WCSP 2020

Brief Program

The 12th International Conference on Wireless Communications and Signal Processing

October 21-23, 2020 | Virtual Meeting

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2. Wireless Networks and Unmanned Systems Symposium

Hui Cheng (Sun Yat-sen University, China)
Deshi Li (Wuhan University, China)
Yi Zhong (Huazhong University of Science and Technology, China)
Aijing Li (Army Engineering University of PLA, China)

3. Signal Processing for Communications Symposium

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4. Beyond 5G and 6G Symposium

Liang Zhou (Nanjing University of Posts and Telecommunications, China)
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5. Optical Communications Symposium

Xiqu Chen (Wuhan Polytechnic University, China)
Jian Wang (Huazhong University of Science and Technology, China)
Tao Pu (Army Engineering University of PLA, China)

6. Space Information Networks Symposium

Fengkui Gong (Xidian University, China)
Kanglian Zhao (Nanjing University, China)
Jiaolong Wei (Huazhong University of Science and Technology, China)
Daoxing Guo (Army Engineering University of PLA, China)

7. Intelligent Communications and Big Data Symposium

Xiao Li (Southeast University, China)
Hanyu Hong (Wuhan Institute of Technology, China)
Yong Xiao (Huazhong University of Science and Technology, China)
Yuhua Xu (Army Engineering University of PLA, China)

8.Software Defined Wireless Communications-Architecture and Implementations Symposium

C.John Glossner (Optimum Semiconductor Technologies, USA)
Xiaodong Zhang (Beijing Sylincom Technology Co. Ltd., China)
Zhiyi Yu (Sun Yat-sen University, China)
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WCSP 2020

OCTOBER 20, 2020

20 / 10

TUESDAY

09:00	Zoom Testing For Keynote Speakers & Authors
12:00	Lunch Time
14:00	Zoom Testing For Keynote Speakers & Authors
16:00	End of Test Session

Guidelines

◆ Time Zone
China Standard Time (CST), UTC +8
Please set up your laptop time in advance

◆ Equipment needed
- A computer with an internet connection (wired connection recommended)
- USB plug-in headset with a microphone (recommended for optimal audio quality)
- Webcam (optional): built-in or USB plug-in

◆ Environment requirement
- Quiet Location
- Stable Internet Connection
- Proper lighting

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WCSP 2020

OCTOBER 20, 2020

20 10 TUESDAY

TEST Schedule

Meeting ID	919 5072 4555	983 4074 0239	921 8942 6117	979 3051 0603	959 1267 4676	948 6674 4549
09:00~09:30	Keynote Speakers & Session Chairs	1570665341	1570663127	1570663844	1570664491	1570664718
		1570665710	1570668596	1570664886	1570662066	1570665310
		1570667034	1570664651	1570662462	1570663569	1570664393
		1570676383	1570664981	1570657621	1570660259	1570668674
		1570666810	1570659881	1570658808	1570665034	1570662899
		1570663885	1570661212	1570660133	1570656271	1570668491
09:30~10:00		1570663857	1570657822	1570668806	1570668565	1570665298
		1570665300	1570659753	1570658935	1570664474	1570668790
		1570665316	1570659279	1570665193	1570663668	1570660144
		1570664572	1570659674	1570665015	1570661508	1570664043
		1570663538	1570665094	1570664716	1570664835	1570664889
		1570660375	1570663700	1570668684	1570660267	1570659999
10:00~10:30		1570668788	1570654840	1570664467	1570664196	1570668683
		1570659696	1570668819	1570659882	1570664389	1570665054
		1570665171	1570663535	1570655239	1570665099	1570664561
		1570663920	1570659182	1570659635	1570658590	1570660770
		1570665320	1570664814	1570665098	1570658577	1570664954
		1570662585	1570663330	1570664753	1570664152	1570665321
10:30~11:00		1570663680	1570664914	1570664757	1570664893	1570669269
		1570664758	1570665177	1570665039	1570660802	1570665068
		1570660223	1570663812	1570665290	1570669239	1570660363
		1570668557	1570668353	1570665077	1570665027	1570664390
		1570668822	1570663340	1570660593	1570671387	1570667880
		1570665102	1570665311	1570664583	1570664512	1570660468

