Duong, Memorial University
Eduard Axel Jorswieck, TU Braunschweig
Guyue Li, Southeast University & University of Liverpool
Junqing Zhang, University of Liverpool
Nan Zhao, Dalian University of Technology

Program

Sunday, 19 October 2025 14:00 - 15:30 IC Ballroom

Session 1

Keynote: Advancing Wireless Trust: Cutting-Edge Physical Layer Security
Ning Xie, Shenzhen University

1 **Adaptive Artificial Noise Strategy With Reconfigurable Intelligent Surface for Secure Communications**
Sri Wahyuni, National Yangming Chiaotung University; Jane-Hwa Huang, National Chi Nan University; Chih-Min Yu, Chung Yuan Christian University; Li-Chun Wang, National Chiao-Tung University

2 **Energy-Efficient Wireless Extended Reality (XR) Transmissions with Reliability and Security Guarantees in the Finite Blocklength Regime**
Xinyuan Zhang, Xiaoyu Zhao, Tao Guo, Southeast University

3 **Hybrid-Functional RIS-Assisted Covert Communications: A Mutualistic Symbiosis Design**
Yunpeng Feng, Lu Lv, Long Yang, Jian Chen, Xidian University; Yinghui Ye, Xi'an University of Posts & Telecommunications; Arumugam Nallanathan, Queen Mary University of London

4 **Joint Optimization Design for Active RIS-Assisted Maritime Secure ISAC System**
Ying Feng, Zhiquan Zhou, Harbin Institute of Technology; Junsheng Zhao, China Association of Communication Enterprises; Jinlong Wang, Bo Li, Chenxu Wang, Siyuan Yu, Harbin Institute of Technology

Sunday, 19 October 2025 16:00 - 17:30 IC Ballroom

Session 2

1 **LNN-Based Low-Complexity Secure beamforming for RIS Assisted Wireless Communication Systems**
Qilong Lou, Jie Xu, Yue Niu, Yinghui Zhang, Inner Mongolia University

2 **Huffman Coding-Inspired Secret Key Generation from Wireless Channel for Secure Communications**
Elmi Hassan Farah, Syed Junaid Nawaz, Shurjeel Wyne, COMSATS University Islamabad; Haris Pervaiz, University of Essex; Aryan Kaushik, Manchester Metropolitan University; Mohammad N. Patwary, University of Wolverhampton

3 **Strict Secrecy Outage Performance for WPBC Under Energy-Causality Constraint**
Ying Li, Yaxiong Lei, Liqin Shi, Yinghui Ye, Jing Jiang, Xi'an University of Posts & Telecommunications

4 **The Optimization of XL-RIS-assisted Physical Layer Key Generation in Near-Field**
Jiaping Chan, Haoyu Li, Guyue Li, Xianghui Cao, Southeast University

5 **Time Generalization Oriented CNN-based RFFI Using WiSig Dataset: an Experimental Study**
Chaozheng Xue, Tao Li, Yongzhao Li, Yuhan Ruan, Rui Zhang, Dong Yang, Xidian University

6 **UAV-Enabled Covert Communication Against Uncertainly Located Warden**
Huaqing Yang, Dongdong Li, Hu Wang, Linhan Wang, Zhutian Yang, Harbin Institute of Technology

Sunday, 19 October 2025 9:00 - 12:30 Shu Jin

W10: Energy Self-Sustainable Internet of Everything for 6G

Extremely massive connectivity for small devices has been considered as a key performance indicators for 6G to enable ubiquitous Internet of Everything (IoE), where most of devices will be either battery-powered or battery-less. How to prolong their lifetime becomes a key challenge. This calls for effort from two complementary aspects: 1) energy efficiency to reduce the IoE networks' energy consumption, and 2) energy self-supply within the IoE networks to open up flexible and on-demand energy supply to IoE devices. It is envisioned that IoE networks will possess energy self sustainability in 6G. To make it a reality, tremendous efforts should be invested on both the base station/network side and the device side. This workshop is about to provide a forum across academia and industry to explore recent advances, research opportunities, and technical challenges in energy self-sustainable IoE networks for 6G. This workshop will bring together leading researchers to present their research in this area including novel ideas, models, methodologies, system designs and architectures, experiments and benchmarks, as well as research surveys.

Workshop Chairs
Yizhe Zhao, UESTC
Lexi Xu, China Unicom Research Institute & Yangtze Delta Region Institute (Quzhou), UESTC
Yongjun Xu, Chongqing University of Posts and Telecomms
Ioannis Krikidis, University of Cyprus

Program

Sunday, 19 October 2025 9:00 - 10:30 Shu Jin

Session 1

Keynote

1 Energy-Efficient Hybrid Multiple Access Design for Backscatter Communications: Device Scheduling and Resource Allocation
Yan Zhang, Lu Lv, Yunpeng Feng, Long Yang, Xidian University; Arumugam Nallanathan, Queen Mary University of London

3 Magnetic Induction Link Model for Wireless Communication in Underground Endogenous Environment
Kun Chai, Qiupeng Li, Guanghua Liu, Huazhong University of Science and Technology

4 Multiple Access Offloading Design for Optimizing Weighted PAoI-Energy in Mobile Edge Computing Systems
Xianglin Zhang, Lu Lv, Li Zhao, Xidian University; Yinghui Ye, Xi'an University of Posts & Telecommunications; Arumugam Nallanathan, Queen Mary University of London

Sunday, 19 October 2025 11:00 - 12:30 Shu Jin

Session 2

1 Near-field NOMA-SWIPT Assisted with Dynamic Metasurface Antennas
Jiyao Xie, Neijiang Normal University; Long Zhang, University of Electronic Science and Technology of China

2 Optimizing BPSK/QPSK for Backscatter Devices in Symbiotic Backscatter Communication Radio Systems
Shuang Lu, Yinghui Ye, Liqin Shi, Xi'an University of Posts & Telecommunications; Haitao Zhao, Nanjing University of Posts and Telecommunications; Guangyue Lu, Xi'an University of Posts and Telecommunications

3 Service-Driven Physical Layer Function Orchestration Algorithm Based on Meta-Reinforcement Learning
Jiajia Liao, Luping Xiang, University of Electronic Science and Technology of China; Chao Tong, Kang Zheng, China Mobile Zijin Innovation Institute

4 Unified Multi-carrier Integrated Data and Energy Transfer Using Helper Signal
Long Zhang, Yuqi Cao, University of Electronic Science and Technology of China; Cheng Li, Huawei; Yizhe Zhao, University of Electronic Science and Technology of China

Virtual Paper

1 Collaborative Multi-Agent Deep Reinforcement Learning for Joint Task Offloading and Resource Allocation with Long Term Energy Control
Yu Chenglong, Xing Wang, University of Chinese Academy of Sciences; Jinglin Shi, :Institute of Computing Technology,Chinese Academy; Yiqing Zhou, Ling Liu, Institute of Computing Technology, Chinese Academy of Sciences

Sunday, 19 October 2025 TBD Online

W12: Generative AI and Large Model Empowered Next Generation Networks

This half-day workshop will seek to bring together researchers and experts from academia, industry, and governmental agencies to discuss and promote the research and development needed to overcome the major challenges that pertain to this cutting-edge research topic.

Steering Committee Members:
Shuguang Cui, The Chinese University of Hong Kong (Shenzhen)
Zhu Han, University of Houston
Kai-Kit Wong, University College London

Co-Organizers:
Sihua Wang, Beijing University of Posts and Telecommunications
Liang Li, Pengcheng Laboratory
Biqian Feng, University of Macau
Mingzhe Chen, University of Miami

Papers

1 Adaptive Vehicle Trajectory Forecasting via Context-Aware Multi-Level Attention-Augmented Long Short Term Memory
Hongming Li, Yuqing Ji, Ziwei Wang, Tongji University

2 A Pix2pix-Based Generative Channel Estimator for CF-MIMO Systems
Ziyu Ma, Chunyu Pan, Zhonghao Luo, Beijing Information Science and Technology University

3 LLM En-powered UAV Networks Control for Efficient Wireless Communication
Yue Zhang, Haibo Mei, Junyu Lai, Shuang Du, University of Electronic Science and Technology of China

Sunday, 19 October 2025 TBD Online

Emerging THz Sensing, Communication, Computing and Control Technology for Future Wireless Networks (formed from the merger of W13 and W24)

W13: Integrated sensing, communication, computing and control for low-altitude intelligent networking

The rapid emergence of low-altitude intelligent networking, driven by UAVs, aerial mobility, and smart infrastructure, demands the synergistic integration of sensing, communication, computing, and control (ISCCC) to enable safe, efficient, and autonomous operations. Advances in AI, edge computing, 5G/6G, and distributed control systems have propelled ISCCC as a transformative paradigm for applications, such as drone delivery, air traffic management, precision agriculture, and urban surveillance, etc. However, harmonizing these functionalities in dynamic, resource-constrained aerial environments poses significant challenges, including real-time data processing, latency-critical decision-making, spectrum coexistence, and cross-domain security.

Workshop Organizers

Ming-Min Zhao, Zhejiang University
Min Li, Zhejiang University
Qingqing Wu, Shanghai Jiaotong University
Osvaldo Simeone, King's College London

W24: Workshop on Emerging THz Technologies for Future Wireless Networks

To realize ultra-high data rates, ultra-low latency, and high-precision sensing in future wireless networks, the wireless community is actively exploring THz communication and sensing technologies, leveraging the ultra-wide bandwidth of THz signals. Despite their potential, THz networks face significant challenges, e.g., severe path loss and molecular absorption, new signal processing techniques for hybrid near- and far-field transmission, emergence of beam-squint effects, limited power amplifier (PA) efficiency, as well as non-ideal behaviors of analog-to-digital/digital-to-analog converters (ADCs/DACs), power amplifiers, and phase shifters. Fortunately, recent advancements have addressed many of these challenges. Researchers have developed low-complexity precoding, near-field beam alignment, beam-squint mitigation techniques, and new reconfigurable antennas to enhance the performance of beam management. THz wireless networks have also spurred innovations in high-precision imaging, localization, and environmental mapping, aligning with 6G's vision of ubiquitous sensing-communication integration. On the hardware front, progress in PA, ADC/DAC, and frequency multiplier designs has enabled long-range, high-speed data transmission and high-resolution real-time video streaming. Standardization efforts have also gained momentum, with IEEE 802.15.3d supporting 100 Gbps links in the 252-325 GHz range.

Workshop Organizers

Zhi Chen, UESTC
Boyu Ning, Huawei Technologies
Zhen Gao, Beijing Institute of Technology
Weidong Mei, UESTC

Papers

1 **A Multi-Agent Reinforcement Learning-based CSMA/CA Scheme in Wave Relay Networks**
Yongqi Zhao, Ming Lei, Xi Chen, Min Li, Zhejiang University

2 **Artificial Noise Aided UAV-ISAC System Against Malicious Radar Signal Detection and Communication Eavesdropping**
Yi Zhou, Xinyu Liu, Pingzhi Fan, Zheng Ma, Southwest Jiaotong University; Kezhi Wang, Brunel University London; Zhicheng Dong, Tibet University; Erdal Panayirci, Kadir Has University

3 **Multi-UAV Cooperative Task Allocation Based on Improved Multi-Objective Artificial Rabbit Optimization**
Yuqian Hao, Min Ouyang, Zhihong Xi, Tong Wang, Shan Gao, Liwei Chen, Harbin Engineering University

4 **Performance Analysis of Terahertz Integrated Sensing and Communications over Multi-Cluster Fluctuating Two-Ray Fading**
Yiting Liu, Zhifeng Tang, Nan Yang, Australian National University

5 **A Flexible Design for Beam Squint Effect Suppression in IRS-Aided THz Communications**
Yanze Zhu, Qingqing Wu, Wen Chen, Shanghai Jiao Tong University; Yang Liu, Dalian University of Technology (DUT); Ruiqi Liu, ZTE Corporation

6 **Near-Field THz Bending Beamforming: A Convex Optimization Perspective**
Aoran Liu, Weidong Mei, Peilan Wang, Dong Wang, Ya Fei Wu, Zhi Chen, Boyu Ning, UESTC

Sunday, 19 October 2025 16:00 - 17:30 Shu Han

W14: Virtual - Intelligent Synergies of Sensing and Communications for Green IoT

In the face of the rapid growth of IoT and increasing environmental concerns, our workshop focuses on a crucial aspect for Green IoT: the intelligent integration of sensing and communications. As IoT spreads across smart cities, agriculture, and industrial sectors, achieving synergy between data collection and transmission is essential for sustainability. The workshop addresses significant challenges, such as aligning high-resolution sensing with energy-efficient protocols, ensuring device interoperability, and managing the trade-off between data and energy. Leveraging AI-driven resource allocation, containerized network orchestration, and energy harvesting technologies, we strive to develop frameworks that reduce redundancy and optimize lifecycle sustainability. This will enable real-world applications in areas like smart grids and intelligent transportation, ultimately contributing to a more sustainable future for IoT.

Workshop Chairs

Chen Dai, Nanjing University of Posts and Telecommunications
Haotong Cao, Nanjing University of Posts and Telecomms
Yueyue Dai, Huazhong University of Science and Technology
Sahil Garg, Ecole de Technologie Superieure

Papers

1 **Anchor Optimization Selection Method for Improving Rigid Body Localization Performance**
Pengwu Wan, Xi'an University of Posts and Telecommunications

2 **Echo Sensing-aided CSI Feedback in mmWave massive MIMO Systems**
Chaojin Qing, Yuqiao Yang, Zilong Wang, Haowen Jiang, Linsi He, Du Pengfei, Xihua University

3 **Integrated Sensing and Symbiotic Radio Communication with Symbol-Level DAM Precoding**
Mingan Luan, University of Electronic Science and Technology of China; Jin Chi, Zheng Chang, University of Jyväskylä; Richard Ndjiongue, University of the Witwatersrand

4 **TCESS : Trust Score-based Clustering Approach for Enhanced Security and Stability in Vehicular Ad hoc Networks**
Geetha Charan Vengala, Vamsi Krishna Pavuluri, Anirudh Paranjothi, Oklahoma State University; Mohammad Mukhtaruzzaman, Ramapo College of New Jersey

5 **Time Switching Protocol based Wireless-Powered OAM Communications for Green IoT**
Ruirui Chen, Yu Chen, Jiale Zheng, China University of Mining and Technology; Du Pengfei, Xihua University; Yu Zhou, China University of Mining and Technology

Sunday, 19 October 2025 14:00 - 17:30 Shu Jin

W15: International Workshop on Low-Altitude Intelligent Network (LAIN 2025)

The Low-Altitude Intelligent Networking (LAIN) Workshop aims to explore the cutting-edge developments in low-altitude communication technologies that support efficient and secure operations for drones, low-altitude vehicles, and air-ground systems. With the rapid growth of the low-altitude economy, there is a growing need for intelligent communication solutions to enable real-time, low-latency communication across various applications, including urban air transport, emergency response, environmental monitoring, and logistics. The workshop will cover key topics such as LAIN system architecture and network design, AI-enabled intelligent networks, and the role of semantic communication in enhancing the efficiency and flexibility of low-altitude networks. It will also explore new frontiers in radiation source identification, distributed detection systems, and heterogeneous data fusion to improve situational awareness and decision-making. Localization and path planning, space-air-ground collaborative networks, and ensuring communication quality of service (QoS), reliability, and security will be crucial focal points for discussion.

Workshop Organizers
Shuai Ma, PengCheng Laboratory
Lingyang Song, Peking University
Ke Chen, PengCheng Laboratory

Program

Sunday, 19 October 2025 14:00 - 15:30 Shu Jin

Session 1

1 **Air-Ground Model Collaboration for Low-Altitude Intelligent Network with Heterogeneous Computational Resources**
Lu Cheng, Shuhang Zhang, Hongliang Zhang, Qingyu Liu, Peking University; Mohammed Karmoose, Nile University; Kangjun Liu, Yaowei Wang, Pengcheng Laboratory

2 **Automatic Modulation Recognition Based on Feature Fusion in Impulsive Noise Environment**
Pengwu Wan, Xi'an University of Posts and Telecommunications

3 **Client Selection Strategies for Federated Semantic Communications in Heterogeneous IoT Networks**
Samer Lahoud, Dalhousie University; Kinda Khawam, Université de Versailles

5 **Optimal Distance-Constrained Path Planning for Sparse Radio Map Recovery**
Feng Qiu, Xidian University; Kangjun Liu, Longkun Zou, Pengcheng Laboratory; Jing Liu, Xidian University; Ke Chen, Pengcheng Laboratory

Sunday, 19 October 2025 16:00 - 17:30 Shu Jin

Session 2

4 **GenRadio: A Generative Framework for Fine-Grained 3D Radio Map Estimation**
Zhiyuan Liu, Qingyu Liu, Shuhang Zhang, Hongliang Zhang, Peking University; Kangjun Liu, Yaowei Wang, Pengcheng Laboratory

6 **RadioPix2pix: A GAN-based Style Transfer Model for 2D Radio Map Estimation**
Zhiyuan Liu, Shuai Shao, Peking University

7 **Trajectory Planning for UAVs with Multiple Service Options**
Sonali Chaudhari, Rudra Dutta, North Carolina State University

8 **UAV-Assisted Low AoI Data Collection Strategy Based on Hierarchical Optimization**
Jing Wei, Mangang Xie, Baozhen An, Wenpeng Dong, Hui Zhang, Xiwen Wang, Northwest Normal University

Sunday, 19 October 2025 TBD Online

W16: Multi-Functional 6G Networks: Solutions Shaped by Smart Radio Environments

The sixth-generation (6G) wireless networks envision a seamlessly interconnected ecosystem, integrating such as ultra-reliable low-latency communication (URLLC), integrated sensing and communication (ISAC), and massive, stable connectivity for the Internet of Everything (IoE). Achieving this ambitious vision requires a fundamental transformation across multiple dimensions, including wireless propagation, network architectures, and emerging technologies. At the physical layer, new electromagnetically programmable materials—such as reconfigurable intelligent surfaces (RISs) and dynamic metasurface antennas (DMAs)—are redefining wireless environments by enabling real-time, dynamic phase-shift control. Simultaneously, cell-free massive MIMO and unmanned aerial vehicle (UAV)-enabled networks eliminate traditional cellular boundaries, utilizing distributed cooperative transmission to achieve ubiquitous, high-capacity coverage. Collectively, these innovations mark a paradigm shift, transforming static wireless channels into intelligent,

adjustable, and reconfigurable radio environments. Beyond physical-layer advancements, AI-driven network architectures are revolutionizing wireless intelligence by integrating sensing information, communication signals, and control mechanisms into a cohesive and adaptive system. AI-powered dynamic scheduling leverages real-time environmental feedback to optimize radio propagation, ensuring massive IoT connectivity and ultra-reliable performance for mission-critical applications. As a result, combining these technologies with emerging paradigms can lay a solid foundation for the next generation of Smart Radio Environments (SREs). This workshop explores fresh opportunities, address critical challenges, and propose solutions for multi-funtional 6G shaped by smart radio environment. It will serve as a bridge between the digital world and physical radio environments, thereby unlocking the full potential of programmable wireless systems and paving the way for next-generation, highly adaptive communication infrastructures.

Workshop Organizers
Kangda Zhi, Technical University of Berlin
Qihao Peng, University of Surrey
Xiaopeng Yuan, RWTH Aachen University
Guangji Chen, Nanjing University of Science and Technology

Papers

1 **Dynamic Offloading and Trajectory Optimization in UAV-Assisted MEC: A Lyapunov-Based Framework**
Jiangchuan Deng, Mei Shen, Shijing Yang, Yuwen Qian, Nanjing University of Science and Technology

2 **Enhancing Cross-Domain Robustness in Wi-Fi-Based Human Activity Recognition via Attention-Driven Deep Learning**
Fucheng Miao, Osamu Takyu, Lin Shan, Shinshu University; Tomoaki Ohtsuki, Keio University; Guan Gui, Nanjing University of Posts and Telecommunications

3 **Fluid RIS-aided Communication Systems with One-bit DACs: Design and Optimization**
Junjie Ye, Peichang Zhang, Xiao-Peng Li, Lei Huang, Shenzhen University; Yuanwei Liu, Hongkong University; Arumugam Nallanathan, Queen Mary University of London

4 **Joint Time-Frequency Offset Estimation Method in Distributed Antenna System**
Yuliang Song, Lin Mei, Bo Zhang, Zhiyang Li, Zhaopeng Du, Suiyao Zhu, Bin Wang, Harbin Institute of Technology

Sunday, 19 October 2025 16:00 - 17:30 Qing Yang

W17: Reconfigurable Multi-Functional Intelligent and Holographic Surfaces for 6G

The sixth generation (6G) wireless communication networks are envisioned to create an intelligent and multi-functional digital ecosystem with sensing, localization, controlling, computing and communication functionalities. The 6G systems are expected to fulfill more stringent requirements than 5G systems, on transmission capacity, reliability, latency, coverage, energy consumption, and connection density. To tackle this, advanced 6G communication and networking operations are required to utilize novel solutions with intelligent yet energy- and hardware-efficient techniques. Reconfigurable intelligent surfaces (RIS) leverage smart radio surfaces with high number of small antennas or metamaterial elements based on a programmable structure that can be used to control the propagation of electromagnetic waves. Reconfigurable holographic surfaces (RHS) with multiple input multiple output (MIMO) setup are composed of numerous metamaterial radiation elements integrated in a holographic pattern to generate beams with desirable directions. These intelligent and holographic surfaces will play a pivotal role in advanced 6G communication systems and networks. In this workshop, we assemble key interdisciplinary and wider spectrum of research on achieving cross-cutting RIS/RHS-based 6G wireless communications and networking.

Workshop Organizers
Boya Di, Peking University
Liang Liu, The Hong Kong Polytechnic University
Qurrat-Ul-Ain Nadeem, New York University, Abu Dhabi
Shuhao Zeng, Princeton University

Program

1 **Diffusion model-based Channel Estimation for Holographic MIMO Systems**
Zicheng Lin, Hongliang Zhang, Peking University

2 **Holographic Beamforming for Wideband Multi-User Communications Enabled by Reconfigurable Holographic Surfaces**
Zhichao Cheng, Shupei Zhang, Haobo Zhang, Peking University

3 **Secrecy Improvement Using Active Reconfigurable Intelligent Surfaces and Leveraging Guard Zones**
Sumit Chakravarty, Ying Xie, Kennesaw State University

4 **Undermining Jamming-Resistant Communications With Disco Reconfigurable Intelligent Surface-Induced Imperfect CSI**
Luyao Sun, Yitian Wang, Huan Huang, Dongdong Zou, Yi Cai, Suzhou University

Sunday, 19 October 2025 9:00 - 12:30 Crystal Ballroom 2

W18: RISs and Their Variants for Intelligent 6G Communication and Sensing

Future wireless networks are evolving into intelligent and reconfigurable platforms that seamlessly integrate communication and sensing. Reconfigurable intelligent surfaces (RISs) and their advanced variants, including holographic MIMO (HMIMO), simultaneous transmitting and reflecting RIS (STAR-RIS), and flexible intelligent metasurfaces (FIMs), have emerged as key enablers of nextgeneration wireless networks. These technologies dynamically manipulate electromagnetic wave propagation, enhancing coverage, energy efficiency, and sensing capabilities. This workshop brings together researchers and industry experts to explore the latest advances in RIS/HMIMO/STAR-RIS/FIM-empowered networks, addressing fundamental challenges and practical implementations. Topics include ISAC

with RISs, electromagnetic information theory, channel modeling and estimation, flexible antenna design, AI-driven optimization, radio positioning, NOMA, and near-field sensing. The workshop will also discuss applications in UAV networks, beyond-5G verticals, and hardware testbeds, as well as security and privacy concerns. Through technical sessions and keynote talks from leading experts, this event aims to foster collaboration and drive innovation in RIS/HMIMO/STAR-RIS/FIM technologies for 6G.