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OCTOBER 21, 2020

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TUESDAY

TEST Schedule

Meeting ID	919 5072 4555	983 4074 0239	921 8942 6117	979 3051 0603	959 1267 4676	948 6674 4549
14:00~14:30	Keynote Speakers & Session Chairs	1570659764	1570664153	1570661247	1570661286	1570663825
		1570659821	1570659364	1570659449	1570658601	1570665114
		1570667653	1570669257	1570662466	1570658095	1570663718
		1570664511	1570665137	1570669127	1570662306	1570664496
		1570668658	1570664953	1570663541	1570659016	1570668712
		1570659936	1570659890	1570664741	1570669261	1570660969
14:30~15:00		1570663904	1570659395	1570664500	1570659735	1570660247
		1570668698	1570660831	1570660360	1570665285	1570665084
		1570659871	1570666807	1570663806	1570660768	1570664848
		1570666084	1570667317	1570662065	1570665338	1570659661
		1570665040	1570664079	1570664287	1570660609	1570671254
		1570663009	1570659538	1570664796	1570660623	1570660076
15:00~15:30		1570664928	1570662593	1570664203	1570661034	1570664418
		1570660746	1570665133	1570660736	1570663856	1570668742
		1570664673	1570666375	1570661244	1570659795	1570665324
		1570659658	1570662610	1570662645	1570668260	1570664737
		1570664817	1570661216	1570662672	1570662411	1570659125
		1570665339	1570666126	1570664488	1570664478	1570664880
15:30~16:00		If you missed the above test time, please contact us to test during this time.				

21/10
WEDNESDAY

Meeting ID: 919 5072 4555

08:30 — **Opening and Welcome Ceremony**

Chair: *Jun Zheng, Southeast University, China*

Welcome Address:
Prof. Hui Ding, Vice President, Southeast University, China
Prof. Zaichen Zhang, General Co-Chair, Southeast University, China
TPC Report:
Prof. Xiaohu Ge, TPC Co-Chair, Huazhong University of Science and Technology, China

09:00 — **Keynote Speaker I**

Greening 6G: A New Horizon and a Holistic Approach
Prof. Zhisheng Niu, IEEE Fellow
Tsinghua University, China

10:00 — **Keynote Speaker II**

RFID for Human Activity Sensing: Challenges, Solutions and Applications
Prof. Shiwen Mao, IEEE Fellow
Auburn University, Auburn, AL, USA

10:50 — **Break**

Technical Sessions

11:00

Session 01 B5G-1	Session 02 ICBD-1	Session 03 SPC-1	Session 04 WC-1	Session 05 SIN-1	Session 06 WNUS-1
Meeting ID: 919 5072 4555	**Meeting ID: 983 4074 0239**	**Meeting ID: 921 8942 6117**	**Meeting ID: 979 3051 0603**	**Meeting ID: 959 1267 4676**	**Meeting ID: 948 6674 4549**

12:30 — **Noon Break**

14:00

Session 07 OCS-1	Session 08 ICBD-2	Session 09 SPC-2	Session 10 WC-2	Session 11 SIN-2	Session 12 WNUS-2
Meeting ID: 919 5072 4555	**Meeting ID: 983 4074 0239**	**Meeting ID: 921 8942 6117**	**Meeting ID: 979 3051 0603**	**Meeting ID: 959 1267 4676**	**Meeting ID: 948 6674 4549**

15:30 — **Break**

15:45

Session 13 OCS-2	Session 14 ICBD-3	Session 15 SPC-3	Session 16 WC-3	Session 17 SIN-3	Session 18 B5G-2
Meeting ID: 919 5072 4555	**Meeting ID: 983 4074 0239**	**Meeting ID: 921 8942 6117**	**Meeting ID: 979 3051 0603**	**Meeting ID: 959 1267 4676**	**Meeting ID: 948 6674 4549**

22 10
THURSDAY

Technical Sessions

09:00

Session 19 SPC-4	Session 20 SPC-5	Session 21 WNUS-3
Meeting ID: 983 4074 0239	Meeting ID: 921 8942 6117	Meeting ID: 979 3051 0603