Workshop Organisers
Jiguang He, Great Bay University, China
Guofa Cai, Guangdong University of Technology, China
Chongwen Huang, Zhejiang University, China
Georges Kaddoum, University of Quebec, Canada
Chau Yuen, Nanyang Technological University, Singapore

Program

Opening Remarks
Jiguang He, Great Bay University

Keynote: Simultaneously Transmitting and Reflecting Surfaces (STARS) for 6G
Xidong Mu, Queen's University Belfast

1 **An Evolution-Guided Policy Gradient Approach for RIS-Enhanced Communication Systems**
Ke Zhao, Zhiqun Song, Yong Li, Xingjian Li, CETC-54; Lizhe Liu, National Key Laboratory of Advanced Communication Networks; Bin Wang, CETC-54

2 **Improved Channel Estimation for Wavenumber-Domain Holographic MIMO Utilizing Reduced Search Space and Block-Sparsity**
Fei Wang, Jianping Zheng, Xidian University

3 **On-Off Backscatter: An On-Off RIS-Enabled Symbiotic Backscatter NOMA System**
Mingkai Chen, Haiyang Ding, Shilian Wang, Xiaoyi Huang, National University of Defense Technology; Dong li, University of Science and Technology; Maged Elkashlan, Queen Mary University of London; Jules M. Moualeu, University of the Witwatersrand; Chau Yuen, Nanyang Technological University

4 **RIS-Assisted Delay-Synchronized Cell-Free mmWave ISAC for Drone Detection**
Haojie Wang, Shaochuan Wu, Harbin Institute of Technology; Jiguang He, Great Bay University; Yifei Fan, Mingjun Sun, Harbin Institute of Technology

5 **Wireless Gesture Recognition Based on Multi-cell Cellular Signals**
Zhengye Chen, Shidong Liu, Yafei Tian, Beihang University

Virtual Papers

1 **Transformer-Integrated DDPG for 3D Deployment in RIS-Assisted Obstructed Networks**
Jing Jiang, Zhang Chenjing, Xi'an University of Posts and Telecommunications

2 **Transmit Beamforming Design for RIS and NOMA Assisted Wireless Caching Systems**
Xuewei Zhang, Yapeng Zhang, Yuan Ren, Fan Jiang, Junxuan Wang, Xi'an University of Posts and Telecommunications

Sunday, 19 October 2025 14:00 - 17:30 Crystal Ballroom 2

W19: Signal Processing for Reconfigurable Antennas-enabled Wireless Communications

This workshop delves into the transformative potential of reconfigurable antennas (RAs), including Reconfigurable Intelligent Surfaces (RIS), movable antennas (MAs), fluid antennas (FAs), etc., in shaping the future of wireless systems. By enabling real-time adjustments to position, orientation, radiation patterns, and frequency response, RAs unlock new degrees of freedom for optimizing communication performance, adaptability, and energy efficiency. This workshop focuses on cutting-edge signal processing techniques for RA configuration, channel estimation, resource allocation, and AI/ML-driven optimization, addressing key challenges in 5G-Advanced and 6G networks. Through keynote speeches, technical presentations, and interactive discussions, the event fosters interdisciplinary collaboration among researchers, industry experts, and policymakers. It aims to showcase innovative solutions, experimental demonstrations, and practical implementations, accelerating the deployment of RAs in next-generation wireless networks and paving the way for more resilient, efficient, and high-performing communication systems.

Workshop Organizers
Jun Fang, UESTC
Cunhua Pan, Southeast University
Hongbin Li, Stevens Institute of Technology
Peilan Wang, UESTC
Weidong Mei, UESTC

Program

Keynote: Reconfigurable Intelligent Surfaces for 6G: From Research to Deployment
Linglong Dai, Tsinghua University

1 **Computation Capacity Maximization for Pinching Antennas-Assisted Wireless Powered MEC Systems**
Peng Liu, Beijing Institute of Technology; Meng Hua, imperial college london; Guangji Chen, Nanjing University of Science and Technology; Xinyi Wang, BIT; Zesong Fei, Beijing Institute of Technology

2 **Deep Unfolding Jamming Mitigation for an Integrated Movable Antennas System**
Beihua Zhang, Kui Xu, Guojie Hu, Tao Zhou, Xiaochen Xia, Chen Wei, Kaixin Cheng, Army Engineering University of PLA

3 **Rate Region of ISAC With Pinching Antennas**
Chongjun Ouyang, Zhaolin Wang, Queen Mary University of London; Yuanwei Liu, Hongkong University

4 **Hybrid Active and Passive Jamming via Intelligent Reflecting Surface**
Zidong Ming, Xinrong Guan, Yunfei Long, Army Engineering University of PLA; Weiwei Yang, Wendong Yang, PLA University of Science and Technology; Lu Lv, Xidian University

5 **Joint Beamforming and Location Optimization for Multiple UAV-mounted RISs Assisted Networks**
Zhenqiu Jian, Junjie Ye, Peichang Zhang, Qiang Li, Lei Huang, Shenzhen University

6 **Joint Beamforming for RIS-UAV-Assisted LEO Satellite Constellation Communications**
Wenfei Yao, Xiaoming Chen, Qi Wang, Xingyu Peng, Zhejiang University

7 **Polarforming Design with Phase Shifter Based Polarization Reconfigurable Antennas**
Zijian Zhou, The Chinese University of Hong Kong, Shenzhen; Jingze Ding, Peking University; Rui Zhang, The Chinese University of Hong Kong, Shenzhen

8 **Rate Optimization in Distributed RIS Aided MIMO System Using Soft Actor-Critic Method of DRL**
Ayush B. Patel, Abhishek Jindal, Dhirubhai Ambani Institute of Information and Communication Technology

9 **Blind Interference Suppression for IRS-Aided Communication Systems: A Derivative-free Optimization Approach**
Binyao Ma, University of Electronic Science Technology of China; Bin Wang, National University of Defense Technology

Sunday, 19 October 2025 9:00 - 17:30 Crystal Ballroom 1456

W20: Space-Air-Ground-Sea Integrated Sensing, Computing & Communications for Low-Altitude Economy Networks

The perpetual exacerbation of traditional terrestrial network resource congestion and the exponential proliferation of the Internet of Things (IoT) service demands are propelling the investigation of integrated low-altitude economy (LAE) network systems. Contemporary traditional wireless networks confront three fundamental constraints: the inherent bandwidth limitations of conventional network architectures, the computational capacity ceiling of edge devices, and the latency bottlenecks in backhaul transmission links. Consequently, the critical functionalities of mobile sensing, data communication, and distributed computation within existing wireless systems have traditionally been developed in a modular manner. This architectural paradigm presents persistent challenges in achieving holistic optimisation of end-to-end latency minimisation and energy efficiency enhancement across the complete wireless system spectrum. Diverging from conventional terrestrial network capacity enhancement approaches, LAE networks integrated with artificial intelligence (AI) technologies have emerged as an efficient solution to improve the performance of networks. Specifically, in the realms of AI-empowered LAE networks, AI technologies augment the cognitive, learning, and decision-making functionalities of LAE networks, which facilitates the optimisation of resource utilisation and the improvement of network performance. Thus, research on AI-empowered integrated sensing and communication/computation (ISAC) LAE networks proposes innovative decentralised architectures capable of simultaneously satisfying the heterogeneous quality-of-service requirements, including ultra-reliable low-latency communication (uRLLC), ultra-massive machine-type connectivity (umMTC), and enhanced mobile broadband (eMBB), demanded by next-generation IoT applications.

Workshop Organizers
Xiaoli Chu, The University of Sheffield
Bintao Hu, Xi'an Jiaotong-Liverpool University
Yuan Gao, Shanghai University
Jianbo Du, Xi'an University of Posts and Telecommunications, China

Papers

1 **4D FMCW MIMO radar based MCMC-EPF Track-Before-Detect method for UAV tracking in low SNR**
Yingquan Zou, Jiayu Peng, Jinfu Li, Southwest Jiaotong University; Chong Huang, Pei Xiao, University of Surrey

2 **A Dynamic Group Management and Authentication Scheme for Internet of Vehicles Using Chinese Remainder Theorem**
Guoqiang Chen, Chang Liu, Zheng Xue, Guangdong University of Technology; Lin Li, China Mobile Communications Group Jilin Co., Ltd; Lei Liu, China Mobile Communications Group Design Institute Co., Ltd.; Guojun Han, Guangdong University of Technology

3 **An Improved Grey Wolf Optimizer Inspired by Advanced Cooperative Predation for UAV Shortest Path Planning**
Zuhao Teng, Qian Dong, Ze Zhang, Shuangyao Huang, Wenzhang Zhang, Jingchen Wang, Xi'an Jiaotong-Liverpool University; Ji Li, Guilin University of Electronic Technology; Xi Chen, Xi'an Jiaotong-Liverpool University

4 **A Pseudo-Increment Prediction Method for GNSS/INS Integrated Navigation Based on Transformerâ€“LSTM During GNSS Outages**
Jin Wang, Siyuan Xu ,Xi'an University of Posts and Telecommunications; Yan Xing, National Time Service Center, Chinese Academy of Sciences; Jin Lu, Huimin Hu, Xi'an University of Posts and Telecommunications

5 **Deadline Guaranteed Scheduling Based on Time-Ordered Queues for Time-Sensitive Low-Earth-Orbit Satellite Networks**
Ling Zheng, Guodong Wei, Qianxi Men, Yingge Feng, Xi'an University of Posts and Telecommunications; Weitao Pan, Xidian University

6 **FL-Assisted Offloading and Resource Allocation in 6G NOMA-Based Low-Altitude Economy Networks**
Zhiran Wang, Bintao Hu, Xi'an Jiaotong-Liverpool University; Yue Yin, Keio University; Miguel López-Benítez, University of Liverpool; Jiliang Zhang, Northeastern University; Xiaoli Chu, University of Sheffield

7 **Group-Rational KAN Enhanced Motion Transformers for Accurate and Multimodal Vehicle Trajectory Prediction**
Wenke Zhan, Chang Liu, Zheng Xue, Guangdong University of Technology; Lei Xu, China Mobile Communications Group Jilin Co., Ltd; Lezhuang Wang, China United Network Communications Co., Ltd. Jilin Branch; Hongbin Chen, Guilin University of Electronic Technology; Guojun Han, Guangdong University of Technology

8 **Hierarchical DRL-based Service Placement, UAV Placement, and Resource Allocation in MEC-enabled AGINs with Fairness Guarantee**
Jianbo Du, Zhixiang Deng, Juan Guo, Jing Jiang, Defeng Ren, Xi'an University of Posts and Telecommunications; Lei Liu, Shulei Li, Xidian University

9 **Movable Array-Enabled Localization: A High-Accuracy Low-Cost Paradigm for 6G**
Kaiqian Qu, Shandong University; Chen Sun, Haojin Li, Xiaoxue Wang, Sony China Research Laboratory; Shuaishuai Guo, Shandong University; Haijun Zhang, University of Science and Technology Beijing

10 **MTCA: Multi-Task Channel Analysis for Wireless Communication**
Jun Jiang, Wenjun Yu, Yuan Gao, Shanghai University; Shugong Xu, Xi'an Jiaotong-Liverpool University

11 Online 3D Trajectory and Transmit Power Optimization for Securing UAV-Assisted Full-Duplex Communication Network
Zhiyu Huang, Yi Wang, Jun Jiang, Shanghai University; Ali A. Nasir, King Fahd University of Petroleum and Minerals; Zhichao Sheng, Xue-Xia Yang, Shanghai University

12 Optimizing drone base station deployments and RIS phase-shifts in SAGIN systems through deep reinforcement learning
Wendenda Nathanael Kabore, National Taipei University of Technology; Ming-Cheng Tsai, Hon Hai Research Institute; Konpal Shaukat Ali, University of Washington; Rong-Terng Juang, Hsin-Piao Lin, Belayneh Abebe Tesfaw, National Taipei University of Technology

13 Prototype Filter Optimization for FBMC/QAM in Spectrally-Constrained LAE Networks
Defeng Ren, Rongchang Jing, Jia Lu, Xi'an University of Posts and Telecommunications; Yufeng Zhang, Bo Ma, China Aerospace Science and Technology Corporation

14 Queuing Model with Setup and Multi-Vacations for Mixed-Critical Services in Time-Sensitive SAGIN
Ling Zheng, Yingge Feng, Weiqiang Wang, Xi'an University of Posts and Telecommunications; Weitao Pan, Xidian University

15 Task Offloading and Resource Allocation for Semantic Communication in Air-Ground MEC Networks: A Deep Reinforcement Learning Approach
Yifan Zhang, Fangfang Yin, Lingjun Yang, Junwei Zhang, Shufeng Li, Libiao Jin, Communication University of China

16 UAV Deployment Scheme for High Buildings in Fire Scenarios
Ruirui Chen, Jiale Ran, Shengliang Duan, China University of Mining and Technology; Yanguo Zhou, China Academy of Electronics and Information Technology

17 Uncertainty-Aware GNSS/IMU/Vision Multi-Sensor Fusion Positioning Algorithm for Low-Altitude Economy Applications
Jin Wang, Jun Zou, Xi'an University of Posts and Telecommunications; Decai Zou, National Time Service Center, Chinese Academy of Sciences; Jianbo Du, Pengwu Wan, Jing Jiang, Xi'an University of Posts and Telecommunications; Daosen Zhai, NWPU

Sunday, 19 October 2025 9:00 - 12:30 Crystal Ballroom 3

W22: Workshop on Channel Modeling and Propagation for Future Mobile Communications

Mobile communications are constantly evolving to meet society's demands for more and better communication services. The global rollout of the fifth-generation (5G) of mobile cellular communications is currently underway, with the promise of expanding the communications landscape by improving user experience with interactive and haptic communications, and enabling machine-oriented services that are fundamental for industry automation, intelligent transportation, e-health, and others. Although the future of 5G and beyond 5G (B5G) networks looks bright, the design of such networks continues to be a challenging task due to the stringent performance requirements that these networks should meet to deliver ultra-reliable and low-latency services with enhanced mobility. In particular, the optimization of the radio access network of 5G, as well as its redesign toward the transition to sixth-generation (6G) networks, call for the development of accurate channel models that capture the rapidly time-varying characteristics of mobile radio reception in highly mobile indoor and outdoor environments. This workshop is organized by the Technical Committee on Propagation of the IEEE Vehicular Technology Society with the aim of providing a global perspective on open problems, current research trends, new results and ideas, and hot topics in the area of channel modeling and propagation for enhanced mobility use cases of 5G, 5G-Advanced, 6G, and other mobile communication networks.

Workshop Co-chairs
Ke Guan, Beijing Jiaotong University
Jose Rodriguez-Piñeiro, Tongji University
Wei Wang, Chang'an University

Workshop Organizers:
David Matolak, University of South Carolina
Carlos A. Gutierrez, Universidad Autonoma de San Luis Potosi
Michael Walter, German Aerospace Center (DLR)

Program

Sunday, 19 October 2025 9:00 - 10:30 Crystal Ballroom 3

Session 1

Welcome and Introduction
Ke Guan, Beijing Jiaotong University

Keynote:Design of modulation and reference signals for 6G vehicular communications
Ana García Armada, Universidad Carlos III de Madrid

1 Analysis and Modeling of the Delay-Doppler Characteristics of Unmanned Aerial Vehicle Air-to-Ground at 2.7 GHz
He Yuanfeng, Zhiwei Liang, Wei Wang, Chang'an University

2 An Overview of Parabolic Wave Equation Methods for Tunnel Propagation Modeling at Sub-6GHz
Hao Qin, Sichuan University; Siyi Huang, University of Alberta; Yunxi Mu, Peking University; Xingqi Zhang, University of Alberta; Xinyue Zhang, University College Dublin

3 Code Doppler Channel Simulation Methods and Performance Evaluation for Satellite Communication Scenarios
Hao Zhou, Yiyan Ma, Dan Fei, Haobo Zhang, Bowen Yin, Beijing Jiaotong University; Zishen Zhao, Beijing Information Science and Technology University; Bo Ai, Beijing Jiaotong University

Sunday, 19 October 2025 11:00 - 12:30 Crystal Ballroom 3

Session 2

1 LEO Satellite Channel Prediction: A Transformer-LSTM Approach for Outdated CSI
Wenqing Li, Beijing Jiaotong University; Yasaman Omid, Loughborough University; Bo Ai, Yong Niu, Beijing Jiaotong University; Mahsa Derakhshani, Loughborough University

2 Measurement and Analysis of Wideband Wireless Channel in Shore-to-Ship Scenarios
Jiaqi Zhang, Lei Tian, Pan Tang, Peijie Liu, Zihang Ding, Jikun Du, Jianhua Zhang, Yuanzhi He, Yanan Liu, Beijing University of Posts and Telecommunications

3 **Measurement and Modeling of Rain Attenuation for Short-Range Millimeter-Wave Channels**
Mengyang Wang, Danping He, Hongyu Duan, Ting Liu, Beijing Jiaotong University; Junchen Liu, ZTE Corporation; Yujun Zhang, Hohai University; Ke Guan, Beijing Jiaotong University

4 **Quasi-Deterministic Modeling of Multipath Components in Intrawagon Scenario**
Shuai Li, Henan University of Technology; Jingya Yang, High-Speed Railway Operation Engineering Research Center

5 **Pole Blockage in MmWave Railway Communications: Early Detection Based on LoS Cluster Channels**
Kai Mao, Université Gustave Eiffel; Nicholas Attwood, IMT Atlantique; Hanpeng Li, Nanjing University of Aeronautics and Astronautics; Francois Gallee, Patrice Pajusco, IMT Atlantique; Qiuming Zhu, Nanjing University of Aeronautics and Astronautics; Marion Berbineau, Université Gustave Eiffel

Award Ceremony: 1st IEEE VTS Propagation Technical Committee Best Thesis Award
José Rodríguez-Piñeiro, Tongji University

Closing Remarks
Wei Wang, Chang'an University

Sunday, 19 October 2025 14:00 - 17:30 Crystal Ballroom 3

W23: Workshop on Digital Twin Networks for Next-Gen Mobile Ecosystems

The Workshop on Digital Twin Networks (DTNs) for Next-Gen Mobile Ecosystems will explore the transformative potential of DTNs in shaping the future of mobile networks and applications. As nextgeneration mobile ecosystems evolve toward ultra-dense 6G connectivity and immersive-interactive services, DTNs have emerged as critical enablers for synchronizing physical infrastructure intelligence with dynamic service requirements. This workshop will bring together researchers, practitioners, and industry experts to discuss cutting-edge advancements in DTN technologies, focusing on their integration with AI, edge computing, and distributed intelligence to address challenges in predictive resource allocation, real-time analytics, and cross-domain optimization.

The workshop will feature keynote presentations, technical sessions, and interactive discussions, covering topics such as wireless architectures for 6G, generative AI for user-centric applications, data privacy and security, and energy-aware optimization in DTN-enabled environments. Participants will gain insights into scalable frameworks that harmonize AI-driven network control with the dynamic demands of mobile ecosystems, as well as practical implementations and case studies across industries like autonomous vehicles, IoT, and the Metaverse.

Workshop Organizers
Jun Cai, Concordia University
Zhou Su, Xi'an Jiaotong University
Changyan Yi, Nanjing University of Aeronautics and Astronautics
Samuel D. Okegbile, University of the Fraser Valley

Program

Sunday, 19 October 2025 14:00 - 15:30 Crystal Ballroom 3

Session 1

Keynote: Digital Twin Assisted Intelligent Transportation System
Xiaolong Li, Hunan University of Technology and Business

1 **DTFedCP: Digital Twin Enabled Personalized Client Selection and Privacy Protection in Federated Learning under Data Heterogeneity**
Xijun Zhao, Gang Li, Inner Mongolia University

2 **RAN Twin-aided Handover for 6G Networks**
Yekaterina Kim, Igbafe Orikumhi, Nakyung Lee, Sunwoo Kim, Hanyang University

3 **Reliability-Aware Online Learning for Layer-Sharing-Based Digital Twin Deployment in Multi-Edge Systems**
You Shi, Nanjing Tech University; Yuye Yang, Ruoyang Chen, Nanjing University of Aeronautics and Astronautics; Chen Dai, Nanjing University of Posts and Telecommunications; Jian Tao Shi, Nanjing Tech University

Sunday, 19 October 2025 16:00 - 17:30 Crystal Ballroom 3

Session 2

1 **Digital Twin Network-Driven Multi-UAV Covert Communication with Informed Jammers**
Xiang Zhao, Guilin University of Electronic Technology

2 **Chartwin: a Case Study on Channel Charting-aided Localization in Dynamic Digital Network Twins**
Lorenzo Cazzella, Francesco Linsalata, Mahdi Maleki, Politecnico di Milano; Damiano Badini, Huawei Italy Research Center.; Matteo Matteucci, Umberto Spagnolini, Politecnico di Milano

3 **Accelerating Federated Digital Twin Services with Fractal Generative Task Scheduling in ITS**
Xiaolong Li, Huimin Lei, Yi Liu, Zhaoxing Zou, Yi Xiong, Huihuang Liu, Bin Wang, Junhao Yang, Yang Liu, Li Dong, Hunan University of Technology and Business

4 **State-Aware Age of Information: Evaluating Content-Relevant Freshness in Wireless Systems**
Dazhi Wang, Siyuan Zhou, Hohai University (presenting remotely)

Sunday, 19 October 2025 14:00 - 17:30 Jin Niu

W26: Workshop on the Path Towards 6G Extreme MIMO (E-MIMO): Vision, Research, and Standardization

In future wireless networks, extreme MMO （E-MIMO）is poised to play key roles in revolutionizing future wireless communication. The aim of the workshop is to bring together both the mobile communications industry (operators, telecom vendors, and consulting firms) and academia to present and discuss the problems, challenges, directions, and state-of-art in the fields of E-MIMO.