10:50 Break

11:00

Session 22 SPC-6	Session 23 SPC-7	Session 24 SIN-4
Meeting ID: 983 4074 0239	Meeting ID: 921 8942 6117	Meeting ID: 979 3051 0603

Panel

Industrial Forum
Software Defined Wireless Communication - Prototype Research in B5G/6G
Meeting ID: 919 5072 4555

12:30 Noon Break

Technical Sessions

14:00

Session 25 B5G-3	Session 26 ICBD-4	Session 27 WC-4	Session 28 WC-5	Session 29 WC-6	Session 30 WNUS-4
Meeting ID: 919 5072 4555	Meeting ID: 983 4074 0239	Meeting ID: 921 8942 6117	Meeting ID: 979 3051 0603	Meeting ID: 959 1267 4676	Meeting ID: 948 6674 4549

15:30 Break

Meeting ID: 919 5072 4555

15:40 Keynote Speaker III

Overview of Green and Intelligent Technologies for Future Wireless Systems
Prof. John Thompson, IEEE Fellow
University of Edinburgh, UK

16:40 Keynote Speaker IV

Smart Radio Environments Empowered by Reconfigurable Intelligent Surfaces: How it Works, State of Research, and the Road Ahead
Prof. Marco Di Renzo, IEEE Fellow
CentraleSupelec and Paris-Saclay University, Paris, France

23/10
FRIDAY

Meeting ID: 919 5072 4555

09:00 Keynote Speaker V

Evolution Toward 6G: Several Key Technologies
Prof. Ekram Hossain, IEEE Fellow, CAE Fellow
University of Manitoba, Canada

10:00 Keynote Speaker VI

6G Wireless Channel Measurements and Models: Advances and Future Challenges
Prof. Cheng-xiang Wang, IEEE Fellow
Southeast University, China

Panel

Industrial Panel:
Software Defined Wireless Communications – Architecture and Implementations

Meeting ID: 983 4074 0239

10:50 Break

Technical Sessions

11:00

Session	Meeting ID
Session 31 B5G-4	919 5072 4555
Session 32 ICBD-5	983 4074 0239
Session 33 SPC-8	921 8942 6117
Session 34 WC-7	979 3051 0603
Session 35 WC-8	959 1267 4676
Session 36 WNUS-5	948 6674 4549

12:30 Break

Technical Sessions

14:00

Session	Meeting ID
Session 37 B5G-5	919 5072 4555
Session 38 ICBD-6	983 4074 0239
Session 39 SPC-9	921 8942 6117
Session 40 WC-9	979 3051 0603
Session 41 WC-10	959 1267 4676
Session 42 WNUS-6	948 6674 4549

15:30 Break

Meeting ID: 919 5072 4555

Closing Ceremony

15:40

Chair: *Jun Zheng, Southeast University, China*

Best Paper Award Announcement:
Prof. Xiang-Gen Xia, University of Delaware, USA
Conference Handover Ceremony:
Prof. Zaichen Zhang, Southeast University, China
Conference Closing Announcement:
Prof. Lianfeng Shen, Southeast University, China

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09:00-09:50

Meeting ID: 919 5072 4555

Keynote I

Prof. Zhisheng Niu, IEEE Fellow
Tsinghua University, China

TOPIC

Greening 6G: A New Horizon and a Holistic Approach

Abstract: In addition to ultra dense deployment of base stations (BSs), it is foreseen that 6G needs to further deploy a large number of edge computing servers to support task offloading and machine learning (ML) algorithms for smarter, ultra-reliable and low-latency communications (uRLLC). To this end, not only the radio access networks (RAN) face with high energy cost, the computing on edge servers will also have huge energy barriers. As a result, a new horizon of green artificial intelligence (AI) and a holistic approach for green communication and green computing co-design need to be taken in order to make future 6G networks cost-effective and environmentally sustainable.

The talk first highlights the role of AI/ML in the radio resource management, which has been considering as one of the key approaches for making 6G RAN smarter and greener. Then, a new horizon of greening AI in 6G networks will be discussed by additionally considering the computing energy for AI training and inference. To save the computing energy while not sacrificing communication energy, a network-aided and mobility-enhanced edge intelligence (MEET) framework is proposed. Simulation studies have shown that the co-design of green communication and computing has a great potential to make 6G networks smarter in a cost-effective and environmentally sustainable manner.

BIOGRAPHY

Zhisheng Niu graduated from Beijing Jiaotong University, China, in 1985, and got his M.E. and D.E. degrees from Toyohashi University of Technology, Japan, in 1989 and 1992, respectively. During 1992-94, he worked for Fujitsu Laboratories Ltd., Japan, and in 1994 joined with Tsinghua University, Beijing, China, where he is now a professor at the Department of Electronic Engineering. His major research interests include queueing theory and traffic engineering, wireless communications and mobile Internet, vehicular communications and smart networking, and green communication and networks.

Dr. Niu has been serving IEEE Communications Society since 2000, first as Chair of Beijing Chapter (2000-2008) and then as Director of Asia-Pacific Board (2008-2009), Director for Conference Publications (2010-2011), Chair of Emerging Technologies Committee (2014-2015), and Director for Online Contents (2018-2019). He has also served as editor of IEEE Wireless Communication (2009-2013) and associate Editor-in-Chief of IEEE/CIC joint publication China Communications (2012-2016), and currently serving as Editor-in-Chief of IEEE Trans. Green Commun. & Networks (2020-2022). He received the Outstanding Young Researcher Award from Natural Science Foundation of China in 2009, Best Paper Awards from IEEE Communication Society Asia-Pacific Board in 2013 and from Journal of Communications and Information Networks (JCIN) in 2019, Distinguished Technical Achievement Recognition Award from IEEE Communications Society Green Communications and Computing Technical Committee in 2018, and Harold Sobol Award for Exemplary Service to Meetings & Conferences from IEEE Communication Society in 2019. He was selected as a distinguished lecturer of IEEE Communication Society (2012-2015) as well as IEEE Vehicular Technologies Society (2014-2018). He is a fellow of both IEEE and IEICE.

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Meeting ID: 919 5072 4555

Keynote II

Prof. Shiwen Mao, IEEE Fellow
Auburn University, Auburn, AL, USA

TOPIC

RFID for Human Activity Sensing: Challenges, Solutions and Applications

Abstract: With the rapid development of radio frequency (RF) sensing in the Internet of Things (IoT), human activity sensing, detection and tracking have attracted increasing attention. Among the various RF sensors, radio-frequency identification (RFID) has its unique advantages of low-cost, small form factor, battery-free, and robustness to surrounding interference. Beyond its original use of responding stored Electronic Product Code (EPC) data when interrogated by a reader, RFID tags can be used as wearable sensors on the human body. In this talk, we will investigate the various technical challenges on fully exploiting RFID for human activity recognition and tracking, such as frequency hopping, and the noisy and sparse RFID data, and examine potential solutions. We will then review several of our recently works on RFID based human vital sign monitoring, drowsy driving detection, and human pose monitoring and tracking. We will conclude this talk with thoughts on future work in the area.

BIOGRAPHY

Shiwen Mao received his Ph.D. in electrical engineering from Polytechnic University, Brooklyn, NY. He held the McWane Endowed Professorship from 2012 to 2015 and the Samuel Ginn Endowed Professorship from 2015 to 2020 in the Department of Electrical and Computer Engineering at Auburn University, Auburn, AL. Currently, he is a professor and Earle C. Williams Eminent Scholar, and Director of the Wireless Engineering Research and Education Center (WEREC) at Auburn University. His research interest includes wireless networks, multimedia communications, and smart grid. He was a Distinguished Lecturer of IEEE Vehicular Technology Society (2014-2018). He is on the Editorial Board of IEEE Transactions on Wireless Communications, IEEE Transactions on Network Science and Engineering, IEEE Transactions on Mobile Computing, IEEE Internet of Things Journal, IEEE Open Journal of the Communications Society, IEEE/CIC China Communications, IEEE Multimedia, IEEE Networking Letters, and ACM GetMobile, among others. He was the TPC Co-Chair of IEEE INFOCOM 2018 and is the TPC Vice Chair of IEEE GLOBECOM 2022. He received the IEEE ComSoc TC-CSR Distinguished Technical Achievement Award in 2019 and NSF CAREER Award in 2010. He is a co-recipient of the IEEE Vehicular Technology Society 2020 Jack Neubauer Memorial Award, the IEEE ComSoc MMTC 2018 Best Journal Award and 2017 Best Conference Paper Award, the Best Demo Award from IEEE SECON 2017, the Best Paper Awards from IEEE GLOBECOM 2019, 2016 & 2015, IEEE WCNC 2015, and IEEE ICC 2013, and the 2004 IEEE Communications Society Leonard G. Abraham Prize in the Field of Communications Systems. He is a Fellow of the IEEE.