Workshop Organisers
Xin Su, CICT Mobile Communication Technology Co., Ltd
Shaohui Sun, China Information Communication Technologies Group Corp

Papers

1 **Pseudo MIMO for Spectral and Energy Efficient Wireless Communications**
Guangyi Liu, China Mobile; Tianxiong Wang, Sen Wang, Yuhong Huang, China Mobile Research Institute

2 **A Hybrid Preamble Scheme for Massive Random Access in High-Mobility MIMO-OTFS System**
Yanfeng Hu, Southeast University, Purple Mountain Laboratories; Dongming Wang, Pengzhe Xin, Yunxiang Guo, Jie ling, Ziyang Zhang, Xinjiang Xia, Southeast University

3 **A Novel Widely Spaced Multi-Panel Codebook Design for 6G Near-Field MIMO**
Xiang Li, Xiaolin Hou, Chen Lan, DOCOMO Beijing Communications Lab

4 **AI-Assisted End-to-End Video Transmission with STBC and cGAN for 6G E-MIMO Systems**
Xinran Ren, Lihua Li, Beijing University of Posts and Telecommunications

5 **Active STARS Aided Near-Field ISAC Communication Networks**
Xinlong Song, Xinwei Yue, Beijing Information Science and Technology University; Peng Yang, Beihang University; Yanan Ma, National Innovation Institute of Defense Technology; Dapeng Wang, Institute of Software Chinese Academy of Sciences

6 **Coprime Array-Enhanced STAR-RIS for CRB Optimization in ISAC Systems**
Shuyue Qu, Ruihuan Wang, Ruidong Wang, Qimei Chen, Wuhan University

7 **Downlink Spectral Efficiency Performance Analysis of Distributed Cell-Free RAN System Under Imperfect CSI**
Xiao Han, Xinjiang Xia, Dongming Wang, Wenqi Zhao, Yunlong Li, Yueying Mao, Southeast University

8 **Measurement and Characterization of XL-MIMO Channels in Foliage Blockage Scenarios at 15 GHz**
Kai Zhou, Chongqing University of Posts and Telecommunications

9 **Three-Dimensional MIMO-OTFS System for High-Speed Mobile Communication**
Si Ouyang, Zhenxing Chen, China University of Geosciences; Tao Ren, WISDRI Engineering and Research Incorporation Limited; Xiang Li, Ziang Wang, Jingyi Xu, China University of Geosciences

10 **Deep Learning-Based Joint Prediction and Compression with Optimal Prediction Interval for High-speed CSI Feedback**
Yuqi Xue, China Academy of Telecommunications Technology; Shaoli Kang, CICT Mobile; Xianjun Yang, CICT mobile; Mingyu Jia, Yekang Wang, China Academy of Telecommunications Technology

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VTC2025-Fall Technical Papers

Monday 20 October 2025

Monday, 20 October 2025 11:00 - 12:30 Crystal Ballroom 2

1B: Advanced Techniques in Communication I

Chair: Wen Wu, Peng Cheng Laboratory

1 **A Message Passing Algorithm Using Functional Damping Factors**
Zhaopeng Du, Harbin Institute of Technology; Xinyue Ren, Shanghai Aerospace Electronic Technology Institute; Lin Mei, Bo Zhang, Zhiyang Li, Yuliang Song, Harbin Institute of Technology

2 **Joint Power Allocation and Beamforming for 6G ISAC Systems against Multipath Interference**
Hanglong Chen, Bingpeng Zhou, Wen Zhan, Sun Yat-sen University; Jiahuan Wang, South China Normal University; Xiaoyang Li, Shenzhen Research Institute of Big Data; You Li, Wuhan University; Zheng Yang, Southwest Jiaotong University

3 **Quantum-Assisted Maximum Likelihood Detection of Generalized Spatial Modulation**
Taku Mikuriya, Yokohama National University; Hyeon Seok Rou, Giuseppe Abreu, Constructor University; Koji Ishibashi, University of Electro-Communications; Naoki Ishikawa, Yokohama National University

4 **Quantum-Native Formulation of Maximum Likelihood Detection in Random Access Channel with Overloaded MIMO**
Hyoga Iizumi, Naoki Ishikawa, Yokohama National University; Shunsuke Uehashi, Kota Nakamura, Akira Kurita, Masao Oga, Mitsubishi Electric Corporation

5 **Sparse Code Transceiver Design for Unsourced Random Access with Analytical Power Division in Gaussian MAC**
Zhentian Zhang, Southeast University; Mohammad Javad Ahmadi, Technische Universität Dresden; Jian Dang, Southeast University; Kai-Kit Wong, University College London; Zaichen Zhang, Southeast University; Christos Masouros, University College London

Monday, 20 October 2025 11:00 - 12:30 IC Ballroom

1C: Machine Learning for Communication I

Chair: Laha Ale, Southwest Jiaotong University

1 **A DRL-Based NOMA Resource Allocation Scheme for Wireless Metaverse Networks**
Ping-Hsuang Su, Yuan Ze University; Jiun-Ian Lee, National Taiwan University; Yu-Yung Cheng, Chen-Peng Chiu, Yi-Huai Hsu, Yuan Ze University

2 **AI/ML-Based Sensing-Assisted Energy-Efficient Communications in Next-Gen Cellular Networks**
Moinak Ghoshal, Northeastern university; Abbas Kiani, Amanda Xiang, John Kaippallimalil, Tony Saboorian, Futurewei; Rostand A. K. Fezeu, University of Minnesota - Twin Cities; Nirwan Ansari, New Jersey Institute of Technology

3 **Cost-Aware Structure Learning for Distributed Multiple Measurement Sparse Vector Recovery**
Lantian Wei, Tadashi Wadayama, Nagoya Institute of Technology; Kazunori Hayashi, Kyoto University

4 **MatchEstimate: A Robust Aggregation Method for Federated Learning, Electric Vehciles Case Study**
Mohamed Redha Mahamdi, Ahmed ramzi Houalef, Lydia Douaidi, Florian Delavernhe, Université de Bourgogne; Sidi-Mohammed Senouci, University of Burgundy

5 **Model-Assisted Learning for Environment-Aware Content Delivery in Mobile AR**
Shisheng Hu, Xue Qin, Conghao Zhou, Yingying Pei, Xiaodan Shao, Xinyu Huang, Xuemin (Sherman) Shen, University of Waterloo

Monday, 20 October 2025 11:00 - 12:30 Crystal Ballroom 3

1D: Positioning and Tracking I

Chair: Jide Yuan, Soochow University

1 **Distributed Low-Complexity 3D Cooperative Positioning using Projection FG for UAV Networks**
Zimeng Qiao, Jianxiong Pan, Jianguo Li, Yiyue Xiang, Ye Neng, Beijing Institute of Technology

2 **Enhanced AoA Estimation via Vandermonde-Structure-Aware Optimization for Vehicular Positioning**
Cheng Li, Jide Yuan, Soochow University

3 **Environmental Interference Aware Deep Learning Network for Enhanced AoA Localization in RFID Systems**
Chenpeng Zhang, Ziqi Cui, Lan Dong, Ming Liu, Beijing Jiaotong University

4 **LocVMunet: A Vision Mamba-Based Method for RSS-Driven Outdoor Localization**
Chunyan Qiu, XiDian University; Kangjun Liu, Longkun Zou, Pengcheng Laboratory; Xinhuai Wang, Xidian University; Ke Chen, PengCheng Laboratory

5 **Parallel LSTM-Aided GNSS Positioning with LTE Signal as Auxiliary Information**
Kotaro Oda, Shinsuke Ibi, Doshisha University; Takumi Takahashi, Osaka University; Hisato Iwai, Doshisha University

Monday, 20 October 2025 11:00 - 12:30 Qing Yang

1E: Satellite Networks I

Chair: Lei Lei, Xi'an Jiaotong University

1 **Maxâ€“Min Fairness Beamforming with Hierarchical Rate Splitting for Multibeam Satellite System**
Yuyan Ren, Meilin Xu, Yunkai Guo, Harbin Institute of Technology; Qiling Gao, Harbin Engineering University; Chengzhao Shan, Yongkui Ma, Harbin Institute of Technology

2 **Optimizing Heterogeneous Data Transmission under Narrow Time Windows in Space-Air Networks: A Game-Theoretic Matching Approach**
Bingda Wu, Hui Yang, Qiuyan Yao, Zhe Niu, Sentian Yin, Beijing University of Posts and Telecommunications; Buzheng Wei, China Unicom Research Institute; Jie Zhang, Beijing University of Posts and Telecommunications

3 **Scalable Grid-Based Design of Highway-in-the-Sky Networks with OD-Agnostic Optimization**
Li Zhang, Bhagyashri Tushir, New Global Systems; Yogesh Dalal, Carnegie Mellon University

4 **Toward Moon-Earth Communication: An Evaluation of Gateway Approaches for IP-BP Integration**
Shunsuke Higuchi, Tetsu Joh, Masaki Suzuki, Chikara Sasaki, Atsushi Tagami, KDDI Research, Inc.; Yu Morinaga, Kiyohisa Suzuki, Japan Aerospace Exploration Agency

Monday, 20 October 2025 11:00 - 12:30 Jin Niu

1F: Security and Privacy I

Chair: Hao Ren, Sichuan Universtiy

1 **Designing Secure Network Functions for UE Threat Detection in Network Slicing**
Jaehyoung Park, Jihye Kim, Jong-Hyouk Lee, Sejong University

2 **Dual-functional Radar Communication enabled Physical Layer Security under CRB based Statistical Imperfect CSI Model**
Hanbo Jia, Lin Ma, Harbin Institute of Technology

3 **HE-GCN: A Homomorphic Encryption and Optics-Driven Graph Convolutional Network for Privacy-Preserving Fraud Detection**
Mohamed Reda Shoeib, Jun Zhao, Nanyang Technological University

4 **Optimizing Security in Dynamic Service Migration Scenarios of Multi-Access Edge Computing**
Pasika Ranaweera, University College Dublin; Indika A. M. Balapuwaduge, University of Agder; Anca Delia Jurcut, University College Dublin; Engin Zeydan, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC); Madhusanka Liyanage, University College Dublin

5 **PUF-Driven DAG-Based Lightweight UE Authentication for Scalable Open RAN Environments**
Jihye Kim, Jaehyoung Park, Jong-Hyouk Lee, Sejong University

Monday, 20 October 2025 11:00 - 12:30 Cheng Hua

1G: Channel Modeling and Antennas

Chair: Xiaoyan Kuai, University of Electronic Science and Technology of China

1 **A Modified Expectation Maximization Semi-Blind Channel Estimation for Symbiotic Cell-Free Massive MIMO**
Zhen Yang, Ziheng Li, Tong Wang, Lin Gao, Harbin Institute of Technology; Yufei Jiang, Harbin Institute of Technology (Shenzhen)

2 **A Novel Scenario Reconstruction Method Based on 3D Point Cloud Data and RT Channel Modeling for 6G Indoor Communications**
Guogang Su, Junling Li, Tong Wu, Yongshan Zhou, Southeast University; chen huang, purple mountain labrotary; Cheng-Xiang Wang, Southeast University; Fu-Chun Zheng, Harbin Institute of Technology (Shenzhen)

3 **Near/Far-Field Structured Channel Estimation for Terahertz ELAA Systems: An Algorithm Unrolling Approach**
Kaihui Liu, Samsung R&D Institute China - Beijing (SRC-B)

4 **Performance Evaluation of USMA with Realistic Channel Estimation and Active User Detection**
Chunlin Yan, ZGC Institute of Ubiquitous-X Innovation and Applications; Sen Wang, Yifei Yuan, China Mobile Research Institute

5 **Phase-Shifter-Free Receive Combining with the Assistance of Movable Antennas**
Fanpo Fu, Haifan Yin, Weidong Li, Yandi Cao, Huazhong University of Science and Technology

Monday, 20 October 2025 11:00 - 12:30 Xin Du

1H: Recent Results I (CAV)

Chair: Yuan Wu, University of Macau

1 **Dependability-Aware Coordination for Infrastructure-Side Critical V2X Services**
Yifan Du, Nan Li, Shuo Li, Lei Zhang, Hao Sun, Robert Bosch GmbH

2 **Latency-Aware Function Offloading with 5G Integration for Intelligent Connected Vehicles**
Nan Li, Yifan Du, Shuo Li, Hao Sun, Robert Bosch GmbH

3 **Lightweight and Revocable PUF-Based Authentication Protocol for Secure Vehicle-to-Roadside Communication in VANETs**
Jiping Li, Changzhou Insititute of Technology

4 **N-Deployment: A Sequential and Service-Oriented Strategy for V2I Infrastructure Deployment**
Leonardo Alvarenga Lopes Santos, Universidade Federal de Minas Gerais; Cristiano Maciel da Silva, Universidade Federal de São João Del Rei; Bernardo Roberto Andrade Silva, Fernando Garcia Diniz Campos, Universidade Federal de Minas Gerais; Leonardo Alvarenga Lopes Santos, Universidade Federal de São João Del Rei; Fernanda Sumika Hojo de Souza, Universidade Federal de Ouro Preto; Jose Marcos Silva Nogueira, Universidade Federal de Minas Gerais

5 **Priority-Aware Hybrid MAC Protocol for Vehicular Networks**
Xinru Zhao, Tao Huang, Yao Wei, Pengxiang Li, Jungang Ge, China Telecom Research Institute

Monday, 20 October 2025 11:00 - 12:30 Shu Han

1I: Massive MIMO I

Chair: Boya Di, Peking University

1 **A Novel SROCR-Based Passive Beamforming for STAR-RIS-Aided Cell-Free Massive MIMO Systems**
Jinghan Wei, Chenhao You, Tong Wang, Lin Gao, Harbin Institute of Technology; Yufei Jiang, Harbin Institute of Technology (Shenzhen)

2 **Joint AP Mode Selection and Power Control for Network-Assisted Full-Duplex Cell-Free Massive MIMO**
Jinfeng He, Ziheng Li, Tong Wang, Lin Gao, Harbin Institute of Technology; Yufei Jiang, Harbin Institute of Technology (Shenzhen)

3 **Preamble Collision Resolution in Massive MIMO Grant-free Random Access**
Shahab Ghasemi, Mahdi Bayanifar, Aalto University; Renaud-Alexandre Pitaval, Huawei Technologies; Branislav Popovic, Huawei Technologies Sweden AB; Olav Tirkkonen, Aalto University

4 **Quantum Deep Learning for Massive MIMO User Scheduling**
Xingyu Huang, Beijing-Dublin International College; Ruining Fan, University College Dublin; Mouli Chakraborty, Trinity College Dublin; avishek Nag, University college Dublni; Anshu Mukherjee, University College Dublin

5 **When Transformer Meets CSI Feedback in mMIMO Systems: A Lightweight CsiMobileViT Approach**
Xiangyu Cen, Chan-Tong Lam, Benjamin K. Ng, Ke Wang, Macao Polytechnic University

Monday, 20 October 2025 11:00 - 12:30 Shu Jin

1J: Sensing and Communication

Chair: Xiaoyan Wang, Ibaraki University

1 **A ConvMixer-based Inter-Radar Interference Mitigation Approach for automotive mmWave Radar**
Yudai Suzuki, Xiaoyan Wang, Ibaraki University; Masahiro Umehira, Nanzan University; Hao ZHOU, University of Science and Technology of China

2 **An Interference Coordination Approach Based on User Grouping and NOMA for ISAC System**
Jie An, University of Sun Yat-sen University; Yuetong Lin, University of Imperial College London; Hongcheng Zhuang, Sun Yat-sen University; Xueyang Hu, Fan Jiang, Peng Cheng Laboratory(PCL)

3 **Delay-Efficient D2D-Assisted Federated Learning via Upload Mode Selection and Bandwidth Allocation**
Chao Chen, Junjie Shuai, Xiaohan Yu, Chen Shen, Chuanhuang Li, Zhejiang Gongshang University; Rui Yin, Hangzhou City University

4 **Integrated Communication and Jamming System with Band-Limited White Noise Disguise**
Tianyu Kou, Wen-Bin Sun, NWPU,National Key Laboratory of Unmanned Aerial Vehicle Technology; Qian Xu, Northwestern Polytechnical University; Zhaolin Zhang, Ling Wang, NWPU,National Key Laboratory of Unmanned Aerial Vehicle Technology

5 **Sensing Mutual Information for Target-Mounted IRS-Enabled Wireless Sensing**
Peilan Wang, Yuting Lin, University of Electronic Science and Technology of China; Lei Xie, Southeast University; Weidong Mei, Jun Fang, University of Electronic Science and Technology of China

Monday, 20 October 2025 14:00 - 15:30 Crystal Ballroom 2

2B: Advanced Techniques in Communication II

Chair: Mingan Luan, University of Electronic Science and Technology of China

1 **Energy Efficient Design for STAR-RIS-Enabled RSMA-Based Mobile Edge Computing**
Yukun Zha, Liu Nan, Southeast University

2 **Exploring LR-FHSS Modulation for Enhanced IoT Connectivity: A Measurement Campaign**
Alexis Delplace, Université Paris-Saclay; Samer Lahoud, Dalhousie University; Kinda Khawam, Université de Versailles, France

3 **Parallelism Flattener: DAG Encoding-Driven Dependency-Aware Offloading in Edge Clouds**
Pu Yang, Shaowei Wang, Nanjing University

4 **Single-Carrier Spreading Joint Communication and Radar Design for RF Chain Isolation Alleviation**
Zelin Ma, Yin Jiang, Yuhang Zeng, Yan Long, Honghao Ju, Southwest Jiaotong University

Monday, 20 October 2025 14:00 - 15:30 IC Ballroom

2C: Machine Learning for Communication II

Chair: Laha Ale, Southwest Jiaotong University

1 **A Resource Allocation Method for V2X communication via Multi-Objective DRL**
Zihao Gu, Mengyu Ma, Zuxing Li, Chao Wang, Tongji University

2 **AoS-Aware Joint Mode Selection and Resource Allocation in Vehicular Networks Based on Multi-Agent Reinforcement Learning**
Shuen Lin, Jie Gong, Sun Yat-Sen University

3 **Federated Learning for Multiple Personalized Tasks in Internet of Vehicles**
Bingqing Li, Yuchuan Fu, Xinlong Tang, Changle Li, Xidian University

4 **FedWM-IoV: A Watermarking-Based Defense Method Against Federated Learning Model Poisoning Attacks in IoV**
Ying Yang, The State Information Center; Meijiao Li, Beijing Electronic Science and Technology Institute; Tingrui Zhang, The University of New South Wales

5 **RAG-based User Profiling for Precision Planning in Mixed-precision Over-the-Air Federated Learning**
Jinsheng Yuan, Yun Tang, Weisi Guo, Cranfield University

Monday, 20 October 2025 14:00 - 15:30 Crystal Ballroom 3

2D: Positioning and Tracking II

Chair: Xi Chen, Tsinghua University

1 **A Novel AI Temporal-Spatial Analysis Approach for GNSS Error Source Recognition**
Kit-Lun Tong, Yi Ren, University of East Anglia; Xin Shi, Zhaohui Chen, CHC Tech Limited; Xu Zhang, University of East Anglia

2 **A Prototype for UAV Cooperative Positioning with UWB and VINS: Algorithm and Experiment**
Zilan Yu, Xi Chen, Jinlong Zhang, Liuguo Yin, Tsinghua University

3 **Geo-Intelligent Handover and Dynamic Selection PRx-DOP: Maximizing 5G UAV Positioning Accuracy in Complex Real Urban Areas**
Denis Andres Maigualema-Quimbita, Victor Monzonis Melero, Universitat Politècnica de València; David Gomez Barquero, iTEAM-UPV; Juan Vicente Balbastre Tejedor, Universitat Politècnica de València

4 **Moving Target Localization Using Asynchronous Time-of-Arrival Measurements**
Yanbin Zou, Weien Zhang, Yangpeng Xiao, Shantou University; Huaping Liu, Oregon State University

5 **Multimodal Model Based NLOS Identification for Ultra-Wideband Ranging**
Xingkun Wang, Beijing University of Posts and Telecommunications

Monday, 20 October 2025 14:00 - 15:30 Qing Yang

2E: Satellite Networks II

Chair: Tianyu Yang, Beijing University of Posts and Telecommunications

1 **An Efficient Backup Routing Based on Potential-Minimized Path First for Mega Constellation Networks**
Zetong Zhu, Qiaolin Ouyang, Wenxuan Ma, Beijing Institute of Technology; Yijia Zhou, Beijing Institute of Technology (Zhuhai); Ye Neng, Beijing Institute of Technology

2 **Distributed Satellite Handover Strategy Using Fuzzy Logic for LEO Mega-Constellation Networks**
Lizeng Gong, Quan Chen, Lei Yang, Jiaqi Li, National University of Defense Technology; Yi Hu, Xianfeng Liu, Beijing Institute of Tracking and Telecommunication Technology

3 **Handover Mechanism based on Link Quality and Longevity for LEO-based Non-Terrestrial Networks**
Chien-Lin Yen, National Ilan University; Chih-Cheng Tseng, National Taiwan Ocean University; Shao-Yu Lien, National Yang Ming Chiao Tung University; Fang-Chag Kuo, Yao-Jen Liang, National Ilan University; Yang Cao, Southwest Jiaotong University

4 **HBRS:A Connection-Oriented Routing Algorithm over Space-Terrestrial Integrated Networks**
Xiaolong Hao, Hao Feng, Beijing Institute of Tracking and Telecommunication Technology; Tianyu Yang, Beijing University of Post and Telecommunications; Yang Gao, Jie Zang, Haiyan Yu, Tianzhe Wang, China Academy of Space Technology; Yufeng Tou, Beijing University of Posts and Telecommunications

5 **Load Balancing Partition Routing Strategy for Low Earth Orbit Mega-Constellation Networks**
YinZhenglong, Quan Chen, Lei Yang, Lizeng Gong, Jiaqi Li, National University of Defense Technology

Monday, 20 October 2025 14:00 - 15:30 Jin Niu

2F: Security and Privacy II

Chair: Hao Ren, Sichuan Universtiy

1 **Cross-receiver Open-set Specific Emitter Identification Based on Universal Domain Adaptation**
Xue Tian, Qizhen Li, Hai Dong, Huimin Long, Southwest China Institute of Electronic Technology

2 **Deep Learning-Based Attack Detection for Automotive Cybersecurity: A CNN-Autoencoder Approach Against CAN Bus Spoofing and DoS Attacks**
Diana W. Dawoud, University of Dubai; Salem Titouni, University Mohamed El Bachir El Ibrahimi of Bordj Bou Arreridj; Yassine Himeur, Shadi Atalla, Wathiq Mansoor, University of Dubai

3 **Dual-Domain Constraints: Designing Covert and Efficient Adversarial Examples for Secure Communication**
Tailai Wen, Da Ke, Xiang Wang, Zhitao Huang, National University of Defense Technology

4 **LCM-RA: Secure and Attestation-Enabled Publish/Subscribe for Dynamic Groups**
Moritz Jasper, Stefan Köpsell, Barkhausen Institut

5 **Robust Intrusion Detection for In-Vehicle Networks Using a Semi-Supervised GAN Model**
Jonggwon Kim, Hyungchul Im, Seongsoo Lee, Soongsil University

Monday, 20 October 2025 14:00 - 15:30 Cheng Hua

2G: Channel Modeling and Estimation I

Chair: Jian Xiong, University of Electronic Science and Technology of China

1 **Analysis and Modeling of Stationarity and Fading Characteristics of USV Communication Channels in Complex Nearshore Scenarios**
Weirong Liu, Beijing Jiaotong University; Shun Zhou, National University of Defense Technology; Dan Fei, Yong Niu, Beijing Jiaotong University; Jianhua Fan, National University of Defense Technology; Bo Ai, Beijing Jiaotong University

2 **Deep Learning for Dynamic Non-Stationary Channel Modeling: A GAN-LSTM Approach**
Keying Guo, Ruisi He, Mi Yang, Yuxin Zhang, Tianyu Shao, Bo Ai, Beijing Jiaotong University

3 **Empirical Propagation Model Assisted Deep Learning Network for Path Loss Prediction**
Tianyu Shao, Ruisi He, Mi Yang, Chenlong Wang, Zhicheng Qiu, Keying Guo, Bo Ai, Zhangdui Zhong, Beijing Jiaotong University

4 **Sparse Bayesian Learning Channel Estimation and Phase Optimization for RIS-Assisted GFDM System**
Hamidreza Shayanfar, Wei-Ping Zhu, M.N.S Swamy, Concordia University

5 **Variational Bayesian Inference-Based Channel Estimation with Joint Angle-Delay Sparse Structure Constraint**
Zeqian He, Ruisi He, Tianyu Shao, Keying Guo, Beijing Jiaotong University

Monday, 20 October 2025 14:00 - 15:30 Xin Du

2H: Recent Results II (Sensing, Perception, and Communication)

Chair: Chenglong Dou, University of Macau

1 **Communication-Sensing-Computing Integration-Enabled Multi-Source Cooperative Perception in Connected Vehicular Networks**
Lantao Li, Sony; Tao Cui, Wenqi Zhang, Chen Sun, Sony R&D Center China

2 **FouriDAR: Efficient Radar Vehicle Detection with Fourier Networks for 6G Perception**
Hamada Rizk, Heetae Jin, Akira Uchiyama, Osaka University

3 **HActiFi: Towards Practical ISAC for Human Activity Recognition via Smart TV Infrastructure**
Youngmin Kim, Kanghyun Lee, Youngwook Son, Saewoong Bahk, Seoul National University

4 **Iterative ESPRIT Algorithm for DoA Estimation in Integrated OAM Radar-Communication Systems**
Shengyu Ye, Yongjun Liu, Xidian University; Wen-Xuan Long, Marco Moretti, University of Pisa; Rui Chen, Xidian University

5 **RL-based Anti-Jamming Maritime Communications for Multi-Modal Perception**
Huanhuan Liu, Weiqi Lin, Liang Xiao, Pengli Zhang, Haoyu Chen, Xiamen University; Zefang Lv, Fudan University

Monday, 20 October 2025 14:00 - 15:30 Shu Han

2I: Massive MIMO II

Chair: Yunfei Zhu, Harbin Institute of Technology

1 **Array-Antenna-Based Cluster-Centric Cell-Free Massive MIMO: Interference Suppression and Cost Reduction by Hybrid Beamforming**
Kazuya Ogata, Sijie Xia, Masataka Miyake, Suguru Kameda, Hiroshima University; Fumiyuki Adachi, Tohoku Univeristy

2 **Mm-Wave Massive MIMO Channel Estimation Supported by Higher-Order Markov Prior**
Zhuangzhuang Liao, Harbin Institute of Technology; Ke Shi, China Electronics Technology Group Corporation 14th Research Institute; Yunfei Zhu, Xiaojie Fang, Xuejun Sha, Harbin Institute of Technology

3 **Pilot Allocation for Multi-Cell Massive MIMO Circumstances**
Pengxiang Li, Yao Wei, Tao Huang, Jungang Ge, Xinru Zhao, China Telecom Research Institute

4 **Precoder Design for User-Centric Network Massive MIMO with Symplectic Optimization**
Pengxu Lin, Anan Lu, Xiqi Gao, Southeast University

5 **What is the Most Efficient Technique for Uplink Cell-Free Massive MIMO?**
Wei Jiang, German Research Center for Artificial Intelligence; Hans Schotten, University of Kaiserslautern

Monday, 20 October 2025 14:00 - 15:30 Shu Jin

2J: Sensing and Imaging

Chair: Qiaolin Ouyang, Beijing Institute of Technology

1 **Computation-Aware Beam Hopping for Airborne Sensing in Space-Air-Ground Integrated Networks**
Qiaolin Ouyang, Zhiyue Zheng, Sirui Miao, Wang Aihua, Beijing Institute of Technology; Wonjae Shin, Korea University; Ye Neng, Beijing Institute of Technology

2 **Efficient Target Recognition Via RCS Profile Estimation for OFDM ISAC**
WenZhi Liu, Zhiwen Zhou, Yong Zeng, Southeast University; Kan Wang, Purple Mountain Laboratories; Zaichen Zhang, Southeast University

3 **FFT-Enhanced Low-Complexity Near-Field Super-Resolution Sensing**
Yuxiao Wu, Huizhi Wang, Yong Zeng, Southeast University

4 **FlowRadar: Unsupervised Radar Target Detection in Sea Clutter Using Flownet2**
Hao Ma, Yansong Tang, Zhenyu Liu, Tsinghua University

5 **Radar Based Cardiac Monitoring Using Gabor Filters in Seismocardiogram Frequency Band**
Hongchun Li, Qian Zhao, Jun Tian, LiliXie, Yingju Xia, Fujitsu Research and Development Center Co., Ltd.

Monday, 20 October 2025 16:00 - 17:30 Crystal Ballroom 1456

3A: Advanced Airborne Systems

Chair: Wei-Ping Zhu, Concordia University

1 **Adaptive Unscented Kalman Filter with Sampling Correction for Trajectory Prediction**
Wenyuan Zhang, Xinmin Luo, Ying Zhang, Xi'an Jiaotong University

2 **Dynamic Heterogeneous Graph Learning for Multi-object Resource Allocation in Space-Air-Ground-Integrated Networks**
Boyu Liu, The University of Sydney; Peng Cheng, Wei Xiang, La Trobe University; Branka Vucetic, Yonghui Li, University of Sydney

3 **Improving SAGIN Resilience to Jamming with Reconfigurable Intelligent Surfaces**
Leila Marandi, Khaled Humadi, Gunes Karabulut Kurt, Polytechnique Montréal; Wessam Ajib, University of Quebec at Montreal; Weiping Zhu, Wei-Ping Zhu, Concordia University

4 **Multi-Hop THz-Backhaul for Enhanced Urban Air Mobility Communications**
Alex Piccioni, Andrea Marotta, University of L'Aquila; Claudia Rinaldi, National, Inter-University Consortium for Telecommunications (CNIT); Dajana Cassioli, Fabio Graziosi, University of L'Aquila

5 **Preemption Based Multi-channel MAC Mechanism in High Dynamic UAV Networks**
Xinru Zhao, Tao Huang, Yao Wei, Pengxiang Li, Jungang Ge, China Telecom Research Institute

Monday, 20 October 2025 16:00 - 17:30 Crystal Ballroom 2

3B: Advanced Techniques in Communication III

Chair: Mingan Luan, UESTC

1 **A Scattering-aware Point Cloud Neural Network (SPointNet) Driven Propagation Graph Method for Time-Varying Indoor Channel Modeling**
Haoyu Yin, Hanxiao Yu, Jinglin Shi, Yiqing Zhou, Chang Liu, Ningzhe Shi, Haiwei Shi, Institute of Computing Technology, Chinese Academy of Sciences

2 Capacity Analysis under Sensitivity Constraint for M - ASK Modulated Ambient Backscatter Communication Systems
Kuo Bao, Gongpu Wang, Beijing Jiaotong University; Heng Liu, Beijing Institute of Technology; Gang Yang, University of Electronic Science and Technology of China (UESTC); Xingwang Li, Henan Polytechnic University

3 Joint DOD, DOA, and Polarization Estimation for Sparse Polarimetric MIMO Radar
Hang Zhou, Hangzhou Institute of Technology, Xidian University; Yaxing Yue, Xidian University; Hua Chen, Ningbo Univ, Fac Elect Engn & Comp Sci; Xiongpeng He, Hangzhou Institute of Technology, Xidian University; Jun Pan, Zhejiang University; Dawei Gao, Guisheng Liao, Hangzhou Institute of Technology, Xidian University

4 Leveraging Code-Domain Perturbations for Enhancing Data Sensing in ISAC Systems
Lei Zhang, Zhifan Ye, Tsinghua University; Shichao Jin, Space Star Technology Co., Ltd.; Liuguo Yin, Tsinghua University

5 VoI-Driven Collective Perception Message Generation Mechanism for Connected Autonomous Vehicles
Yuhao Liu, Jie Mei, Kan Zheng, Ningbo University

Monday, 20 October 2025 16:00 - 17:30 IC Ballroom

3C: Machine Learning for Communication III

Chair: Xue Yang, Southwest Jiaotong University

1 Implicit Location-based Beam Selection: A Deep Learning Solution
Yani Qin, Jin Xu, Jincong Peng, Xiaofeng Tao, Beijing University of Posts and Telecommunications

2 Indoor Experiments on Deep Learning-Based Pilotless Transmission Scheme
Hiroto Yamamoto, NTT Corporation; Atsuya Nakamura, NTT DOCOMO, INC.; Shuki Wai, NTT Corporation; Daisei Uchida, NTT Access Network Service Systems Laboratories; Satoshi Suyama, Huiling Jiang, NTT DOCOMO, INC; Dani Korpi, Jaime J.L. Quispe, Nokia Bell Labs; Kyungpil Lee, SK Telecom Co., Ltd.; Minsoo Na, SK Telecom

3 Multi-step DQN Based Relay Algorithm For Barrage Relay Network
Mingyu Hou, Ming Lei, Yingyi Shan, Mingyuan Wang, Minjian Zhao, Zhejiang University

4 Traffic-Aware Cellular User Association via Multi-Agent Reinforcement Learning
Yiming Zhang, Dongning Guo, Northwestern University

5 Wireless Channel Identification via Conditional Diffusion Model
Yuan Li, Zhong Zheng, Beijing Institute of Technology; Chang Liu, Guangdong University of Technology; Zesong Fei, Beijing Institute of Technology

Monday, 20 October 2025 16:00 - 17:30 Crystal Ballroom 3

3D: Positioning and Tracking III

Chair: Jianxiong Pan, Beijing Institude of Technology

1 A New Approach to Positioning Error Mitigation: How to Learn Via Safety Messages
Federico Pasquinucci, Mattia Andreani, Maria Luisa Merani, University of Modena and Reggio Emilia

2 A Novel GNSS-Aided Relative Odometry Rapid Absolute Initialization Method with Position Vector Constraints
Lingtong Zhong, Southeast University; Xiaosu Xu, SEU

3 Adaptive Sampling for Fingerprinting Localization
Xinze Li, Hanan Al-Tous, Olav Tirkkonen, Aalto University

4 Collaborative HD Map Creation: A Stackelberg Evolutionary Game Approach
Marcell Szabo, Budapest University of Technology and Economics; Laszlo Toka, HUN-REN-BME Cloud Applications Research Group

5 RRDDM: A Residual Denoising Diffusion-Based Method for High-Precision Radio Map Estimation
Yicheng Zhang, Harbin Institute of Technology (Shenzhen); Haiyao Yu, The University of Sydney; Tong Zhang, Changyang She, Fu-Chun Zheng, Harbin Institute of Technology (Shenzhen)

Monday, 20 October 2025 16:00 - 17:30 Qing Yang

3E: Satellite Networks III

Chair: Mouli Chakraborty, Trinity College Dublin

1 Decentralized Task Offloading for Satellite Edge Computing: A Blockchain-Enabled Framework with SCA-DADMM
Yuanpeng Yao, University of Chinese Academy of Sciences; Fei Shen, Chinese Academy of Sciences; Feng YAN, Southeast University; Lianfeng Shen, Southeast University, P.R. China; Zhiyong Bu, Shanghai Institute of Microsystem and Information Technology CAS

2 On the Achievable Rate of Satellite Quantum Communication Channel using Deep Autoencoder Gaussian Mixture Model
Mouli Chakraborty, Subhash Chandra, Trinity College Dublin; avishek Nag, University college Dublni; Anshu Mukherjee, University College Dublin

3 Packet Loss Aware Delivery Node Selection for MDS Based LEO Satellite Caching
Xinyu Cui, University of Chinese Academy of Sciences; Yiqing Zhou, Ling Liu, Institute of Computing Technology, Chinese Academy of Sciences; Menghua Cao, Ningzhe Shi, University of Chinese Academy of Sciences

4 Physical Layer Security Enhancement for Satellite Downlink Transmission via Hybrid RIS
Yuhang Li, Guocheng Lv, Ye Jin, Peking University

5 Spatio-Temporal Entropy-Based Selection for Edge Computing in LEO Satellite Networks
Ahmad Alhusenat, Dongru Wu, Ruiyang Shang, Berihu Berhanu Weldemichael, Zhiwen Wang, Lei Lei, Xi'an Jiaotong University

Monday, 20 October 2025 16:00 - 17:30 Jin Niu

3F: Security and Privacy III

Chair: Beibei Li, Sichuan Universtiy

1 Detection and Mitigation of False Data Injection in Cooperative Vehicular Scenarios
Luis Javier Puente Lam, Cister Research Centre/ISEP; Pedro M. Santos, Universidade de Aveiro, CISTER Research Centre; Luis Almeida, FEUP - Universidade do Porto, Portugal

2 Enhancing Secret Key Generation in Low-Mobility Scenarios by Locally Generated Pilots
Thuy Pham, Barkhausen Institut; Arsenia Chorti, University of Cergy-Pontoise; Gerhard Fettweis, Barkhausen Institut; Rafael F. Schaefer, Dresden University of Technology

3 Resisting Quantization Noise in Semantic Image Communication with Adversarial Learning-enabled HARQ
Chen Mao, Zhongqiang Zhang, Peng Cheng Laboratory; Jiayin Xue, Shenzhen Peng Cheng Laboratory; Zhihua Yang, Harbin Institute of Technology

4 RRC-Layered Vulnerability Implementation Based on Signal Overshadowing in Radio Access Network
Shan Wang, Jingyu Tang, Quan Peng, PeiHao Song, Shi Hu, Jingni Chen, National University of Defense Technology

5 Secure Energy Efficient Wireless Transmission: A Finite v/s Infinite-Horizon RL Solution
Shalini Tripathi, Ankur Bansal,Indian Institute of Technology Jammu; Holger Claussen, Lester Ho, Chinmoy Kundu, Tyndall National Institute

Monday, 20 October 2025 16:00 - 17:30 Cheng Hua

3G: Channel Modeling and Estimation II

Chair: Jian Xiong, University of Electronic Science and Technology of China

1 **A Transfer Function-Based Dynamic Signal Model for Rydberg Atomic Receivers**
Jieao Zhu, Linglong Dai, Tsinghua University

2 **ADMM-Based Delay-Doppler Domain Channel Estimation for OTFS Systems**
Can Zheng, Korea University; Xin Wang, National University of Defense Technology; Chung G. Kang, Korea University

3 **An Improved Fuzzy C-Means Algorithm for Clustering of Wireless Channel Multipath Components**
Fan Xu, Southeast University; Lijian Xin, Purple Mountain Laboratories; Jie Huang, Cheng-Xiang Wang, Southeast University

4 **Measurement-based Channel Capacity Analysis and TDL Channel Modeling for RIS-assisted Communications**
Peng Zheng, Beijing Jiaotong university; Dan Fei, Haoran Chen, Yanyan Huang, Jiayi Zhang, He Hu, Bo Ai, Beijing Jiaotong University

5 **Low-Complexity Doubly Dispersive Channel Estimation via Sparse Bayesian Learning in AFDM Systems**
Meng Lin, Zhiqiang He, Beijing University of Posts and Telecommunications; Kai Niu, Beijing University of Posts and Telecommu- nications; Li Guo, Beijing University of Posts and Telecommunications

Monday, 20 October 2025 16:00 - 17:30 Shu Han

3I: Massive MIMO III

Chair: Yijie (Lina) Mao, ShanghaiTech University

1 **A Low-Complexity K-Box Detector in High Dimensional MIMO Systems**
Sheikh Faizan Qureshi, Hanfu Zhang, TU Dresden

2 **Design of Wireless Autoencoder with Iterative Signal Detection for Coded MIMO Systems**
Yuto Imahori, Shinsuke Ibi, Doshisha University; Takumi Takahashi, Osaka University; Kazushi Muraoka, Takanobu Doi, NEC Corporation; Hisato Iwai, Doshisha University

3 **Hybrid-Field Channel Estimation for XL-MIMO System With Adaptive Weighted-Orthogonal Matching Pursuit Algorithm**
Jiale Han, Lin Mei, Zhaopeng Du, Bin Wang, Harbin Institute of Technology

4 **Joint Channel Estimation and Signal Detection for Massive MIMO-OFDM in Time-Varying Scenarios**
Jie Lai, Xiaoyan Kuai, University of Electronic Science and Technology of China

5 **On Analysis of Superimposed Pilot in Multi-User Massive MIMO with Massive Connectivity**
Shuxiao Ye, Beijing Institute of Technology; Xianchao Zhang, Jiaxing University; Ye Neng, Beijing Institute of Technology

Monday, 20 October 2025 16:00 - 17:30 Shu Jin

3J: Sensing, Perception and Digital Twin

Chair: Jianzhe Xue, Nanjing University

1 **A Vehicle-Infrastructure Cooperative LiDAR Object Detection Model Aided by Semantic Communication**
Xin Huang, Cai Yang, Xuming Tian, Chao Wang, Tongji University; Ming Xiao, KTH

2 **Air-Ground Collaborative Mobile Crowdsensing by Predictive Multi-Agent Deep Reinforcement Learning**
Hu He, Jun Peng, Central South University; Lin Cai, University of Victoria; Weirong Liu, Zhiwu Huang, Central South University

3 **Drive with CPaaS: An Incentive-Driven Offloaded Cooperative Perception as a Service Framework**
R Vinupriya, Indian Institute of Technology, Tirupati; V Mahendran, Indian Institute of Technology Tirupati

4 **INSIM: A Modular Simulation Platform for TSN-based In-Vehicle Networks**
Mohammadparsa Karimi, Majid Nabi, Andrew Nelson, Eindhoven University of technology; Kees Goossens, Twan Basten, Eindhoven University of Technology

5 **Lightweight Digital Twin Enabled Vehicle Control for Mixed-Autonomy Traffic**
Xiwen Liao, Supeng Leng, Ke Zhang, University of Electronic Science and Technology of China; Yao Sun, Muhammad Ali Imran, University of Glasgow

Tuesday 21 October 2025

Tuesday, 21 October 2025 11:00 - 12:30 Crystal Ballroom 2

4B: Advanced Techniques in Communication IV

Chair: Congxi Liu, Beijing University of Posts and Telecommunications

1 **Eigenvalue Filtering Based Interference Rejection Combining Receiver Enhancement**
Yu Zheng, Congxi Liu, Hang Long, Beijing University of Posts and Telecommunications

2 **Generative AI-Driven Wireless Amodal Sensing Using MmWave Radar**
Sutong Zhang, Haobo Zhang, Boya Di, Lingyang Song, Peking University

3 **GRTD-Net: Lightweight Convolutional Neural Network for Gesture Recognition on Terminal Device**
Haoyu Yin, Hanxiao Yu, Jinglin Shi, Yiqing Zhou, Chang Liu, Ningzhe Shi, Haiwei Shi, Institute of Computing Technology, Chinese Academy of Sciences

4 **Joint Resource Allocation and Traffic Management for URLLC and eMBB Slices: A Hierarchical Scheduling Approach**
Rong Chai, Shaowei Wang, Nanjing University

5 **starET: A Modem-Independent Approach to Envelope Tracking for Efficient Power Amplifiers**
Seunghyun Jang, Bonghyuk Park, Jung-Hwan Hwang, Electronics Telecommunication Research Institute(ETRI)

Tuesday, 21 October 2025 11:00 - 12:30 IC Ballroom

4C: Machine Learning and AI Techniques

Chair: Peiyao Liu, Xihua University

1 **Anti-Jamming in Frequency-Hopping Communication Systems via Reinforced Continual Learning**
Jing yu Zhao, Hongcheng Tan, Jianquan Wang, Peng Wei, Sa Xiao, Wanbin Tang, University of Electronic Science and Technology of China

2 **Deep Reinforcement Learning for Covert Capacity Optimization in XR-Enabled Multi-Relay Networks**
Esraa M. Ghourab, Omar Alhussein, Khalifa University; De Mi, Birmingham City University; Sami Muhaidat, Khalifa University

3 **DRL-based Optimization of Fountain Codes with Intermediate Feedback in Buffer-limited Scenarios**
Yi Zhang, Jingxuan Huang, Zijun Qin, Zesong Fei, Beijing Institute of Technology

4 **GNN-based Latency Minimization for Wireless Decentralized Learning Systems**
Zhan Xu, Jiantao Yuan, Hangzhou City University; Shengli Liu, Shanghai University; Rui Yin, Hangzhou City University; Celimuge Wu, The University of Electro-Communications; Xianfu Chen, Shenzhen CyberAray Network Technology Co., Ltd.

5 **TeleMoM: Consensus-Driven Telecom Intelligence via Mixture of Models**
Xinquan Wang, Fenghao Zhu, Chongwen Huang, Zhaohui Yang, Zhaoyang Zhang, Zhejiang University; Sami Muhaidat, Khalifa

University; Chau Yuen, Nanyang Technological University; M'erouane Debbah, Khalifa University of Science and Technology

Tuesday, 21 October 2025 11:00 - 12:30 Crystal Ballroom 3

4D: Network Performance I

Chair: Rui Zhang, University of Electronic Science and Technology of China

1 A Hybrid Network Performance Measurement Framework for Deterministic Smart Grids
junjie an, zhejiang university; Wei Wang, Zhejiang University; Yitu Wang, North Minzu University; Xinglin Yang, Zhaoyang Zhang, Zhejiang University

2 Adaptive VR Video Transmission via Multimodal Viewpoint Prediction with Event Information
Hsuanyi Lin, Wei Wang, Zhejiang University; Yitu Wang, North Minzu University; Zhaoyang Zhang, Zhejiang University

3 Cloud-Edge-End Collaborative Surveillance Video Transmission with Object-Guided Video Super-Resolution
Wenwen Zhou, Yiping Duan, Xiaoming Tao, Weikun Kong, Qiyuan Du, Tsinghua University

4 Energy-Efficient Random Access for mMTC Using NOMA and Q-learning
zhenyou wang, Jjiangsu University of Science and Technology

5 Hierarchical Collaborative Anti-Jamming Spectrum Access for Multi-UAV Communications: A MARL Approach
Bing Yan, Ximing Wang, Wei Xie, Zhenyi Ke, Tao Xiong, Yujie Jiang, National University of Defense Technology

Tuesday, 21 October 2025 11:00 - 12:30 Qing Yang

4E: Satellite and Aerial Networks I

Chair: Xin Zhang, Nanjing University

1 A Low-Complexity Group Routing Algorithm in LEO Satellite Networks
Seongwook Jung, Soyeon An, Hojun Rho, Wan Choi, Chang-Gun Lee, Seoul National University

2 Graph Neural Network for Access and Resource Allocation in Terrestrial-Satellite Networks
Junyi Yang, Xingjian Zhang, Harbin Institute of Technology, Shenzhen; Bo Li, Harbin Institute of Technology (Weihai); Lirong An, Harbin Institute of Technology (Shenzhen); Zhang Qinyu, Harbin Institute of Tech.

3 Joint Optimization of UAV Placement, User Association and Resource Allocation for Integrated TN-NTN via Multi-Agent DRL
Jiajia Huang, Institute for Infocomm Research, A*STAR Research Entities; Sridharan Vignesh, Ernest Kurniawan, Institute for Infocomm Research

4 Nullforming Strategy Based on User Distribution for Spectrum Sharing Between High-Altitude Platforms and Terrestrial Networks
Kenzo Fontaine, Anders E. Kalør, Tomoaki Ohtsuki, Keio University; Tsutomu Ishikawa, SoftBank Corp.

Tuesday, 21 October 2025 11:00 - 12:30 Jin Niu

4F: Security and Privacy IV

Chair: Ankit Dubey, Indian Institute of Technology Jammu

1 A LoRa Radio Frequency Fingerprint Extraction Scheme Against Variable Channel Characteristics
Yanbing Chen, Aiqun Hu, Linning Peng, Jiangtao Wang, Tianshu Chen, Southeast University

2 Advanced Anomaly Detection in PV Solar Cells: Leveraging Vision Transformers (ViT) and Machine Learning for Enhanced Fault Diagnosis
Mohamed Reda Shoeib, Jun Zhao, Nanyang Technological University

3 Efficient WiFi Device Recognition via Blueprint Separable Residual Network with SE Module
Tiancheng Liu, Nanjing University of Posts and Telecommunications; Zhenxin Cai, Nanjing University; Qin Wang, Nanjing University of Posts and Telecommunications; Tomoaki Ohtsuki, Keio University; Hikmet Sari, Guan Gui, Nanjing University of Posts and Telecommunications

4 A General Secrecy Analysis of RIS-Assisted Systems With Multiple Eavesdroppers
Tao Xu, Harbin institute of technology

5 The NODROP Patch: Hardening Secure Networking for Real-time Teleoperation by Preventing Packet Drops in the Linux TUN Driver
Tim Gebauer, Simon Schippers, Christian Wietfeld, TU Dortmund University

Tuesday, 21 October 2025 11:00 - 12:30 Cheng Hua

4G: Channel Modeling and Beamforming

Chair: Koichi Adachi, Keio University

1 A Low-Complexity Beam Pattern Design with Frequency Reuse for Multi-Beam Satellite Systems
Zhuang Yao, Lixia Xiao, Mingjie Feng, Jiaxi Zhou, Huazhong University of Science and Technology; Yue Cao, Wuhan University; Pei Xiao, University of Surrey

2 Machine Learning-Based Vehicle-to-Ship Path Loss Prediction Using Offshore Measurements
lvzhenglong, Xiaoying Zhang, Xiaoran Liu, Jibo Wei, National University of Defense Technology

3 Measurement and Analysis for UAV-to-Vehicle Channel at Intersection in Semi-Urban Scenarios
Haoran Chen, Dan Fei, Beijing Jiaotong University; Chen Chen, Frontiers Science Center for Smart High-speed Railway System; Peng Zheng, He Hu, Feng Yuan, Bo Ai, Beijing Jiaotong University

4 Robust Beamforming Avoiding Satellite Interference in Integrated Terrestrial and Satellite Networks
Wenjing Cao, Yafei Wang, Wenjin Wang, Southeast University; Symeon Chatzinotas, SnT, University of Luxembourg; Bjorn Ottersten, University of Luxembourg

Tuesday, 21 October 2025 11:00 - 12:30 Xin Du

4H: Recent Results III (Sensing, Access and Routing)

Chair: Yang Li, Southwest Jiaotong University

1 A Role-based Hierarchical Adaptive Routing Protocol for Clustered UAV Swarms
Tianen Guan, Na Wang, Beihang University; Xinliang Wu, Chinese Aeronautical Radio Electronics Research Institute; Zhongliang Zhao, Beihang University; Wenbing Tang, Yang Liu, Nanyang Technological University

2 Blockage Prediction-Based Routing and Scheduling Methods for 5G Cellular V2X Single-Hop Communication
Ren Yijia, Takuma Nakaue, Yusuke Koda, Hiroshi Harada, Kyoto University

3 EdgeRIC-Enabled RL-Based MAC Scheduling for srsRAN-Based Open RAN System
Annu, Sikander Kathat, Abhilash S, P. Rajalakshmi, Indian Institute of Technology, Hyderabad

4 Mobile Wi-SUN FAN Communication System with a Speed-Independent Reliable Routing Method
Kanon Sekiya, Ryuichi Nagao, Hiroko Masaki, Hiroshi Harada, Kyoto University