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11:00-12:30

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Meeting ID: 919 5072 4555

Session 01 | B5G-1

AI-enabled Wireless Networks

Chair

Shibing Zhang, Nantong University, China

ID	TITLE	AUTHORS
1570665341	A Deep Reinforcement Learning Approach to Energy-Harvesting UAV-Aided Data Collection	Ning Zhang, Juan Liu, Lingfu Xie, Peng Tong (Ningbo University, China)
1570665710	Helium Speech Correction Algorithm Based on Deep Neural Networks	Shibing Zhang, Dongmei Li, Lili Guo, Yonghong Chen (Nantong University, China)
1570667034	An Optimization Toolchain Design of Deep Learning Deployment Based on Heterogeneous Computing Platform	Jun Yin (Fudan University, China); Jun Han (State Key Lab of ASIC & System, Fudan University, China); Xiaodong Zhang (Beijing Sylincom Tech Co. Ltd, China)
1570676383	Heterogeneous Edge CNN Hardware Accelerator	John Glossner (Optimum Semiconductor Technologies, USA)
1570666810	Lightweight Convolutional Neural Network for High-Spatial-Resolution Remote Sensing Scenes Classification	Wang Luo, Wenqing Yang, Xian Yu, Ye Wang, Kai Tan (State Grid Electric Power Research Institute Co., Ltd, China)

11:00-12:30

21/10

Meeting ID: 983 4074 0239

Session 02 | ICBD-1

Reinforcement Learning for Wireless Networks

Chair

Zhiqing Wei, Beijing University of Posts and Telecommunications, China

ID	TITLE	AUTHORS
1570663127	Mean Field Reinforcement Learning Based Anti-Jamming Communications for Ultra-Dense Internet of Things in 6G	Ximing Wang, Yuhua Xu, Jin Chen (Army Engineering University of PLA, China); Chunguo Li (Southeast University, China); Xin Liu (Guilin University of Technology, China); Dianxiong Liu, Yifan Xu (Army Engineering University of PLA, China)
1570668596	Deep Reinforcement Learning-Based Edge Caching in Single-Cell Wireless Networks	Rong Wu, Qiang Li, Xiaohu Ge (Huazhong University of Science & Technology, China)
1570664651	Federated Learning Service Market: A Game Theoretic Analysis	Lixiao Dong (Hubei Key Laboratory of Transportation Internet of Things, China); Yang Zhang (Wuhan University of Technology, China)
1570664981	Multi-Agent DRL-Based Resource Allocation in Downlink Multi-Cell OFDMA System	Jing Hu, Xiaoming Wang, Dapeng Li (Nanjing University of Posts and Telecommunications, China); Youyun Xu (Nanjing University of Posts and Telecommunications & Shanghai Jioatong University, China)
1570659881	Status Update for Correlated Energy Harvesting Sensors: A Deep Reinforcement Learning Approach	Nan Zhao, Chao Xu (Northwest A&F University, China); Shun Zhang (Xidian University, China); Yiping Xie (Northwest A&F University, China); Xijun Wang (Sun Yat-sen University, China); Hongguang Sun (Northwest A&F University, China)