5 Multi-Agent Reinforcement Learning assisted Trust-aware Cooperative Spectrum Sensing for Cognitive Radio Networks
Xinyue Wang, Liping Qian, Qian Wang, Zhejiang University of Technology

Tuesday, 21 October 2025 11:00 - 12:30 Shu Han

4I: mmWave and Antenna Design

Chair: Jie Huang, Southeast University

1 **Analysis of Average Blockage Loss With Uniform Linear Array Over Millimeter-Wave Channels**
Daiya Miyamoto, Kanta Terui, Kabuto Arai, Koji Ishibashi, The University of Electro-Communications

2 **Full-Wave Analysis for Passive Reflector as Shadowing Mitigation Strategy at mmWaves**
Xin Du, Kagoshima University; Hidekazu Murata, Yamaguchi University; Suguru Kameda, Hiroshima University

3 **Near-Field Hybrid Beamforming Design for mmWave Integrated Sensing and Communication**
Minghao Yuan, Dongxuan He, Beijing Institute of Technology; Hao Yin, Institute of China Electronic System Engineering; Yuyang Liu, Ziqi Kang, Hua Wang, Beijing Institute of Technology

4 **Parasitic Structure-Enabled Band Expansion of Magnetic Antennas**
Zhouhui Jia, Guanghua Liu, Kun Chai, Huaijin Zhang, Yuan Hu, Huazhong University of Science and Technology

5 **Ray Tracing Channel Modeling for 6G RIS-Beamforming Communications at 28 GHz**
Dong Bai, Southeast University; Songjiang Yang, Yinghua Wang, Purple Mountain Laboratories; Jie Huang, Cheng-Xiang Wang, Fu-Chun Zheng, Southeast University

Tuesday, 21 October 2025 11:00 - 12:30 Shu Jin

4J: Intelligent Driving and Sensing

Chair: Ke Tan, Beijing University of Posts and Telecommunications

1 **CalibCfC: LiDAR-Camera Self-Calibration with Convolutional Closed-Form Continuous-Time Layer**
Zhao Chen, Binjie Hu, South China University of Technology

2 **End-to-end Autonomous Driving Method for Intelligent Buses Integrating Vehicle Dynamics**
Xibo Fang, Yigao Ning, Xuan Zhao, Kai Hu, Chang'an University

3 **GhostLite: Data Minimization with Applications to Real-Time LiDAR Attacks**
Richard Capraru, Nanyang Technological University and A*STAR; Emil Lupu, Imperial College London; Jian-Gang Wang, Agency for Science, Technology and Research; Boon Hee Soong, Nanyang Technological University

4 **Overcoming Data Imbalance in Autonomous Driving: A CWGAN-GP Approach**
Celine Serbouh, CNAM/UTAC; Iness Ahriz, Ndeye Niang, Conservatoire National des Arts et Métiers; Alain Piperno, UTAC

5 **V2X-aided Multi-Agent Cooperative Lane Changing under Road Closure**
Cao Ding, Ivan Wang-Hei Ho, The Hong Kong Polytechnic University

Tuesday, 21 October 2025 14:00 - 15:30 Crystal Ballroom 2

5B: Advanced Techniques in Communication V

Chair: Qi Zeng, Sichuan University

1 **A Robust Anti-Interference Timing Acquisition Method for FH Communications**
Honghan She, Yufan Cheng, Yuheng Zhao, Kaikai Yang, University of Electronic Science and Technology of China

2 **Dynamic Spectrum Prediction Driven by Spatiotemporal Knowledge-Based Reasoning**
BingLe Gui, Yang Huang, Yibo Guo, Nanjing University of Aeronautics and Astronautics

3 **Efficient Subcarrier Processing Order for Combining Wi-Fi Frequency-Domain Duplicates**
Soonwoo Choi, Minki Ahn, Juhyung Lee, Myeongjin Kim, Junyoung Jeong, Samsung Electronics

4 **In-band Distortion-aware MMSE-Precoding for Massive MIMO-OFDM with Peak Cancellation**
Zhuoran Li, Mirena Omoto, Osamu Muta, Kyushu University; Kazuki Maruta, Tokyo University of Science

5 **Multi-User Simultaneous Beam Training in Hybrid Near Field and Far Field Enabled by Holographic Beamforming**
Shupei Zhang, Boya Di, Peking University

Tuesday, 21 October 2025 14:00 - 15:30 IC Ballroom

5C: Machine Learning for Transportation

Chair: Peiyao Liu, Xihua University

1 **Acoustic Traffic Attribute Classification for ITS: A Comparative Study of Machine Learning and CNN Approaches**
Jiawen Meng, Mustafa Demetgül, Sanja Lazarova-Molnar, Frank Gauterin, Alexey Vinel, Karlsruhe Institute of Technology

2 **Deep Reinforcement Learning -based Speed Planning and Torque Distribution Strategy for Dual-motor-drive EV in Urban Scenarios**
Jia Zheng, Kunming University of Science and Technology; Junhui Li, Yunnan University; Bowen Chen, Zhangnan Jiang, Fuxing Wei, Zheng Chen, Kunming University of Science and Technology

3 **PViTH-Net: Pyramidal Vision Transformer Homography Estimation Network for Image Stitching**
Sima Soltanpour, Chris Joslin, Carleton University

4 **Real-time prediction of rainfall rate upper bound based on connected vehicle data**
Filip Erhardt, Tomislav Babic, AVL-AST d.o.o.; Donald K. Grimm, Richard Gordon, General Motors Research & Development Center

5 **XAI-Driven Machine Learning System for Driving Style Recognition and Personalized Recommendations**
Feriel Amel Sellal, La Rochelle University; Yacine Ghamri-Doudane, University of La Rochelle; Mouhamed Amine Bouchiha, Ahmed Ayoub Bellachia, Meryem Dif, La Rochelle University

Tuesday, 21 October 2025 14:00 - 15:30 Crystal Ballroom 3

5D: Network Performance II

Chair: Yunchao Song, NJUPT

1 **Channel Estimation Based on Block Sparsity in Wavenumber-Domain for Holographic MIMO Systems**
Fengxi Gu, Chen Liu, Nanjing University of Posts and Telecommunications; Yunchao Song, NJUPT; Wanyue Zhang, Nanjing University of Posts and Telecommunications

2 **Communications-Control Co-Design in Cooperative Platooning: Quantifying the Stability Effects of Communications Delay and Loss**
Zahra Seifaei, Torsten Reissland, Norman Franchi, Friedrich-Alexander-University, Erlangen-Nurnberg (FAU)

3 **Research on Optimal Coding Rates of Polar Codes in BEC**
Mengyao Li, Jiaqi Li, Beijing Jiaotong University of Electronic and Information Engineering

4 **Synthetic Wi-Fi Fingerprint Generation Using a Diffusion Probabilistic Model**
Imangali Zhumangali, Shinnazar Seytnazarov, Nazarbayev University

5 **The Age of Information in Barrage Relay Networks**
Yingyi Shan, Ming Lei, Mingyu Hou, Mingyuan Wang, Minjian Zhao, Zhejiang University

Tuesday, 21 October 2025 14:00 - 15:30 Qing Yang

5E: Satellite and Aerial Networks II

Chair: Xin Zhang, Nanjing University

1 **Collaborative Computing Strategy Based SINS Prediction for Emergency UAVs Network**
Bing Li, Xidian University; Haoming Guo, Institute of Software Chinese Academy of Sciences; Zhiyuan Ren, Wenchi Cheng, Jialin Hu, Xinke Jian, Xidian University

2 **Community-Aware Federated Learning for Time-Varying LEO Networks via Visibility-Driven Cluster Formation**
Berihu Berhanu Weldemichael, Han Jiang, Zenebe Melesew Yetneberk, Ahmad Alhusenat, Lei Lei, Xi'an Jiaotong University

3 **NS3-Based Protocol-Level LEO Network Simulator: A Full-Stack Performance Evaluation**
Junhui Wang, Tongxin Yang, Haifeng Zhang, Honghao Ju, Yan Long, Southwest Jiaotong University

4 **PKO-Based Feature Selection Method for DDoS Detection in Vehicle-UAV Integrated System**
Xiangyu Li, Xiaoxuan Wang, Xiangqing Su, Yan Huo, Tao Jing, Beijing JiaoTong University

5 **Robust and Intelligent Multipath QUIC Transmission in Large-Scale LEO Satellite Networks**
Mengyang Zhang, Xiaoyu Liu, Xin Zhang, Yu Sun, Nanjing University; Ting Ma, Nanjing University of Science and Technology; Haibo Zhou, Nanjing University

Tuesday, 21 October 2025 14:00 - 15:30 Jin Niu

5F: Security and Privacy V

Chair: Ankit Dubey, Indian Institute of Technology Jammu

1 **A Two-Way Anonymous Cross PKI-IBC Authentication Mechanism for Inter-Satellite-Networks Interoperability**
Yanpeng Ji, Zengbao Zhu, Cui Qimei, Xiaofeng Tao, Baoling Liu, Beijing University of Posts and Telecommunications

2 **Anomaly Detection in Real-Time Networks Using Asynchronous Traffic Shaping**
Philipp Meyer, Teresa Lübeck, Timo Salomon, Franz Korf, Thomas Schmidt, Hamburg University of Applied Sciences

3 **MOA-RHS: Maximized Order Acceptance Ride-Hailing Scheme with Collusion Resistance**
Chengzhe Lai, Zehua Zhang, Xi'an University of Posts and Telecommunications

4 **Research on the Vulnerabilities of Radio Access Network under Cross-Layer Attack**
Jingni Chen, Shan Wang, Chen Zhang, Quan Peng, Shi Hu, Jingyu Tang, National University of Defense Technology

5 **RPPSL: A Robust and Privacy-Preserving Split Learning**
Mingtian Jia, Xihua Univesity; Yiran Li, Junkai Wang, Xihua University

Tuesday, 21 October 2025 14:00 - 15:30 Cheng Hua

5G: Beamforming/Channel Modelling

Chair: Shiying Han, Nankai University

1 **6DMA Assisted Integrated Data and Energy Transfer: Joint Spatial Orientation and Beamforming Design**
Zhonglun Wang, Yizhe Zhao, Jie Hu, University of Electronic Science and Technology of China; Kun Yang, University of Essex

2 **Clustered Channel Estimation and Prediction with Channel Knowledge Map**
Guanya Meng, Xiujun Zhang, Zhong Xiaofeng, Shidong Zhou, Tsinghua University

3 **Low-Complexity Beamforming Design for Null Space-based Simultaneous Wireless Information and Power Transfer Systems**
Cheng Luo, Jie Hu, Luping Xiang, University of Electronic Science and Technology of China; Kun Yang, University of Essex

Tuesday, 21 October 2025 14:00 - 15:30 Xin Du

5H: Recent Results IV (Performance Enhancement)

Chair: Yi-Han Chiang, Osaka Metropolitan University

1 **Enhancement of UFLD by Improving Global Dependencies**
Jiye Yang, Loughborough University

2 **Enhancing SORT for Multi-Object Tracking with Kalman Filter and Spatio-Temporal Consistency Constraints**
Qun Wang, The Hong Kong Polytechnic University

3 **Instantaneous Power Distribution of ODDM Signals**
Yusuke Sato, Yi-Han Chiang, Hai Lin, Osaka Metropolitan University

4 **Performance Evaluation of Asynchronous Coded FBMC/OFDM Systems under Adjacent Channel Interference and Multipath Fading**
Ryoma Kobyashi, Hirofumi Suganuma, Fumiaki Maehara, Waseda University

5 **Waveform Candidates for 3D Network: A Comparative Study of OTFS, AFDM, ODDM and OFDM**
Ainur Daurembekova, University of Kaiserslautern-Landau (RPTU); Hans Schotten, University of Kaiserslautern

Tuesday, 21 October 2025 14:00 - 15:30 Shu Han

5I: mmWave and THz II

Chair: Lingsheng Meng, Nanyang Technological University

1 **Dynamic Optimization for Wideband Millimeter Wave MIMO Communication with Statistical QoS Provisioning Under Jamming Attacks**
Peilin Liu, Cheng Zhang, Wen Wang, Southeast University; Zhilei Zhang, Purple Mountain Laboratories; Xianliang Pu, Yongming Huang, Southeast University

2 **Indoor Coverage Experiment with Beam Steering and Hybrid-DNN demodulator on Sub-THz Transmission Under Hardware Impairment**
Keita KURIYAMA, Kentaro Tanaka, Hitoshi HASEGAWA, NTT Access Network Service Systems Laboratories; Satoshi Suyama, Atsuya Nakamura, NTT DOCOMO, INC.; Huiling Jiang, NTT DOCOMO, INC; Yuyuan CHANG, NTT DOCOMO, INC.; Holger Heimpel, Hardy Halbauer, Michael Holyoak, Muhammad Waleed Mansha, Shahriar Shahramian, Nokia Bell Labs

3 **Joint Phase Noise and Channel Estimation for DFT-s-OFDM in Sub-THz band**
Donghwan Jang, Sungkyunkwan University; Geunho Kim, Sunkyunkwan Universtiy; Kaewon Choi, Sungkyunkwan University

4 **Local Ambiguity Shaping for Doppler-Resilient Sequences Under Spectral and PAPR Constraints**
Shi He, Lingsheng Meng, Yao Ge, Guan Yong Liang, Nanyang Technological University; David González G., Continental Automotive Technologies GmbH; Zilong liu, University of Essex

5 **Near-field Channel Estimation of Extremely Large-Scale IRS-Aided THz Communications**
Juan Ding, Hongwei Wang, Jionghui Wang, Jun Fang, Lingxiang Li, Zhi Chen, University of Electronic Science and Technology of China

Tuesday, 21 October 2025 14:00 - 15:30 Shu Jin

5J: RIS I

Chair: Ruizhe Long, University of Electronic Science and Technology of China

1 **Admission Control with Reconfigurable Intelligent Surfaces for 6G Mobile Edge Computing**
Ye Zhang, Baiyun Xiao, Jyoti Sahni, Alvin Valera, Victoria University of Wellington; Wuyungerile Li, Inner Mongolia University; Winston Seah, Victoria University of Wellington

2 **Multimodal Feature-Enhanced Unet for Forward-Looking Sonar Segmentation**
Zefan Wu, Wei Li, Xiaoguang Chen, Harbin Institute of Technology (Shenzhen); Lin Mei, Harbin Institute of Technology; Ye Wang, Pengcheng Laboratory

3 **Performance Analysis of RIS-Aided High-Mobility Wireless Systems**
Hanwen Hu, University of Electronic Science and Technology of China; Jiancheng An, Nanyang Technological University; Lu Gan, University of Electronic Science and Technology of China; Chau Yuen, Nanyang Technological University

4 **Untie Multiplicative Interference within RIS-Enabled Symbiotic Backscatter NOMA System: A UFCP Approach**
Guoxi Song, Haiyang Ding, National University of Defense Technology; Gang Yang, University of Electronic Science and Technology of China (UESTC); Chau Yuen, Nanyang Technological

University; Jules M. Moualeu, University of the Witwatersrand; Chenglin Feng, National University of Defense Technology

5 Uplink Transmission of Low-Rate Local RIS Data Using Orthogonal Polarizations
Fumin Wang, Hao Huang, Guan Gui, Nanjing University of Posts and Telecommunications; Marco Di Renzo, CentraleSupélec, Paris-Saclay University; Hikmet Sari, Nanjing University of Posts and Telecommunications

Tuesday, 21 October 2025 16:00 - 17:30 Crystal Ballroom 1456

6A: UAV and Aerial Networks I

Chair: Peng Liu, Hangzhou Dianzi University

1 A Dynamic Task-driven Efficient Resource Allocation Scheme in UAV Network Slicing
Yufu Guo, Wu Fan, Ke Zhang, Supeng Leng, University of Electronic Science and Technology of China

2 An Enhanced Multi-Target Collision-Free Path Planning Algorithm for UAV Networks
Paul Zeman, George Baryannis, University of Huddersfield; Soufiene Djahel, Coventry University; Richard Hill, University of Huddersfield

3 ns3-uavlink: AI-Driven Dynamic MCS Scheduling for U2U Sidelink Communication
Jingxiang Yu, Hong Jiang, SouthWest University of Science and Technology

4 UAV Covert Communications Aided by Movable-Antenna Array: Trajectory Design and Flexible Beamforming
Haobin Mao, Beihang University; Lipeng Zhu, National University of Singapore; Xiangyu Pi, Zhenyu Xiao, Beihang University

5 UAV-Assisted 5G Networks: Mobility-Aware 3D Trajectory Optimization and Resource Allocation for Dynamic Environments
Asad Mahmood, SnT, University of Luxembourg; Thang X. Vu, University of Luxembourg; Wali Ullah Khan, University of Luxembourg,; Symeon Chatzinotas, SnT, University of Luxembourg; Bjorn Ottersten, University of Luxembourg

Tuesday, 21 October 2025 16:00 - 17:30 Crystal Ballroom 2

6B: Advanced Techniques in Communication VI

Chair: Xuan He, Southwest Jiatong University

1 A Low-complexity Closed-form Signal Separation Method with Reference
Guoqiang Yao, Jingzhi Zhang, University of Electronic Science and Technology of China

2 Adaptive Low-Complexity Digital Predistortion Model for Complex nonlinear Memory Effect
Wendi Zhu, Yuan Jiang, Lei Zhao, Sun Yat-sen University; Jianming Lv, South China University of Technology

3 Low Complexity Expectation-Propagation-Based AFDM Detection
Qingyu Li, Guanghui Liu, Hongjun Liu, Fuchen Xu, Chengxiang Liu, University of Electronic Science and Technology of China

4 Polar-Code Puncturing Pattern Design for HARQ Transmissions
Heping Wan, Joonyoung Cho, Samsung Research America; Charlie Zhang, Samsung

5 Successive Cancellation List Flip Decoding for eBCH-polar Codes
Wei-Cheng Wang, Meng-Ru Wu, National Tsing Hua University; Shan Lu, Nagoya University; Chung-Hsuan Wang, National Yang Ming Chiao Tung University; Yeong-Luh Ueng, National Tsing Hua University

Tuesday, 21 October 2025 16:00 - 17:30 IC Ballroom

6C: Machine Learning for Vehicular Applications

Chair: Jianzhe Xue, Nanjing University

1 AirFogSim: A High-Fidelity Simulation Platform for AI Benchmarking in Low-Altitude Scenarios
Zhiwei Wei, Bing Li, Rongqing Zhang, Tongji University

2 Confidence-Aware Personalized Federated Learning for Vehicular Object Recognition
Yingying Shen, Wenchao Xia, Qin Wang, Yan Cai, Haitao Zhao, Nanjing University of Posts and Telecommunications

3 Federated Learning Based Decision Making for Autonomous Driving in Extreme Scenarios
Yuting Zhang, The Hong Kong Polytechnic University; Yun Hou, Hang Seng University of Hong Kong; Ivan Wang-Hei Ho, The Hong Kong Polytechnic University

4 Robust and Low-Latency Communication Through Machine-Learning Based Multi-Carrier Connection Management
Hikaru Shimoyama, The University of Tokyo; Kengo Sasaki, Toyota Central R&D Labs., Inc.; Shota Ono, Akihiro Nakao, University of Tokyo

5 Secure Offloading in VEC: A Multi-Agent Reinforcement Learning Approach
Zihan Liu, Yuhan Chen, Xiaozhen Lu, Qihui Wu, Nanjing University of Aeronautics and Astronautics

Tuesday, 21 October 2025 16:00 - 17:30 Crystal Ballroom 3

6D: Performance Analysis and Optimization

Chair: Rui Zhang, University of Electronic Science and Technology of China

1 An Improved LSTM Trajectory Prediction Method Based on Attention Mechanism in Vehicular Multi-modal Environments
Jiahong Zhu, Tingting Liu, Le Yu, Deqiang Li, Nanjing University of Posts and Telecommunications; Jun, Li

2 Delay Performance Analysis with Short Packets in Intelligent Machine networks
Wenyan Xu, Zhiqing Wei, Beijing University of Posts and Telecommunications; Lizhe Liu, National Key Laboratory of Advanced Communication Networks; Yixin Zhang, Haotian Liu, Ying Zhou, Beijing University of Posts and Telecommunications; Yashan Pang, National Key Laboratory of Advanced Communication Networks; Feng Zhiyong, Beijing University of Posts and Telecommunications

3 Joint Optimization of Latency and Energy Consumption for the Integration of Communication, Sensing and Computation in Internet of Vehicles
Xinran Liu, Yaqiong Liu, Junsheng Mu, Guochu Shou, Beijing University of Posts and Telecommunications

4 Outage-Aware Relay Node Placement with Directional Antennas for Wireless Sensor Networks
Peiyang Zhao, Zihao Xiang, Ning Ge, Tsinghua University

5 Primary Deployment: Guaranteeing the Prompt Connection of Vehicles to the Communication Infrastructure within a Specified Time Limit
Leonardo Alvarenga Lopes Santos, Cristiano Maciel da Silva, Universidade Federal de São João Del Rei; Bernardo Roberto Andrade Silva, Universidade Federal de Minas Gerais; Fernanda Sumika Hojo de Souza, Universidade Federal de Ouro Preto; Jose Marcos Silva Nogueira, Universidade Federal de Minas Gerais

Tuesday, 21 October 2025 16:00 - 17:30 Qing Yang

6E: Satellite, Aerial, and V2X

Chair: Tzu-Hsien Sang, National Yang Ming Chiao Tung University

1 Children Presence Detection System in Vehicles via Wi-Fi Devices
Zhen Chen, University of Macau; Hancheng Guo, Xiuyin Zhang, South China University of Technology

2 **Collaborative Interference Suppression for LEO Satellite Beam Hopping Systems**
Ding Huang, Lixia Xiao, Xingyu Chen, Jiaxi Zhou, Huazhong University of Science and Technology; Zilong liu, University of Essex; Pei Xiao, University of Surrey

3 **Fuzzy Logic Based Decoupling under Full-Duplex in Cellular-Connected UAV Communications**
Lifeng Lai, Harbin Institute of Technology (Shenzhen); Fu-Chun Zheng, Harbin Institute of Technology (Shengzhen) & The University of York

4 **Optimal Real-time Communication in 6G Ultra-Massive V2X Mobile Networks**
He Huang, Chengdu University of Infomation and Technology; Zilong liu, Zeping Sui, University of Essex; Wei Huang, Intelligent Interconnected Systems Lab, Hefei Uni. of Tech., China; Md. Noor-A-Rahim, University College Cork; Haishi Wang, Zhiheng Hu, College of Communication Engineering, CUIT

5 **Phase Noise and Residual CFO Compensation in 5G NR LEO Satellite OFDMA Uplinks**
Tzu-Hsien Sang, National Yang Ming Chiao Tung University

Tuesday, 21 October 2025 16:00 - 17:30 Jin Niu

6F: Security and Other Vehicular Technologies

Chair: Francesco Raviglione, Politecnico di Torino

1 **A Zero Trust-Based Lightweight Trajectory Endorsement Model for Secure Communication in Connected and Autonomous Vehicles**
Quazi Mamun, Charles Sturt University; Zhenni Pan, Jun Wu, Waseda University

2 **Dual-VAE with Truncated Gaussian: An Unsupervised Defense Against Model Poisoning in Federated Learning**
Haoqi Huang, Ping Wang, York University; Om Kumar, Indian Institute of Technology Jodhpur

3 **Enhanced UAV GPS Geolocation Verification with Novel Identification Metrics**
Arupa Sarkar, University of Wollongong; Fendy Santoso, Charles Sturt University; Jun Shen, University of Wollongong; Bo Du, Griffith University; Jun Yan, University of Wollongong

4 **TRACEN-X: Telemetry Replay and Analysis of CAN bus and External Navigation data**
Diego Gasco, Politecnico di Torino; Carlos Mateo Risma Carletti, CNIT - Politecnico di Torino; Francesco Raviglione, Marco Rapelli, Claudio Casetti, Politecnico di Torino

5 **Trajectory Optimization for Enhanced Physical Layer Security in UAV-Assisted ISAC Systems**
Haitao Wang, Zheng Dong, Shandong University; Yong Zhou, ShanghaiTech University; Zhi Liu, Shandong University

Tuesday, 21 October 2025 16:00 - 17:30 Cheng Hua

6G: Beamforming/MIMO/mmWave

Chair: Kaiwen Yu, University of Electronic Science and Technology of China

1 **A CNN-LSTM Based Beam Tracking Scheme for Next-generation Sub-7GHz and mmWave Integrated Wi-Fi Networks**
Yangyang Lv, Li Yan, Xuming Fang, Southwest Jiaotong University; Liuming Lu, Chaoming Luo, Guangdong OPPO Mobile Telecommunications Corp

2 **A Novel CSI Feedback Scheme for Massive MIMO Systems Using Differentiable Histogram Attention Mechanism**
Weiqiang Tan, MinWei Zhang, Maobin Tang, Guangzhou University; Jintao Wang, University of Macau; Chunguo Li, Southeast University

3 **DRL-Aided Dynamic Beamforming for Reliable Handover in 5G Railway Communication Systems**
Bo Ai, Jingli Li, Yiyan Ma, Guoyu Ma, Mi Yang, Zhangdui Zhong, Beijing Jiaotong University

4 **Energy-Optimized Computation Offloading in MEC-Enabled Cell-Free Massive MIMO Systems with MADDPG**
Zhanghao Pan, Yanxiang Jiang, Yige Huang, Southeast University; Fu-Chun Zheng, Harbin Institute of Technology (Shenzhen)

5 **Hierarchical Intelligence for SLA-Guaranteed RAN Slicing and Beamforming in Cell-Free Networks**
Hongning Liu, Yi Jia, Cheng Zhang, Yongming Huang, Southeast University

Tuesday, 21 October 2025 16:00 - 17:30 Xin Du

6H: User Experience

Chair: Pedro M. d'Orey, CISTER Research Centre & University of Porto

1 **Delay Minimization-driven Short Packet Communications for NOMA-assisted Industrial IoT**
Manyu Zhang, Qianru Wang, Liping Qian, Zhejiang University of Technology

2 **Handling Uncertainty in Large-Scale Propagation Modelling in Aquatic Environments**
Pedro M. d'Orey, CISTER Research Center & University of Porto; Miguel Gutiérrez Gaitán, Pontificia Universidad Católica de Chile; Zafeiris, Kokkinogenis; Luis Almeida, FEUP - Universidade do Porto, Portugal

3 **Joint Cache-Assisted Data-Driven Optimization of NOMA Downlink Resource Management**
Ahmad Gendia, Osamu Muta, Kyushu University

4 **That's what you signed for: evaluating user perception about privacy data in infotainment systems**
Francesco Faenza, University of Modena and Reggio Emilia; Dario Stabili, Luca Ferretti, Mirco Marchetti, Università di Modena e Reggio Emilia

5 **Towards Resilient Federated Learning Against Collusion Attacks**
Youjuan Zhu, Jingyao Xu, Yuhong Zhang, Lingfeng Shen, Guanghui Wang, Henan University

Tuesday, 21 October 2025 16:00 - 17:30 Shu Han

6I: Resource Allocation and Scheduling I

Chair: Reham Wafaee Ibrahim, Tohoku University

1 **End-Edge Model Collaboration: Bandwidth Allocation for Data Upload and Model Transmission**
Dailin Yang, Peking University; Shuhang Zhang, Pengcheng Laboratory; Hongliang Zhang, Lingyang Song, Peking University

2 **Interference Mitigation in 4.9 GHz ISAC Networks: A Multi-domain Resource Management Approach**
Junyu Dong, China Mobile Group Design Institute Co., Ltd.; Peng Zhang, China Mobile Communications Group Co., Ltd.; Songtao Gao, China Mobile Group Design Institute Co., Ltd.; Qing Huang, China Mobile Communications Group Co., Ltd.; Qixuan Zhang, Du Pan, China Mobile Group Design Institute Co., Ltd.

3 **Mobile Edge Computing Offloading for Static Users in a Free Space Optical Communications-Enabled Satellite-Air-Ground Integrated Network**
Reham Wafaee Ibrahim, Tiago Koketsu Rodrigues, Graduate School of Information Sciences, Tohoku University; Nei Kato, Tohoku University; Masayuki Ariyoshi, Yohei Hasegawa, NEC Corporation

4 **Multi-AP Coordination for MLO Scheduling in OBSS Environments**
Suneel Kumar, i2CAT; Eduard Garcia Villegas, Universitat Polit`ecnica de Catalunya (UPC); Daniel Camps-Mur, i2CAT Foundation

5 **Optimal Pricing and Resource Configuration for GPU-accelerated Services in Computing Markets**
Zihe Wang, Shijia Huang, Qian Ma, Sun Yat-sen University; Xu Chen, Sun Yat-Sen University

Tuesday, 21 October 2025 16:00 - 17:30 Shu Jin

6J: RIS II

Chair: Jun Wang, University of Electronic Science and Technology of China

1 **Age of Information Optimization in RIS-Assisted Multi-Cell Millimeter-Wave Communication Systems**
Wentao Zhang, Yong Niu, Wenqing Li, Lei Xiong, Bo Ai, Beijing Jiaotong University

2 **Joint Configuration and Power Optimization for the Tunable IRS-Aided MIMO VLC**
Linqiong Jia, Haowei Qin, Yijin Zhang, Nanjing University of Science and Technology

3 **Two-Way Full-Duplex Spatial Modulation Enabled by RISs with Prewired Transmit Phase-Offset**
Chaowen Liu, Xinyu Wang, Zhengmin Shi, Yuan Xue, Xi'an University of Posts and Telecommunications; Tongxing Zheng, Xiaoyan Hu, Xi'an Jiaotong University; Guangyue Lu, Xi'an University of Posts and Telecommunications

4 **Weighted Sum Rate Maximization for Self-Sustainable IRS-Aided SWIPT**
Wanli Ma, Xiaokai Song, Yanlong Zhao, Zhendong Yin, Harbin Institute of Technology; Beixiong Zheng, Jie Tang, South China University of Technology; Zhutian Yang, Harbin Institute of Technology

Wednesday 22 October 2025

Wednesday, 22 October 2025 11:00 - 12:30 Crystal Ballroom 2

7B: Aerial and Vehicular Networks I

Chair: Yang Li, Beijing University of Posts and Telecommunications

1 **A Blockchain-Based Reputation-Enhanced Vehicle Selection (REVS) for Computation Offloading**
Sharifah Fayi, University of Sussex; Ferheen Ayaz, City University; Zhengguo Sheng, University of Sussex

2 **Graph Coloring-Based Interference Mitigation for Mega Constellations with Multi-Antenna Gateway Stations**
Zijun Liu, Yafei Wang, Wenjin Wang, Southeast University; Zhili Sun, University of Surrey

3 **Joint Federated Learning and Proximal Policy Optimization for Spectrum Resource Allocation in Vehicular Networks**
Yunmin Wang, Peter Han Joo Chong, Auckland University of Technology; Minglong Zhang, Mississippi State University

4 **UAV Mechanical Downtilt Adjustment Strategy for Coexistence Study with IMT Networks**
Linqing Gong, ChengWang, Songsong Cai, Kechen Wang, Weidong Wang, Beijing University of Posts and Telecommunications

5 **XAI Fusion for Enhanced Safety in Ground Obstacle Detection for Automation Train Operations**
Tossaporn Srisooksai, Kenji Mizuno, Kyosan Electric MFG. Co.,Ltd

Wednesday, 22 October 2025 11:00 - 12:30 IC Ballroom

7C: AI for Physical Layer

Chair: Zelin Ji, University of Electronic Science and Technology of China

1 **Deep Learning-Aided Polar Coded Modulation**
Yi-Wei Lu, National Tsing Hua University; Shan Lu, Takaya Yamazato, Nagoya University; Zsu-Kai Lin, Yeong-Luh Ueng, National Tsing Hua University

2 **Fast and Data-Efficient Channel Estimation for Large-Scale Communication Systems**
Zixin Chen, Jianjun Zhang, Nanjing University of Aeronautics and Astronautics; Yongming Huang, Jiaheng Wang, Southeast University; Wei Wang, Nanjing University of Aeronautics and Astronautics

3 **Hierarchical Feature Integration for Multi-Signal Automatic Modulation Recognition**
Yunpeng Qu, Yazhou Sun, Bingyu Hui, Jian Wang, Tsinghua University

4 **Towards Efficient UAV Identification via Wavelet Decomposition and Attention Fusion Mechanism**
Ziqin Feng, Nanjing University of Posts and Telecommunications; Zhenxin Cai, Nanjing University; Lexi Xu, China United Network Communications Corporation; Weijie Zhang, Hikmet Sari, Guan Gui, Nanjing University of Posts and Telecommunications

5 **Transfer Learning Guided Noise Reduction for Automatic Modulation Classification**
Zelin Ji, Shuo Wang, Kunjun Yang, Peng Ye, University of Electronic Science and Technology of China

Wednesday, 22 October 2025 11:00 - 12:30 Crystal Ballroom 3

7D: Network and Service Planning I

Chair: Wen Wu, Peng Cheng Laboratory

1 **A Novel Base Station Deployment Scheme for Network Planning in 6G Outdoor Hotspot Scenarios**
Dantong Chen, Shuaifei Chen, Southeast University; Songjiang Yang, Purple Mountain Laboratories; Jie Huang, Xiping Wu, Cheng-Xiang Wang, Southeast University

2 **Cross Layer Design for Improving User Experience through Medium Access Control sub Protocol Data Unit Self-decoding**
Nannan Liu, Bingzhao Li, Junren Chang, Li Qiang, HiSilicon, Huawei

3 **Designs and Prototypes of RICs for Policy Management in O-RAN**
Yu-Han Qiu, National Chung Cheng University; Shao-Yu Lien, National Yang Ming Chiao Tung University; Chih-Cheng Tseng, National Taiwan Ocean University; Yang Cao, Southwest Jiaotong University

4 **Large Language Model-Empowered Intent-Driven Network Configuration Generator**
Qiao Li, Chungang Yang, Yao Wang, Rongqian Fan, Pu Wang, Xidian University

5 **Reliability of Load Balancing and Packet Duplication in Dependent Diamond Networks**
Zheng Ge, Eduard Jorswieck, Lars Wolf, Shashank Jhansale, Lara Jüschke, Technische Universität Braunschweig

Wednesday, 22 October 2025 11:00 - 12:30 Qing Yang

7E: Spectrum Management

Chair: Gang Yang, University of Electronic Science and Technology of China

1 **A Priority-Aware Random Access Strategy for SBFD IoT Networks**
Junlong Liu, Jin Xu, Tao Wang, Xiaofeng Tao, Beijing University of Posts and Telecommunications

2 **Gale-Shapley Based Data Transmission Optimization on Unlicensed Spectrum**
Rongxin Leng, East China Jiaotong University, Nanchang; Jiantao Yuan, Hangzhou City University; Shengli Liu, Shanghai University; Rui Yin, Hangzhou City University

3 **Probabilistic Line-of-Sight Based Non-Orthogonal Channels Access: Modeling and Optimization**
Liwei Gu, Lifeng Wang, Academy of Military Sciences, PLA; Dianxiong Liu, PLA University of Science and Technology; Yang Cao, Xidian University

4 **RIS Partitioning for Full-Duplex Underlay D2D Networks with Multiple Pairs and Statistical CSI**
Justin Jose, Rithwik Premanand, Narendra Vishwakarma, A.S. Madhukumar, Nanyang Technological University

5 **STS-T: Transformer for Spatial-Temporal Jamming Spectrum Situation Prediction**
Chen Yang, Chan Wang, Rongpeng Li, Minjian Zhao, Ming-Min Zhao, Zhejiang University

Wednesday, 22 October 2025 11:00 - 12:30 Jin Niu

7F: Communication Hardware and Data Processing

Chair: Jiancha Hou, Institute for Communication Systems and Measurement of China

1 **A Performer-Based Jamming Recognition Model**
Tianyu Yang, Ge Zheng, Peng Li, Beijing Research Institute of Telemetry

2 **A State Monitoring Assisted Tracking Algorithm for Adaptive Canonical Polyadic Decomposition**
Feng Wei, Dalian University of Technology

3 **Precise Synchronization Design and Implementation of 6G FPGA Acceleration Card Driven by GNSS**
Chun Zhang, Yunliang Zhang, ZGC Institute of Ubiquitous-X Innovation and Applications; Chunmiao Song, China Mobile Research Institute; Ying Yao, Fei Xu, ZGC Institute of Ubiquitous-X Innovation and Applications; Wenlu Xu, China Mobile Research Institute

4 **Reward-Driven Data Acquisition and Processing Strategy for UGV in Urban Road**
Minhan Qin, Jianhua Tang, South China University of Technology

Wednesday, 22 October 2025 11:00 - 12:30 Cheng Hua

7G: RIS, M-MIMO, Beamforming and Channel Estimation

Chair: Ruizhe Long, University of Electronic Science and Technology of China

1 **Near-Field Beamforming for IRS-Assisted Secure Wireless Powered Communication Network**
Han Shuai, Jiahang Xu, Chenyu Wu, Chenguang He, Weixiao Meng, Harbin Institute of Technology

2 **On Maximizing the Utility of Channel Forecast for Computation Offloading**
Yitu Wang, Aixing Wang, North Minzu University; Xuying Zhou, China Jiliang University; Wei Wang, Zhejiang University; Takayuki Nakachi, NTT; Juinjei Liou, North Minzu University

3 **Performance Analysis of Statistical QoS Guarantees for Uplink Cell-Free Massive MIMO Systems**
Peiyan Qin, Southeast University; Hongxin Lin, Purple Mountain Laboratories; Cheng Zhang, Southeast University; Zening Liu, Purple Mountain Laboratories; Yongming Huang, Southeast University

Wednesday, 22 October 2025 11:00 - 12:30 Xin Du

7H: Precoding/Coding

Chair: Yanglong Sun, Jimei University

1 **A Near-Field FDD XL-MIMO Channel Reconstruction Method based on Joint Spatial-Frequency Domain Precoding**
Sixu Liu, Haifan Yin, Weidong Li, Zhenkai Peng, Tianyang Lu, Huazhong University of Science and Technology

2 **Convolutional Autoencoder-Based Low-PAPR Scheme for AFDM Systems**
Hao Ding, Min Li, Liyan Li, Minjian Zhao, Zhejiang University

3 **Distributed Precoding Scheme for MU-MIMO Systems with Statistical Channel State Information**
Jiangyi Ding, Jian Dang, Zaichen Zhang, Southeast University

4 **Satellite Beam Tracking Method Empowered by Dual Codebook Framework**
Shuhang Zhao, Tsinghua University

5 **Statistical CSI-Based Distributed Precoding for Multi-Satellite Cooperative Transmission**
Yafei Wang, Southeast University; Vu Nguyen Ha, Konstantinos Ntontin, University of Luxembourg; Wenjin Wang, Southeast University; Symeon Chatzinotas, Bjorn Ottersten, University of Luxembourg

Wednesday, 22 October 2025 11:00 - 12:30 Shu Han

7I: Resource Allocation and Scheduling II

Chair: Ke Tan, Beijing University of Posts and Telecommunications

1 **A Shapley Value-based Resource Allocation Method for V2V Communication in High-Density Vehicle Environment**
Zelin Yin, Binjie Hu, Changqing Jin, South China University of Technology

2 **Cloud-Edge-End Integrated Resource Allocation and Task Scheduling for Industrial Metaverse**
Mingcheng Mo, Qiang Li, Sanqiu Liu, Zishuo You, Huazhong University of Science and Technology; Xiaotian Zhou, Shandong University; Xiaohu Ge, Huazhong University of Science and Technology

3 **Freshness-Driven Resource Allocation for Partial Task Offloading in IoT Networks**
Jingrui Wei, Chenhao Shi, Wuhan University; Yao Zhu, RWTH Aachen University; Yulin Hu, Wuhan University; Anke Schmeink, RWTH Aachen University

4 **Low-Latency Relay Selection for Ocean Monitoring in Buoy-Based Maritime Wireless Networks**
Hanni Yu, Lijia Wang, Yi Zhang, Yinchao Chen, Xiamen University

5 **Resource Allocation Based on Relation Information of Hidden Node for Minimizing Packet Error in LPWA**
Keita Aoki, Osamu Takyu, Shinshu University; Koichi Adachi, Keio University; Mai Ohta, Kogakuin University; Takeo Fujii, The University of Electro-Communications

Wednesday, 22 October 2025 11:00 - 12:30 Shu Jin

7J: ISAC

Chair: Ping Wang, York University

1 **Analysis for Range Resolution in Any Direction in Bi-static ISAC System**
Ziheng Xu, Shaoyi Xu, Hanxue Ding, Beijing Jiaotong University

2 **Data Fusion for BS-UE Cooperative MIMO-OFDM ISAC**
Yixin Ding, Haoyu Jiang, Xiaoli Xu, Southeast University; Yanan Liang, Beijing Jiaotong University; Yong Zeng, Southeast University

3 **Eliminating Ghost Targets Using Linear Interpolation with 5G NR PDSCH DM-RS in ISAC**
Qibin Ye, Yixuan Huang, Su Hu, Zhilong Li, University of Electronic Science and Technology of China; Xiang Wei, Song Qi, China Mobile Chengdu Institute of Research and Development; Shi Pu, Shenzhen Institute of Information Technology

4 **Multi-Antenna Reference Signal Design for OFDM-ISAC Systems Based on ZCZ Sequences**
Congxi Liu, Beijing University of Posts and Telecommunications; Liang Xia, China Mobile Research Institute; Fei Xu, ZGC Institute of Ubiquitous-X Innovation and Applications; Xinran Xu, Hang Long, Beijing University of Posts and Telecommunications

5 **Shallow brain residual network for classifying UAVs and birds in ISAC base stations**
Mengru Sun, Haifan Yin, Xizhi Wang, Guangxi Zhu, Huazhong University of Science and Technology; M'erouane Debbah, Khalifa University of Science and Technology

Wednesday, 22 October 2025 14:00 - 15:30 Crystal Ballroom 1456

8A: IoT and MTC I

Chair: Francesco Faenza, University of Modena and Reggio Emilia

1 **A Random Access Protocol for Ambient IoT Based on Collision Constellation Diagram**
Qian Qiao, Shaoyi Xu, Beijing Jiaotong University

2 **A Scalable End-to-End IoT Data Pipeline with Dynamic Bucketing and Blockchain Verification**
Ishwak, RAAC Protocol; Kshitij Goyal, Samuel D. Okegbile, University of the Fraser Valley; Jun Cai, Concordia University

3 **Energy Minimization in NOMA-OFDMA-assisted Edge Computing for Marine Internet of Things**
Wentao Hu, Liwei Shao, Liping Qian, Zhejiang University of Technology

4 **Energy-efficient Obstacle-avoidance Multiple MCVs-facilitated Directional Wireless Charging for IoT**
Bo Wu, Xilong Liu, Miaohang Su, Yunnan University

5 **Freshness-Aware Throughput Maximization for mURLLC Services in IIoT Networks**
Chenhao Shi, School of Electronic Information,Wuhan University; Yao Zhu, RWTH Aachen University; Yulin Hu, Wuhan University; Anke Schmeink, RWTH Aachen University

Wednesday, 22 October 2025 14:00 - 15:30 Crystal Ballroom 2

8B: Aerial and Vehicular Networks II

Chair: Conghao Zhou, Xidian University

1 **A Novel Actor-Critic Algorithm for Handling Impaired V2X Communication**
Zine el abidine Kherroubi, Technology Innovation Institute

2 **Dynamic-PBFT: Enhanced Consensus in Decentralized Federated Averaging for V2V Networks**
Zhishen Xia, Jianxin Zhao, Karlsruhe Institute of Technology; Alexey Vinel, Karlsruhe Intitute of Techology

3 **Efficient Channel Load Reduction for V2X Maneuver Coordination Service**
Daniel Maksimovski, Technische Hochschule Ingolstadt; Silas Lobo, CARISSMA Institute for Electric; Christian Facchi, Technische Hochschule Ingolstadt

4 **Joint Task Assignment and Computation Cooperation in Multi-UAV Data Processing System**
Yahao Yang, Jianhua Tang, South China University of Technology; Jiao Wu, ?King Abdullah University of Science and Technology?

5 **Joint User Grouping and UAV Placement for UAV-Enabled Distributed MIMO Systems**
Ruoxu Wang, University of Waterloo; WEI PENG, Huazhong University of Science and Technology

Wednesday, 22 October 2025 14:00 - 15:30 IC Ballroom

8C: AI/Machine Learning and Applications

Chair: Dongmei Zhao, McMaster University

1 **Feature Sparsification based on Feature Importance for Wireless Split Learning**
Bumjun Kim, Yoon Huh, Wan Choi, Seoul National University

2 **Large Language Model-Enhanced Intent-Driven Management and Orchestration for 6G Networks**
Yao Wang, Chungang Yang, Qiao Li, Rongqian Fan, Huimin Li, Xidian University

3 **Latency-Optimal Resource Allocation for Edge-Cloud Model Evolution in the Presence of Foundation Models**
Xinghe Wang, Boya Di, Peking University

4 **Multi-Agent Deep Reinforcement Learning Empowered Vehicle Association and Resource Allocation for uRLLC Oriented Vehicular Networks**
Binbin Lu, Chenglong Dou, University of Macau; Liping Qian, Zhejiang University of Technology; Yuan Wu, University of Macau

5 **Scheduling and Resource Allocation for Federated Learning in Vehicular Networks**
Mohammad Heydari, Terence D. Todd, Dongmei Zhao, George Karakostas, McMaster University

Wednesday, 22 October 2025 14:00 - 15:30 Crystal Ballroom 3

8D: Network and Service Planning II

Chair: Shiying Han, Nankai University

1 **Data-driven Method to Ensure Cascade Stability of Traffic Load Balancing in O-RAN Based Networks**
Mengbang Zou, Weisi Guo, Yun Tang, Cranfield University

2 **Harmonic Elimination Strategy Design and USRP Implementation for FSK-based Backscatter Communication**
Qi Wang, Jing Guo, Dongkai Zhou, Zhong Zheng, Beijing Institute of Technology; Hanxiao Yu, Chinese Academy of Sciences; Meiying Yang, Datang Mobile Communications Equipment Co., Ltd

3 **Performance Optimization for Self-Sustainable IRS-aided SWIPT: A Hierarchical Framework**
Xueyan Cao, Xiaomeng Li, Inner Mongolia University; Yuzheng Ren, University of Science and Technology Beijing

4 **TCP-AAD: An Aggregation-Aware ACK Delaying Mechanism for TCP over Wi-Fi**
Shinnazar Seytnazarov, Nazarbayev University; Daler Zakirov, Innopolis University

5 **Trajectory-Based Modelling of Cooperative Awareness Messages and Associated Electromagnetic Exposure**
Tobias Struck, Berk Altinel, Technische Universität Ilmenau; Marco Fedior, Bauhaus-Universität Weimar; Christian Bornkessel, Technische Universität Ilmenau; Uwe Plank-Wiedenbeck, Bauhaus-Universität Weimar; Matthias A. Hein, Technische Universität Ilmenau

Wednesday, 22 October 2025 14:00 - 15:30 Qing Yang

8E: Transportation Systems

Chair: Ke Tan, Beijing University of Posts and Telecommunications

1 **Accident-Driven Congestion Prediction and Simulation: An Explainable Framework Using Advanced Clustering and Bayesian Networks**
Kranthi Kumar Talluri, Galia Weidl, Aschaffenburg University of Applied Sciences; Vaishnavi Kasuluru, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC)

2 **Critical track section identification for deployment of autonomous tram transport**
Dominik Šalgovič, Marek Galinski, Slovak University of Technology

3 **Data Requirements for Tire-Road Monitoring: A Roadmap for Data Collection, Processing, and Decision Making**
Mustafa Demetgül, Jiawen Meng, Sanja Lazarova-Molnar, Alexey Vinel, Karlsruhe Institute of Techology

4 **Probabilistic traversability risk-aware one-stage motion planner for unmanned ground vehicle in unstructured environments**
Jie Fan, Beijing Institute of Techology; Zhongbao Wang, Jiangbo Geng, Beijing North Vehicle Group Co., Ltd; Yijie Chen, Yutong Jiang, China North Vehicle Research Institute; Xudong Zhang, Beijing Institute of Technology

5 **Real-time Path Prediction at the Edge for E-scooters**
Congzhi Ren, Osaka University; Rizk Hamada, Tatsuya Amano, The University of Osaka; Hirozumi Yamaguchi, Osaka University