11:00-12:30

Meeting ID: 921 8942 6117

Session 03 | SPC-1

UAV Networks

Chair

Dingcheng Yang, Nanchang University, China

ID	TITLE	AUTHORS
1570663844	On-Demand Coverage for Maritime Hybrid Satellite-UAV-Terrestrial Networks	Yanmin Wang (China Academy of Electronics and Information Technology, China); Xinran Fang, Wei Feng (Tsinghua University, China); Yunfei Chen (University of Warwick, United Kingdom); Ning Ge (Tsinghua University, China); Zhou Lu (China Academy of Electronics and Information Technology, China)
1570664886	Computation Offloading and Trajectory Design for UAV-Assisted Mobile Computing Systems	Chao Sun (Fudan University, China); Wei Ni (CSIRO, Australia); Xin Wang (Fudan University, China)
1570662462	Analysis of Throughput for UAV-Assisted Multi-Tier Mm-Wave Cellular Heterogeneous Networks	Yi Lu, Xiangdong Jia, Pengshan Ji, Yaping Lv, Haixia Hu (Northwest Normal University, China)
1570657621	Joint 3D Trajectory and Power Optimization for Multiple Antenna Aided NOMA in UAV Networks	Jie Tang, Wanmei Feng (South China University of Technology, China); Qingmiao Zhang (East China Jiaotong University, China); Jun-Hui Ou, Xiujin Zhang (South China University of Technology, China); Junhui Zhao (East China Jiaotong University, China)
1570658808	Joint Trajectory and Resource Allocation Optimization for Two-Way UAV-Aided Relaying Network	Yipeng Liang, Lin Xiao, Yang Dingcheng , Keju Lu (Nanchang University, China)

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Meeting ID: 979 3051 0603

Session 04 | WC-1

Coding and Encoding

Chair

Yejun He, Shenzhen University, China

ID	TITLE	AUTHORS
1570664491	Iterative Soft Decoding of Reed-Solomon Tail-Biting Convolutional Concatenated Codes	Jianchao Ye, Ting-Yi Wu, Jiongyue Xing, Li Chen (Sun Yat-sen University, China)
1570662066	A Reliability-Based Adaptive IR-HARQ Scheme for Polar Coded Systems	Rongchi Xu, Peiyao Chen, Min Zhu, Baoming Bai (Xidian University, China)
1570663569	A Low-Complexity Residual Neural Network Based BP Decoder for Polar Codes	Yuting Huang, Meixiang Zhang, Yin Dou (Yang Zhou University, China)
1570660259	Noise-Aided Belief Propagation List Bit-Flip Decoder for Polar Codes	Yuyu Yang, Chao Yin, Jan Qasim, Yaoyue Hu, Zhiwen Pan, Nan Liu, Xiaohu You (Southeast University, China)
1570665034	An Improved Multiple Bit-Flipping Successive Cancellation Decoding Algorithm for Polar Codes	Sha Sha, Li Zhang, Yejun He (Shenzhen University, China)

11:00-12:30

21 10

Meeting ID: 959 1267 4676

Session 05 | SIN-1

Satellite-Terrestrial Integrated Networks

Chair

Qiang Hu, Amazon Lab 126, USA

ID	TITLE	AUTHORS
1570664079	5G Integrated Satellite Communication Systems: Architectures, Air Interface, and Standardization	Zhixiang Gao, AiJun Liu, Xiaohu Liang (Army Engineering University of PLA, China)
1570659538	Secrecy Performance Analysis of NOMA-Based Integrated Satellite-Terrestrial Relay Networks with Multiple Colluding Eavesdroppers	Kefeng Guo and Xiaogang Tang (Space Engineering University, China); Daoxing Guo (Army Engineering University of PLA, China); Shibing Zhu (Space Engineering University, China); Kang An (National University of Defense Technology, China); Lunxin Zhong (Space Engineering University, China); Bangning Zhang (Army Engineering University of PLA, China)
1570662593	Data Transmission Time Minimization for LEO Satellite-Terrestrial Integrated Networks	Zhixiang Gao, AiJun Liu, Xiaohu Liang (Army Engineering University of PLA, China)
1570665133	VCG Auction-Based Multi-Relay Selection in Hybrid Satellite-Terrestrial Overlay Networks	Xiaokai Zhang, Bangning Zhang, Guo Daoxing, Yuewei Jia and Zhuyun Chen (Army Engineering University of PLA, China)
1570666375	Correlated Equilibrium Based Access Control for Integrated Satellite-Terrestrial Networks	Zhuyun Chen, Guo Daoxing, Jie Zhang, Bing Zhao (Army Engineering University of PLA, China)