Wednesday, 22 October 2025 14:00 - 15:30 Jin Niu

8F: Electric Vehicles and Railway Systems

Chair: Peng Liu, Hangzhou Dianzi University

1 **Data-Driven Analysis of Electric Vehicle Charging Impact on Power Distribution Systems**
Majid Gharebaghi, Zhanle Wang, Raman Paranjape, University of Regina; Shea Pederson, Darcy Kozoriz, James Fick, Saskatchewan Power Corporation

2 Gramian Angular Field-Based Power Line Communication Sensing for Railway Cable Aging Detection
YiHua Zhang, Liangdong, TengZhuo Zhao, YuYang He, Xi'an University of Technolog; Andrea Tonello, University of Klagenfurt

3 Optimal Control of Electric Vehicles in Dynamic Wireless Charging Lanes Using Deep Q-Networks
Ahmed ramzi Houalef, Florian Delavernhe, Université de Bourgogne; Sidi-Mohammed Senouci, University of Burgundy; El-Hassane AGLZIM, Univ. Bourgogne Franche-Comte ISAT-DRIVE Nevers, France

4 STFT-GAT: Short Time Fourier Transform and Graph Attention Network-based Electric Vehicle Charging Demand Prediction
Youfei Lu, Guangdong Power Grid Co., Ltd. Guangzhou Power Supply Bureau.; Huanze Dong, The Hong Kong University of Science and Technology (Guangzhou); Zehao Wang, Shirong Zou, Guangdong Power Grid Co., Ltd. Guangzhou Power Supply Bureau; Yang Yang, The Hong Kong University of Science and Technology; Ying Cui, The Hong Kong University of Science and Technology (Guangzhou)

5 Successive Light Gradient Boosting Machine-based Anomaly Detection in EV Charging Piles
Ruixue Han, Fangming Zou, The Hong Kong University of Science and Technology (Guangzhou); Youfei Lu, Guangdong Power Grid Co., Ltd. Guangzhou Power Supply Bureau.; Zehao Wang, Guangdong Power Grid Co., Ltd. Guangzhou Power Supply Bureau; Ying Cui, The Hong Kong University of Science and Technology (Guangzhou)

Wednesday, 22 October 2025 14:00 - 15:30 Cheng Hua

8G: RIS/Beamforming/Waveform

Chair: Dawei Wang, Northwestern Polytechnical University

1 Hybrid Beamforming for RIS-Assisted Multiuser mmWave MIMO Systems with MSE Constraints
Yongquan Chen, Sun Yat-sen University; Xin Liu, Huawei Technologies Co. Ltd.; Lei Zhao, Yuan Jiang, Sun Yat-sen University

2 Multi-Resolution Codebook-Based Beam Training for RIS Beamforming: Design and Experiments
Jiahao Gao, Peking University; Shuhao Zeng, Princeton University; Boya Di, Lingyang Song, Peking University

3 Physical-layer Key Generation for Orthogonal Frequency Division Multiplexing-Orbital Angular Momentum Systems
Yun Xin, Jiawei Li, Dawei Wang, Northwestern Polytechnical University; Hongbo Zhao, Beihang University; Yixin He, Jiaxing University; Yi Jin, Li Li, Northwestern Polytechnical University; Fuhui Zhou, Utah State University

4 Secure Beamforming Design for MIMO Systems with Beyond-Diagonal Reconfigurable Intelligent Surfaces
Weijie Xiong, Yilong Zeng, Jingran Lin, Qiang Li, University of Electronic Science and Technology of China

5 Spatial Chirp-based Joint Optimization for Analog Beamforming in Reconfigurable Intelligent Surface Assisted Terahertz Ultra-wideband Systems
Xingyu Chen, University of Leeds; Li Zhang, University Of Leeds; Pingzhi Fan, SWJTU; Ke Chen, Yejing Fan, University of Leeds

Wednesday, 22 October 2025 14:00 - 15:30 Xin Du

8H: Autonomous and Cooperative Driving

Chair: Yujia Yang, Beijing University of Posts and Telecommunications

1 Efficient Kalman Filter-Enhanced Model Predictive Control for Cooperative Vehicle Platooning
Yanlin Ji, Zhengguo Sheng, University of Sussex

2 Experimental Evaluation of Decentralized Maneuver Coordination Service for Unsignalized Intersections
Adrià Pons, i2CAT Fundation; Marc Codina, Bruno Cordero, Jordi Marias-i-Parella, i2CAT Foundation; Jordi Casademont, Universitat Politecnica de Catalunya; Jacint Castells, Sergio Silva, IDIADA Automotive Technology; Jesus Alonso-Zarate, i2CAT Fundation; Francisco Vázquez-Gallego, i2CAT Foundation

3 Importance of Intent-Sharing for V2X-based Maneuver Coordination
Rafael Molina-Masegosa, Universidad Miguel Hernandez de Elche (UMH); Sergei S. Avedisov, Toyota North America R&D - InfoTech Labs; Miguel Sepulcre, Javier Gozálvez, Universidad Miguel Hernandez de Elche (UMH); Yashar Zeiynali Farid, Toyota North America R&D - InfoTech Labs; Onur Altintas, Toyota Motor North America R&D

4 PPO-Meta-Aided Real-Time Path-Planning Optimization for Autonomous Driving Systems
Estifanos Tilahun Mihret, National Taiwan University of Science and Technnology; Huei-Wen Ferng, National Taiwan University of Science and Technology

5 Time-Sensitive Communication Failures in Vehicular Platooning: Analysis of IFTs in a C-V2X Setup
Humberto Cunha, Felipe Ferreira da Silva Santos, Federal University of Pernambuco; Abel Guilhermino da Silva Filho, Universidade Federal de Pernambuco - UFPE

Wednesday, 22 October 2025 14:00 - 15:30 Shu Han

8I: Resource Allocation and Scheduling III

Chair: Qianqian Zhang, University of Electronic Science and Technology of China

1 A DRL-Based Task Offloading Policy for V2X Collaborative MEC Networks
Yu-Tong Syu, Yuan Ze University; Jiun-Ian Lee, National Taiwan University; Yi-Cih Wu, Thi Thanh Tuyen Phan, Yi-Huai Hsu, Yuan Ze University

2 Control-Oriented Interference Resource Scheduling for Large-Scale Industrial 5G-Advanced Networks
Zihan Lin, Tao Peng, Yichen Guo, Yujie Zhao, Wenbo Wang, Beijing University of Posts and Telecommunications

3 Enhancing Spectrum Prediction via Efficient Channel Selection and Adaptive Correlation Extraction
Jinshan Kong, Yulong Gao, Qian Xu, Harbin Institute of Technology

4 Large Multimodal Model-Based Scheduling for Autonomous Communication Systems
Sunwoo Kim, Jinwoo Son, Byonhyo Shim, Seoul National University

5 Two-Stage DRL for Dynamic Resource Allocation in SAGIN-Enabled URLLC
Lingling Zhang, Yuan Zhang, Southeast University

Wednesday, 22 October 2025 14:00 - 15:30 Shu Jin

8J: ISAC and Radio Access

Chair: Qianqian Zhang, University of Electronic Science and Technology of China

1 Joint Transmit and Receive Beamforming for Holographic ISAC with Leakage Power Constraint
Jie Yu, Haobo Zhang, Boya Di, Lingyang Song, Peking University

2 Orthogonal Chirp Division Multiplexing With Index Modulation for ISAC-Based Communication Systems
Yueling Zhao, Ping Yang, Jiaqi Liu, University of Electronic Science and Technology of China; Liangxin Qian, Nanyang Technological University; Shuaixin Yang, Gang Wu, Yue Xiao, University of Electronic Science and Technology of China; Tony Q.S. Quek, Singapore University of Technology and Design

3 Priority Random Access and User Barring Design for NOMA-ALOHA in Heterogeneous mMTC
Wenbo Fan, Southwest Jiaotong University; Pingzhi Fan, Southwest Jiaotong University, Chengdu, China; Zilong liu, University of Essex

4 Sum-Rate Maximization in Dedicated IRS-aided Wireless Powered NOMA
Bharti Katiyar, IIT Jammu; Deepak Mishra, University of New South Wales (UNSW) Sydney; Sudhakar Modem, Ravikant Saini, Indian Institute of Technology Jammu

5 Uniform Random EP Allocation for FFMA Systems over Rayleigh Fading Channels
Hao-jun Sun, Qiyue Yu, Harbin Institute of Technology

Wednesday, 22 October 2025 16:00 - 17:30 Crystal Ballroom 1456

9A: IoT and MTC II

Chair: Hassaan Siddiqui, Tecsys

1 Adaptive Clustering and Incentive Mechanism for Federated Learning in IoT
Kinda Khawam, Université de Versailles, France; Hussein Taleb, university of Saint Joseph; Stephane Durand, LISN Université Paris Saclay; Steven Martin, LISN, Université Paris Saclay, France; Samer Lahoud, Dalhousie University, Halifax, Nova Scotia, B3H 4R2, Canada

2 CPLoRa: Parallel LoRa Backscatter Communications Compatible with Commodity LoRa Receivers
Zelong Li, Shimin Gong, Lanhua Li, Sun Yat-sen University; Bin Lyu, Nanjing University of Posts and Telecommunications; Feng Li, Shandong University; Dusit Niyato, Nanyang Technological University

3 Experience-Driven Spatial-Temporal Graph Attention for Clustering IoT Traffic in Wireless Networks
Hongyi Zheng, Beijing Institute of Technology; Che Chen, Bo Gu, Lanhua Li, Sun Yat-sen University; Bin Lyu, Nanjing University of Posts and Telecommunications; Shimin Gong, Sun Yat-sen University

4 Memory failures in microservices based Cellular IoT systems - An experimental evaluation of service availability
Hassaan Siddiqui, Ferhat Khendek, Concordia University

5 Reliability Analysis of Multicell Grant-Free Communications in 6G-enabled Industrial IoT Networks
Peiyi Zhao, Tao Peng, Yujie Zhao, Yichen Guo, Wenbo Wang, Beijing University of Posts and Telecommunications

Wednesday, 22 October 2025 16:00 - 17:30 Crystal Ballroom 2

9B: Aerial Networks

Chair: Yiyue Xiang, Beijing Institude of Technology

1 An Air-Ground Cooperative Pseudo-Satellite Deployment Method Based on the Improved NSGA-III Algorithm
Min Deng, Xiangtan University

2 Communication-Efficient LEO Satellite Federated Learning with Inter-Satellite Link: Chain Aggregation vs. Ring Aggregation
Yang Tongkai, Shushi Gu, Harbin Institute of Technology (Shenzhen); zhikai zhang, Pengcheng Laboratory; Zhang Qinyu, Harbin Institute of Tech.; Wei Xiang, La Trobe University

3 Dynamic Trajectory Planning for UAV-Assisted Visible Light Communications Using Deep Recurrent Q-Networks
Wentao Ye, Yibin Wang, Tsinghua University; Liang Li, Shenzhen International Graduate School, Tsinghua University; Yuhan Dong, Tsinghua University

4 Joint Method for XPIC, Equalization and IQ Imbalance Compensation in Space-Air-Ground Broadband Dual-Polarized Systems
Haoran Wang, Shili Wang, Gen Luo, Qi He, Yezhou Lu, Kai Yang, Beijing Institute of Technology

5 Yaw Angle Error Correction for Unmanned Aerial Vehicles Based on Photodiodes
Xipeng Liu, Bingcheng Zhu, Han Zhang, Zaichen Zhang, Southeast University

Wednesday, 22 October 2025 16:00 - 17:30 IC Ballroom

9C: Waveform Design and Modulation

Chair: Yanyan Wang, Southwest Jiaotong University

1 Cyclic-Prefixed ATSM Frame Modulation
Tzu-Ching Hsu, Yea-Shiun You, National Taiwan University; Wei-Chang Chen, National Taipei University of Technology; Char-Dir Chung, National Taiwan University

2 Improved Initial Time Synchronization for OTFS
Yu-Hsuan Huang, Wei-Ting Lin, National Taiwan University; Wei-Chang Chen, National Taipei University of Technology; Char-Dir Chung, National Taiwan University

3 Integrated Sensing and Communication Waveform Design with Low-resolution Sigma-Delta DACs
HongliLiu, Qiang Li, University of Electronic Science and Technology of China; Mingjie Shao, Chinese Academy of Sciences; Jingran Lin, University of Electronic Science and Technology of China

4 Resolving the CFO Ambiguity using a Leakage Ratio Function for High Mobility OFDM Communications
Zhibin Yu, Waqar Anwar, Ahmed Abdelkader, Xiaofeng Wu, Huawei Technologies Duesseldorf GmbH

5 Waveform Index Modulation in Subcarrier Filtering OFDM System
Fuchen Xu, Guanghui Liu, Chengxiang Liu, Ji Zhou, Yusha Liu, University of Electronic Science and Technology of China

Wednesday, 22 October 2025 16:00 - 17:30 Crystal Ballroom 3

9D: LLM and Semantic Communication

Chair: Qifa Yan, Southwest Jiaotong University

1 BeamLLM: Vision-Empowered mmWave Beam Prediction with Large Language Models
Can Zheng, Korea University; Jiguang He, Great Bay University; Guofa Cai, Guangdong University of Technology; Zitong Yu, Great Bay University; Chung G. Kang, Korea University

2 Knowledge-Enhanced Large Language Model for Intent Refinement Mechanism
Yi Huang, Chungang Yang, Tong Li, Yulong Dai, Yao Wang, Xidian University

3 Multi-modal Fusion for Path Loss Prediction Using Pre-trained Language Model
Xianli Feng, Xiaoran Liu, Jun Xiong, National University of Defense Technology

4 Semantic-Aware Resource Allocation in MEC-Assisted SAGIN: A Deep Reinforcement Learning-based Approach
Yuexin Liu, Fangfang Yin, Qihong Liu, Communication University of China; Danpu Liu, Beijing University of Posts and Telecommunications; Libiao Jin, Shufeng Li, Communication University of China

5 Symbol Rearrangement and Enhancement Strategies for Semantic Communication under Malicious Jamming Attacks
Bohao Shi, University of Electronic Science and Technology of China; Wei Huang, Southwest China Institute of Electronic Technology; Jun Wang, Xiaonan Chen, Chengjie Zhao, Zhang Xinyue, University of Electronic Science and Technology of China

Wednesday, 22 October 2025 16:00 - 17:30 Qing Yang

9E: V2X

Chair: Yujia Yang, Beijing University of Posts and Telecommunications

1 Attentive TabNet Enabled Collision Prediction for V2X Network
Yihang Xie, Korukondabhattar Srivalli Anuradha, Hieu Nguyen, Guan Yong Liang, Kah Chan Teh, Nanyang Technological University

2 Enhanced Detection for In-Vehicle Human Activity Recognition
Jin xiaolai, Beihang University

3 Hybrid Attention-Enhanced DDPG for Dynamic Task Scheduling in Vehicular Edge Computing Networks
Zhang Yuxuan, Beihang University

4 **Interference Localization in Connected Vehicle Environments**
Hamed Noori, David Michelson, The University of British Columbia

5 **RADAR: a Radio-based Analytics for Dynamic Association and Recognition of pseudonyms in VANETs**
Giovanni Gambigliani Zoccoli, Filip Valgimigli, Dario Stabili, Mirco Marchetti, Università di Modena e Reggio Emilia

Wednesday, 22 October 2025 16:00 - 17:30 Jin Niu

9F: Energy-Efficient Communications and Computing

Chair: Xiaolong Lan, Sichuan University

1 **A Two-Timescale DRL-Based Stochastic Game for Energy-Efficient Hierarchical Aerial Computing**
Jialiuyuan Li, You Shi, Jiayuan Chen, Changyan Yi, Nanjing University of Aeronautics and Astronautics

2 **An Alternating Optimization Approach for RSMA-based VLC MIMO Systems with Sub-Connected Architecture**
Liyan Zhang, Weijie Dai, Sihui Zheng, Tsinghua University; Xinke Tang, Peng Cheng Laboratory; Yuhan Dong, Tsinghua University

3 **Energy-Efficient AP Selection and Power Allocation in Cell-Free Massive MIMO Networks with Hybrid Energy Supply**
Hao Wu, Yanxiang Jiang, Southeast University; Fu-Chun Zheng, Harbin Institute of Technology (Shengzhen) & The University of York

4 **Energy-Efficient Simultaneous Wireless Information and Power Transfer System Design with Electromagnetic Modeling in Metal Cabinet**
Youyang Xiang, China Academy of Engineering Physics; Zhuo Zhang, Zhaoguo Ding, Chengjie Zhao, University of Electronic Science and Technology of China; Xuyang Bai, Zhejiang University; Xianglu Li, Zhijiang Huang, Qilong Du, Jie Tian, China Academy of Engineering Physics

5 **Weighted Sum Energy Efficiency Maximization in STAR-RIS Assisted MU-MIMO-OFDM SWIPT**
Xingxiang Peng, Peiran Wu, Minghua Xia, Sun Yat-sen University

Wednesday, 22 October 2025 16:00 - 17:30 Cheng Hua

9G: Cooperative Perception

Chair: Yang Li, Beijing University of Posts and Telecommunications

1 **A Sparse BEV Feature Transmission Algorithm with Delay Compensation for Vehicle-Infrastructure Cooperative Perception**
Yongpeng Xu, Yuchuan Fu, Xiaojian Niu, Nan Cheng, Changle Li, Xidian University

2 **C3I-JO: Joint Resource and Intelligence Optimization for Multi-Vehicle Collaborative Perception**
Xiaolong Feng, Yang Li, Yujia Yang, Quan Yuan, Guiyang Luo, Jinglin Li, Beijing University of Posts and Telecommunications

3 **Cutting the Clutter: Optimizing CPM Processing in VANETs on the Receiver Side**
Thenuka Karunathilake, Anna Förster, University of Bremen

4 **Delay-Aware Graph Attention Framework for Collaborative Perception**
Wei Li, Lin Ma, Xiangrui Kong, Yiming Liu, Harbin Institute of Technology

5 **Filtering Noise: A Real-World Evaluation of False Associations in V2X-Based Sensor Sharing Across Diverse Road Users**
Tengfei Lyu, University College Cork; Florian Alexander Schiegg, Robert Bosch GmbH; Clarissa Böker, German Aerospace Center (DLR); Md Noor-A-Rahim, Dirk Pesch, Aisling O' Driscoll, University College Cork

Wednesday, 22 October 2025 16:00 - 17:30 Shu Han

9I: Resource Allocation and Scheduling IV

Chair: Conghao Zhou, Xidian University

1 **Deep Reinforcement Learning-Based Combinatorial Optimization Solver to Address Wireless Resource Allocation Problem**
Raihan Muhammad Syahran, Won Woo Ro, Kae Won Choi, Sungkyunkwan University

2 **Energy-Efficient Computation Offloading in Meta Computing: Joint Power and Resource Optimization with Statistical CSI**
Yiliang Liu, Junhao Li, Tiantian Zhang, Zhou Su, Xi'an Jiaotong University

3 **IBR-MAPPO-based Task Offloading in Space-Air-Ground Integrated Vehicular Networks**
Zixuan Liao, Nanjing University of Post and Telecommunications; Bo Xu, Nanjing University of Posts and Telecommunciations; Haotong Cao, The Hong Kong Polytechnic University; Zixuan Shu, Jinlong Sun, Haitao Zhao, Nanjing University of Posts and Telecommunications

4 **Optimization of Task Offloading Path Determination and Resource Scheduling in ISAC-enabled UAVs-assisted Vehicular Networks**
Mengzhuo Liu, Xidian Univiersity; Yuchuan Fu, Mengqiu Tian, Changle Li, Xidian University

Wednesday, 22 October 2025 16:00 - 17:30 Shu Jin

9J: Digital Twin and Simulations

Chair: Dongmei Zhao, McMaster University

1 **Digital Twin Placement in Vehicular Networks Using Dynamic Flow Network Evacuation**
Kiana Noroozi, Terence D. Todd, Dongmei Zhao, George Karakostas, McMaster University

2 **Multi-Encoder Semantic Communication for Human Digital Twin Synchronization**
Oluwasegun Talabi, Abbas Yekanlou, Concordia University; Samuel D. Okegbile, University of the Fraser Valley; Haoran Gao, Jun Cai, Concordia University

3 **Network Digital Twin-enhanced QoE Optimization for Adaptive Video Streaming in 6G IoV Networks**
Oluwabusayo Ladipo, Concordia University; Samuel D. Okegbile, University of the Fraser Valley; Jun Cai, Concordia University

4 **Online Optimization of Edge Vehicle Digital Twin Migration with Adaptive Mobility Prediction**
Xinyu Yu, Yuye Yang, Ruoyang Chen, Changyan Yi, Nanjing University of Aeronautics and Astronautics

5 **Swin Transformer Aided Urban Digital Twin Online Channel Modeling Platform**
Wei Jia, Chao Zhu, Shenghan Luo, Jingwen Yang, Junling Li, Southeast University; Chen Huang, Purple Mountain Laboratory; Cheng-Xiang Wang, Southeast University

VTC2025-Fall Virtual Papers

Monday 20 October 2025

Monday, 20 October 2025 9:00 - 10:30 Online

V1: V2X and Vehicular Networks

Chair: Ajmery Sultana, Algoma University

1 Leveraging V2X for Collaborative HD Maps Construction Using Scene Graph Generation
Gamal Elghazaly, Raphael Frank, University of Luxembourg

2 Assessing Vehicle Collision Prevention based on Machine Learning and V2X Communication
Andreia Alexandre, UFABC; Joahannes B. D. da Costa, Federal University of São Paulo; Helder Oliveira, University of São Paulo

3 Refining Reselection Counter Configuration for Safety and Fairness in 5G NR V2X
Hyungjoon Shin, Hyogon Kim, Korea University

4 Joint Early Exit and Structured Pruning for Automatic Modulation Classification in Vehicular Networks
Zheng Liu, Hatem Abou-Zeid, Huaqing Wu, University of Calgary

5 Multi-Agent Task Prioritization and Offloading in Vehicular Edge Computing Environments
Ashab Uddin, Ahmed Hamdi Sakr, Ning Zhang, University of Windsor

6 Handoff Agent Selection for Handoff Delay Management in Vehicular Networks: An Evolutionary Game Theoretic Solution
Sachin Sharma, IIT-Delhi; Saptarshi Ghosh, Rajiv Gandhi Institute of Petroleum Technology, India; Manav R Bhatnagar, IIT Delhi; B. K. Panigrahi, Indian Institute of Technology-Delhi

7 A Lightweight Code-Reusable Platform for Network Protocol Studies
Yifei Peng, Xiaodong Tu, Bolin Huang, Zhonglou Meng, Du Xu, University of Electronic Science and Technology of China; Chao Ma, Ji Li, Beijing Institute of Computer and Electronics Application of China

Monday, 20 October 2025 11:00 - 12:30 Online

V2: Signal Processing and Transceiver Design

Chair: Hongda Wu, York University

1 Secrecy Performance of User-Side Multilayer RIS-aided Uplink Communication
Abdulmagid S. Misurati, Ahmed S. Ben Fadel, Taissir Elganimi, University of Tripoli

2 Orthogonal Chirp Delay-Doppler Division Multiplexing Modulation
Chaoyuan Bai, Southwest Jiaotong University; Pingzhi Fan, SWJTU; Zhengchun Zhou, Southwest Jiaotong University; Zilong Liu, University of Essex

3 Performance Analysis of Secure Energy Harvesting Spectrum Sharing Networks under Imperfect CSI
Aditya Savaliya, International Institute of Information Technology Bangalore; Priyanka Das, IIIT Bangalore; Rajalakshmy G, International Institute of Information Technology Bangalore

4 Bayesian Receiver Design for OFDM Systems under Severe Non-Linear Distortion Effects
Hugo Parmentier, Centrale-Supelec

5 Super-wideband Spectrum Sensing Using A Simplified Receiver Architecture
Yao Ma, Xifeng Lu, Nadia Yoza-Mitsuishi, Dazhen Gu, Susanna Mosleh, Daniel Kuester, CTL NIST

6 Space-Time Block Coding-Assisted Fluid Antenna Systems for Electromagnetic Interference Mitigation in Wireless Communication Systems
Mohamed I. Ismail, Rhana Elsayed, Idaho State University; Muhammad Ismail, TnTech; Zubair MD Fadllulah, Western University Canada; Mostafa M. Fouda, Idaho State University

7 Eigenvalue-Based Detection in MIMO Systems for Integrated Sensing and Communication
Alex Obando, Saman Atapattu, Sithamparanathan Kandeepan, Akram Hourani, RMIT University; Prathapasinghe Dharmawansa, University of Oulu

Monday, 20 October 2025 14:00 - 15:30 Online

V3: Satellite and UAV I

Chair: Zehui Zhang, Beijing Institute of Technology

1 Towards Resilient Nationwide Connectivity: Achievable Capacity of Non-Terrestrial Networks (NTN) for 5G/6G Integration in Singapore
Yen Kai, Xiaojuan Zhang, Institute for Infocomm Research (I2R), A*STAR; Amnart Boonkajay, NTT DOCOMO, INC.; Hongbo Sun, Institute for Infocomm Research, A*STAR; Francois Chin, Agency for Science, Technology and Research (A*STAR)

2 Satellite-to-Vessel Line-of-Sight Probability Prediction Model for Maritime Scenarios
Yinglan Pan, Farman Ali, Xiaomin Chen, Sheng Fang, Nanjing University of Aeronautics and Astronautics; Mardeni Roslee, Multimedia University; Chunqi Wang, Qiuming Zhu, Nanjing University of Aeronautics and Astronautics

3 Fast Online Movement Optimization of Aerial Base Stations Based on Global Connectivity Map
Yiling Wang, xiamen university; Jiangbin Lyu, Liqun Fu, Xiamen University

4 Off-grid DOA Estimation for Disturbed UAV Swarm with Nested Array
Jiaxuan Gao, Yanyan Wang, Yang Cao, Xiaohu Tang, Southwest Jiaotong University

5 Analysis of 24/7 Remote Arctic Monitoring by Low Earth Orbit Satellites
Kiarash Yousefi Damavandi, Scott S.-H. Yam, Queen's University; Francois Chan, Royal Military College of Canada; Ning Lu, Jianbing Ni, Queen's University

6 Hierarchical Reinforcement Learning A* for Path Planning
Guang Liao, Jian Wang, Dujia Yang, Junan Yang, National University of Defense Technology

7 Outage Probability Analysis of UAV-Based Mixed RF-UWOC Systems and Altitude Optimization
Boxue Hao, Yueheng Li, Yong Lv, Meiyan Ju, University of Hohai

Monday, 20 October 2025 16:00 - 17:30 Online

V4: Sensing and Positioning

*Chair: Xiaojuan Zhang, A*STAR Institute for Infocomm Research*

1 Human Presence Detection with Joint Radar and Communication Systems using 5G mmWave Signals
Xiaojuan Zhang, Institute for Infocomm Research (I2R), A*STAR; Yonghong Zeng, Institute for Infocomm Research; Francois Chin, Agency for Science, Technology and Research (A*STAR)

2 Enhanced Fingerprint Localization with GAN-Augmented Datasets for Deep Learning
Chi Zhang, Junliang Lin, Beijing Jiaotong University; Jia You, China Academy of Railway Sciences Corporation Limited; Rongtao XU, Beijing Jiaotong University; Daqing Chen, China Mobile (Hangzhou) Information Technology Company Limited

3 Investigation of the impact of Doppler shift on OFDM-based ranging
Suhua Tang, Sadao Obana, The University of Electro-Communications

4 **WiMAR: A WiFi-Based Multi-User Human Activity Recognition System via Dynamic Component Separation**
Yangjing Zhou, Yue Liu, Chuan Liu, Macao Polytechnic University; Yanhui Lu, Dongguan City University

5 **Real-Time Multi-Target Tracking via Signal Variation Clustering Without Prior Target Count**
WANG DAZHUO, Institute for Infocomm Research (A*STAR); Yonghong Zeng, Institute for Infocomm Research; Yugang MA, Institute for Infocomm Research, A-STAR; Xiaojuan Zhang, Institute for Infocomm Research (I2R), A*STAR; Francois Chin, Agency for Science, Technology and Research (A*STAR); Sumei Sun, Institute for Infocomm Research

6 **Sensing and Vision-aided Wireless Communication: Generalizable Deep Learning-Based Terahertz Channel Prediction for Indoor 6G Networks**
Eslam Hasan, Tennessee Tech University; Elmahedi Mahalal, Tennessee Technological University; Muhammad Ismail, TnTech, USA; Zi-Yang Wu, Northeastern University; Mostafa M. Fouda, Idaho State University; Nei Kato, Tohoku University

7 **Nonlinear hop frequency prediction based on HT-HMM in navigation confrontation scenarios**
Min Deng, Xiangtan University

8 **HGR-GSR: Hand Gesture Recognition Using Google Soli Radar**
Seong Chan Moon, Wha Sook Jeon, Seoul National University

Tuesday 21 October 2025

Tuesday, 21 October 2025 7:00 - 8:30 Online

V0: Advances in Communications

Chair: Sunila Akbar, York University

1 **A Near-Field Source Localization Algorithm Based on Fast Fourier Transform**
Chao Zhu, Southeast University

2 **Differential Modulation-Based Beamforming for Full-Duplex SIMO Systems**
Zhentao Zhang, Harbin Institute of Technology (Shenzhen); Fu-Chun Zheng, Harbin Institute of Technology (Shengzhen) & The University of York

3 **Heterogeneous Array Based XL-MIMO Channel Sounder: OTA Calibration and Field Validation for 6G Urban Scenarios**
Zeyu Li, Chongqing University of Posts and Telecommunications

4 **Joint Power and Bandwidth Optimization in CoMP-Enabled URLLC Networks Under Imperfect CSI**
Yunan Guo, Harbin Institute of Technology (Shenzhen); Fu-Chun Zheng, Harbin Institute of Technology (Shengzhen) & The University of York; Bing Shi, Harbin Institute of Technology (Shenzhen)

5 **Performance Analysis of RSRP Measurement for Low Power Synchronization Signal**
Xiuju Lv, Beijing University of Posts and telecommunications; Congxi Liu, Hang Long, Beijing University of Posts and Telecommunications

6 **Preamble-based Successive Channel Estimation for Multiuser Massive MIMO LoRaWAN with Asynchronous Packets**
Khai The Nguyen, Ebrahim Bedeer, University of Saskatchewan

Tuesday, 21 October 2025 9:00 - 10:30 Online

V5: Security and Privacy

Chair: Shiyun Wang, Dalhousie University

1 **Utilizing Autoencoder to Generate Realistic WGAN-based Adversarial Traffic**
Shiyun Wang, Qiang Ye, Yujie Tang, Dalhousie University

2 **Enhancing Physical Layer Key Generation in 5G TDD Systems with Asymmetric Channels**
Peng Hui Tan, Institute for Infocomm Research; Amnart Boonkajay, NTT DOCOMO, INC.; Min Li Huang, Institute for Infocomm Research, A*STAR Research Entities

3 **Secure Energy Efficiency Maximization Scheme for Satellite-Terrestrial Integrated Network Based on Cross-Domain Hybrid Precoding**
Yulin Li, Yan Yang, Beijing Jiaotong University

4 **Differential Power Attack Analysis on Novel ZUC-PRN Using VAMAN-BB4 Board**
Jayati Dutta, Priyanka Peri, Indian Institute of Technology Hyderabad; Rohith Malkuchi, Virginia Polytechnic Institute and State University; Errala Paulsonashish, Malla Reddy College of Engineering

5 **Privacy-enhancing Interleaved Pseudonym Distribution for VANETs**
Keyao Huang, Hongyu Jin, Panagiotis Papadimitratos, KTH Royal Institute of Technology

6 **ScoreCAM and Segmentation-Based Adversarial Attacks in Autonomous Vehicles**
Ifrah Andleeb, University of Windsor; Katsuya Suto, Hokkaido University; Mitra Mirhassani, Ning Zhang, University of Windsor

Tuesday, 21 October 2025 11:00 - 12:30 Online

V6: Autonomous Driving and Other Applications

Chair: Yoga Suhas Kuruba Manjunath, Toronto Metropolitan University

1 **ConvoyNext: A Scalable Testbed Platform for Cooperative Autonomous Vehicle Systems**
Hossein Maghsoumi, Yaser P. Fallah, University of Central Florida

2 **Early Goal-Guided Multi-Scale Fusion for Real-Time Visionâ€“Language Driving**
Santosh Patapati, Trisanth Srinivasan, Cyrion Labs

3 **QLook: Quantum-Driven Viewport Prediction for Virtual Reality**
Niusha Sabri Kadijani, Lian Zhao, Yoga Suhas Kuruba Manjunath, Xiaodan Bi, Toronto Metropolitan University

4 **A Realistic Radar Simulator for End-to-End Autonomous Driving in CARLA**
Satyam Srivastava, BITS Pilani; Jerry Li, University of California Riverside; Pushkal Mishra, Kshitiz Bansal, Dinesh Bharadia, University of California San Diego

5 **A Small-Scale Robot for Autonomous Driving: Design, Challenges, and Best Practices**
Hossein Maghsoumi, Yaser P. Fallah, University of Central Florida

6 **An Effective AI-Based Method for Estimating Heart and Breathing Rates Using FMCW Radar**
Abdulellah Almalki, Huaping Liu, Oregon State University; Yanbin Zou, Shantou University

7 **TLM: A Spatial Messaging Language for Autonomous Vehicle Navigation**
Marco De Vincenzi, IIT CNR; Chiara Bodei, University of Pisa; Ilaria Matteucci, IIT-CNR; Sanjay Sarma, Stephen S. Ho, Massachusetts Institute of Technology

Tuesday, 21 October 2025 14:00 - 15:30 Online

V7: RIS

Chair: Yomali Lokugama, Royal Melbourne Institute of Technology

1 **Deep Reinforcement Learning-based Energy Efficiency Optimization of RIS-UAV-Assisted Communication System**
Jiahao Ding, Junxuan Wang, Yanyan Zhang, Fan Jiang, Xi'an University of Posts and Telecommunications; Xuewei Zhang, Jianbo Du, Xi'an University of Posts and Telecommunications

2 **DRL-Enabled Joint Design for STAR-RIS-Assisted NOMA Networks Under Non-Ideal System Impairments**
Yue Yang, Xi'an University of Posts & Telecommunications; Junxuan Wang, Yanyan Zhang, Fan Jiang, Xi'an University of Posts and Telecommunications; Xuewei Zhang, Jianbo Du, Xi'an University of Posts and Telecommunications

3 **Shape Adaptive Reconfigurable Holographic Surfaces**
Jalal Jalali, JuliaSpace; Mostafa Darabi, University of British Columbia; Rodrigo C. de Lamare, Pontifical Catholic University of Rio de Janeiro, Brazil

4 **Drone Localization Using Dual RIS Equipped Drones Under Jamming: Joint Jamming Nullification and Localization**
Mehari Meles, Akash Rajasekaran, reino virrankoski, Aalto University; Riku Jäntti, Department of Communications and Networking, Aalto University

5 **Location-Embedded Graph Attention Network for Channel Estimation in RIS-assisted MIMO Systems**
Kangqi Cheng, Xiaoqin Song, Nanjing University of Aeronautics and Astronautics; Hui Jin, Jinhua Advanced Research Institute

6 **Dynamic Scheduling for Enhanced Performance in RIS-assisted Cooperative Network with Interference**
Yomali Lokugama, Saman Atapattu, RMIT University; Nathan Ross, University of Melbourne; Sithamparanathan Kandeepan, RMIT University; Chintha Tellambura, University of Alberta

7 **Average Age of Information Robust Optimization in IRS-aided WPSN**
Zhou Jiale, Qianzhu Wang, Yulong Zhou, Jiankun Yang, Chongqing University of Posts and Telecommunications

Tuesday, 21 October 2025 16:00 - 17:30 Online

V8: Transportation and Vehicles

Chair: Menglu Li, Toronto Metropolitan Unviersity

1 **Mirror, Mirror on the Road, Is There a VRU too Close?**
Vinicius Avena, Rodrigo de Souza Couto, Universidade Federal do Rio de Janeiro; Miguel M. Campista, Luis Henrique M K Costa, UFRJ

2 **Predicting Home EV Charging Practices Using Machine Learning**
Pablo Donate, Julio A. Sanguesa, Universidad de Zaragoza; Piedad Garrido, University of Zaragoza; Vicente Torres-Sanz, Universidad de Zaragoza; Francisco J. Martinez, University of Zaragoza; Carlos T. Calafate, Polytechnic University of Valencia

3 **WatchNavi: Precisely Controlling In-Vehicle Infotainment System with Minimal Distraction**
Zhengquan Li, Wei Yu, University of Michigan; Zheng Song, University of Michigan at Dearborn

4 **Enhancing Cooperative Adaptive Cruise Control in Vehicle Platooning Through Intent Sharing and Multi-Agent Reinforcement Learning**
Tahmina Khanom Tandra, University of Windsor; Sergei Avedisov, University of Michigan; Ahmadreza Moradipari, Toyota North America R&D - InfoTech Labs; Ahmed Hamdi Sakr, University of Windsor

5 **Assessing 5G Connectivity for Urbanloop: a Pod-based Autonomous Railway Transport System**
Runbo Su, LORIA - CNRS, Inria, Université de Lorraine; Abdelkader Lahmadi, LORIA - CNRS, Inria, Université de Lorraine, France; Ye-Qiong Song, University of Lorraine; Jean-Philippe Mangeot, URBANLOOP SAS, France

6 **SafeBike: improving collision warnings using wayward path prediction**
Simão Gato, Pedro Rosa, INESC-ID, Instituto Superior Técnico, Universidade de Lisboa; Orlando Remédios, Sensefinity; Miguel L. Pardal, INESC-ID, Instituto Superior Técnico, Universidade de Lisboa

Wednesday 21 October 2025

Wednesday, 22 October 2025 9:00 - 10:30 Online

V9: Radio Access and Handover

Chair: Lilatul Ferdouse, Wilfrid Laurier University

1 **Power Domain Sparse Dimensional Constellation Multiple Access (PD-SDCMA): A Novel PD-NOMA for More Access Users**
Zihan Li, University of Brunel University London; Youzhi Li, Chenyu Liu, Chongqing University of Posts and Telecommunications; YuhaoLian, Zhejiang University

2 **Grant-Free Access for uRLLC in An Industrial Wireless Network**
Yousef Alanezi, Kwang-Cheng Chen, University of South Florida

3 **Packet Collision Mitigation through Filtered Hints and Immediate Reselection Trigger in NR Sidelink Mode 2**
Seungmo Kang, Hyungjoon Shin, Hyogon Kim, Korea University

4 **Received Signal Strength Ratio Based Base Station Clustering with Finite-Resolution Feedback**
Hua-Lun Pi, Realtek Semiconductor Corporation; Kuang-Hao (Stanley) Liu, National Tsing Hua University

5 **Heterogeneous Request Scheduling and Resource Optimization in Serverless Edge Networks**
Jialu Tian, Yuhao Chai, Beijing University of Posts and Telecommunications; Nanxiang Shi, Yue Lian, China Mobile Research Institute; Zhenyu Zhang, Yong Zhang, Yinglei Teng, Beijing University of Posts and Telecommunications

6 **Generalizable Deep Reinforcement Learning-Based Intelligent Handover in Indoor WiGig Networks**
Hamza Kaddour, Idaho State University; Eslam Hasan, Tennessee Tech University; Mostafa M. Fouda, Idaho State University; Muhammad Ismail, TnTech; Zubair MD Fadllulah, Western University Canada; Nei Kato, Tohoku University

7 **Deep Reinforcement Learning-based Prediction of User Speed for Handover Optimization**
Ramsha Narmeen, Zdenek Becvar, Pavel Mach, Czech Technical University in Prague

8 **NS-CON-FC: A Fair Coexistence Mechanism for NR-U and WiFi Networks Considering Non-Saturated Traffic in Unlicensed Spectrum**
Yanyan Han, Gang Gu, Peiliang Zuo, Boya Liu, Beijing Electronic Science and Technology Institute

Wednesday, 22 October 2025 11:00 - 12:30 Online

V10: Satellite and UAV II

Chair: Shisheng Hu, University of Waterloo

1 **Communication and Control Co-design for UAV Trajectory Tracking: An Event Triggered Strategy**
Qingquan Liang, Yuqi Ping, Tianhao Liang, Tingting Zhang, Harbin Institute of Technology

2 **Deep Reinforcement Learning for UAV Wireless Charging and Trajectory Planning: A Review**
Palwasha W. Shaikh, Hussein T. Mouftah, University of Ottawa

3 **PPO-Based Multi-UAV Cooperative Search and Coverage Framework for Forest Fire Rescue Missions**
Ru Jiang, Xiaoqin Song, Nan Li, Lijuan Zhang, Nanjing University of Aeronautics and Astronautics

4 **Cooperative and Adaptive Service Function Chain Deployment in UAV Swarm Networks**
Fuchang Xu, Haipeng Yao, Beijing University of Posts and Telecommunications; Ju Ren, Tsinghua University; Jihong Yu, Beijing Institute of Technology; Zunliang Wang, Tianle MAI, xujiaqi, Chenlang Jin, Beijing University of Posts and Telecommunications

5 **Distributed DNN Inference for Signal Recognition on Collaborative Satellites**
Jianing Li, Dewei Yang, Yongshi Nie, Jingming Kuang, Beijing Institute of Technology

6 **A Clustering Routing Protocol for UAV Swarms Based on Multi-Agent Reinforcement Learning**
LiMiao, Xiangge Meng, Heng Dong, Xianming Zhao, Zhuoming Li, University of Harbin Institute of Technology

7 **Optimizing Aerial Nodes Placement for Minimized Outage in Satellite-Ground FSO Links**
Neha Tiwari, Swades De, Indian Institute of Technology Delhi; Dharmaraja Selvamuthu, IIT Delhi

Wednesday, 22 October 2025 14:00 - 15:30 Online

V11: Network Resource Allocation

Chair: Ying Chen, Beijing Information Science and Technology University

1 **Hybrid Global/Local Search Algorithm for Optimization of Wireless Sensor Placement**
Tatsuya Kubo, Tomoaki Matsuda, Mie University; Shusuke Narieda, Kyushu Institute of Technology

2 **Two-Class Multi-Server Queueing Models Analysis for ISAC Resource Allocation**
Bowen Wang, Nanxi Li, China Telecom Research Institute; Zhenkai Wang, Wireless Network Center of China Telecom ZheJiang Branch; Jianchi Zhu, Xiaoming She, Peng Chen, China Telecom Research Institute

3 **AoI-Optimized Scheduling for Wireless-Powered Cognitive Radio Networks with Short-Packet Communication**
Xingyuan Zhang, Xiangdong Jia, Hongli Bao, Jingjing Wu, Northwest Normal University

4 **Age of Information Analysis of a Two-Hop Status Update System Based on Energy Harvesting**
Yue Li, Xiangdong Jia, Yuxin Guo, Northwest Normal University

5 **Cross-Domain Network Slicing Deployment Method Based on Node Importance**
Jihong Zhao, Xi'an Jiaotong University; Zhe Zhang, You Zhang, Xi'an University of Posts and Telecommunications

6 **Optimized Power Allocation in Multi-cell 4G/5G Systems using Multi-Agent Deep Reinforcement Learning**
Nadia Yoza-Mitsuishi, National Institute of Standards and Technology; Yao Ma, Jason B. Coder, NIST

7 **Optimal User Selection and Power Allocation for Upload Delay Minimization in FDMA-based Wireless Federated Learning**
Jou-Jou Chen, Kuang-Hao (Stanley) Liu, National Tsing Hua University

Wednesday, 22 October 2025 16:00 - 17:30 Online

V12: AI for Communication and Networking

Chair: Menglu Li, Toronto Metropolitan Unviersity

1 **ELinear: An Efficient Linear Architecture for Edge Intelligence Time Series Forecasting**
Chenyang He, Zilong Yan, Tianmu Sha, Lei Yao, Qi Li, zhenyu zhang, Yong Zhang, Yinglei Teng, Da Guo, Beijing University of Posts and Telecommunications

2 **Radio Frequency Fingerprinting Identification for LoRa Using Deep Transfer Triplet Network**
Jiao Ye, Dongyang Xu, Pengxiang Qin, Xi'an Jiaotong University

3 **JT-MoSK: A Novel Ternary Modulation Scheme with Dual-Stage Detection for ISI Mitigation in Diffusion-Based Molecular Communications**
Yuanxi Huang, Peng Zhou, Liwei Mu, South China Normal University

4 **Adaptive Resource Allocation for 6G Network Slicing via Hybrid CNN-LSTM Architecture**
Iqra Batool, Western University; Mostafa M. Fouda, Idaho State University; Mohamed I. Ibrahem, Center for Advanced Energy Studies (CAES); Muhammad Ismail, TnTech; Zubair MD Fadllulah, Western University Canada

5 **Ensemble Learning-Based Channel Prediction for Real-World Indoor 6G WiGig Networks**
Mohamed I. Ismail, Idaho State University; Eslam Hasan, Tennessee Tech University; Shikhar Verma, Kochi University of Technology; Tiago Koketsu Rodrigues, Graduate School of Information Sciences, Tohoku University; Nei Kato, Tohoku University; Muhammad Ismail, TnTech; Mostafa M. Fouda, Idaho State University

6 **Time-frequency Spectrograms and Siamese Network for Few-Shot Radio Frequency Fingerprinting**
Xizhuo Gao, University of Electronic Science and Technology of China

7 **LiteFBD: Lightweight CNN Design with Federated Block-wise Knowledge Distillation for Federated Learning**
Dae Cheol Kwon, University of California San Diego

8 **Off-to-In Body Channel Modeling for a Practically Feasible Energy Efficient Implantable BAN**
Sameeksha Chaudhary, Anirudh Agarwal, The LNM Institute of Information Technology, Jaipur; Deepak Mishra, University of New South Wales (UNSW) Sydney; Santosh Shah, The LNM Institute of Information Technology, Jaipur

深圳市金溢科技股份有限公司

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作为领先的一站式数智交通及交能融合领域解决方案及核心设备提供商，公司业务涵盖智慧高速、车路云一体化、汽车电子、智慧物联、路空一体、交能融合、数字监测七大集群。公司依托“交通+IT”双基因，基于“客户需求+技术创新”双驱动，以及全栈式服务能力，推动“聪明的车”、“智慧的路”、“协同的云”、“清洁的能”、“低碳的园”、“韧性的城”实现数智化升级。

Founded in 2004 and listed on the Shenzhen Stock Exchange in 2017 (stock code: 002869), Genvict is an industry leader and one of the earliest companies in China to commit to the research and development of intelligent transportation products and achieve their large-scale application. It has been recognized by the Ministry of Industry and Information Technology as a national-level "Manufacturing Single Champion Enterprise" and a "Specialized, Refined, Special, and New 'Little Giant' Enterprise." Genvict is also the only company in the industry to have simultaneously participated in the formulation of three national technical standards across three different central government ministries. In 2018, it was authorized by the Ministry of Transport to establish the industry's first R&D center for key technologies and equipment for intelligent vehicle-road collaboration.

For years, guided by the development philosophy of "grounding in deep technology, growing a tree of products, and creating an ecosystem of solutions," Genvict has possessed industry-leading technical strength. With a comprehensive mastery of the core technology system encompassing "communication, perception, computing, and control," the company has built a full-stack product matrix that includes ETC tolling, vehicle-road-cloud integration, automotive electronics, smart IoT, road-air integration, transportation-energy integration, and digital monitoring. This allows Genvict to provide a one-stop service of "solutions + core equipment + edge-side system integration" focused on specific scenario needs.

As a leading one-stop provider of solutions and core equipment in the fields of digital intelligent transportation and transportation-energy integration, the company's business covers seven major clusters: Smart Highways, Vehicle-Road-Cloud Integration, Automotive Electronics, Smart IoT, Road-Air Integration, Transportation-Energy Integration, and Digital Monitoring. Leveraging its dual DNA in "Transportation + IT," driven by the dual forces of "customer needs + technological innovation," and supported by its full-stack service capabilities, the company promotes the digital and intelligent upgrade of "smarter cars," "smarter roads," "collaborative clouds," "cleaner energy," "low-carbon parks," and "resilient cities."


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