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11:00-12:30

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Meeting ID: 948 6674 4549

Session 06 | WNUS-1

UAV Deployment and Control

Chair

Zhifeng Zhao, Zhejiang Lab., China

ID	TITLE	AUTHORS
1570664718	UAV Deployment Based on Multi-QoS User Demand	Yajie Chen, Wang Hai, Fei Xiong, Aijing Li, Zhen Qin, Jin Yuan (Army Enginnering University of PLA, China)
1570665310	Energy-Efficient UAV Deployment and Task Scheduling in Multi-UAV Edge Computing	Yangang Wang, Hai Wang (Army Engineering University of PLA, China); Xianglin Wei (National University of Defense Technology, China)
1570664393	Graph Convolutional Multi-Agent Reinforcement Learning for UAV Coverage Control	Anna Dai, Rongpeng Li (Zhejiang University, China); Zhifeng Zhao (Zhejiang Lab., China); Honggang Zhang (Zhejiang University & Université Européenne de Bretagne (UEB) and Supelec, China)
1570668674	Safeguarding Multi-UAVs Relaying Communications via Joint Trajectory Design and Power Control	Song Gao, Yong Ma, Bin Duo (Chengdu University of Technology, China)
1570662899	State Estimation and Control for Micro Aerial Vehicles in GPS-Denied Environments	Hongming Shen, Xuewei Zhang, Hanchen Lu, Bailing Tian, Zong Qun (Tianjin University, China)

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14:00-15:30

Meeting ID: 919 5072 4555

Session 07 | OCS-1

Optical Communications I

Chair

Min Zhu, Southeast University, China

ID	TITLE	AUTHORS
1570659764	A Novel Realization of PSK Quantum-Noise Randomized Cipher System Based on Series Structure of Multiple Phase Modulators	Yeteng Tan, Tao Pu, Jilin Zheng, Hua Zhou(Army Engineering University of PLA, China); Huatao Zhu (National University of Defense Technology, China); Guorui Su (Army Engineering University of PLA, China)
1570659821	Integrated Single Sideband Modulation Based on Sideband Amplification Injection Locking Effect	Zhang Xin, Jilin Zheng, Tao Pu, Jin Li, Xianshuai Meng (Army Engineering University of PLA, China)
1570667653	The Research on Aperture Averaging of Modulating Retro-Reflector Optical Communication	Jingyuan Wang, Zhiyong Xu, Li Jianhua, Jiyong Zhao, Ke Wang, Mengtong Xie, Junquan Hu (Army Engineering University of PLA, China)
1570664511	Edge Detection by Superposed-Spiral Phase Filter	Zhe Li, Sheng-mei Zhao, Le Wang, Baoyu Zheng (Nanjing University of Posts and Telecommunications, China)
1570668658	A Low Jitter 50Gb/s PAM4 CDR of Receiver in 40nm CMOS Technology	Mengshuai Wang (Southeast University, China)

14:00-15:30

Meeting ID: 983 4074 0239

Session 08 | ICBD-2

Machine Learning for Wireless Communications

Chair

**Gaofeng Pan,
Beijing Institute of Technology, China**

ID	TITLE	AUTHORS
1570661212	Deep Learning Based Antenna Selection for Channel Extrapolation in FDD Massive MIMO	Yindi Yang, Shun Zhang (Xidian University, China); Feifei Gao (Tsinghua University, China); Chao Xu (Northwest A&F University, China); Jianpeng Ma (Xidian University, China); Octavia A. Dobre (Memorial University, Canada)
1570657822	Realization of Detection Algorithms for Key Parts of Unmanned Aerial Vehicle Based on Deep Learning	Guangya Wang (Wuhan Institute of Technology, China)
1570659753	Deep Learning-Based Belief Propagation Algorithm over Non-Binary Finite Fields	Ting Liu (Sun Yat-Sen University, China); Xuechen Chen (Central South University, China)
1570659279	Angle-Of-Arrival Estimation for Vehicle-to-Vehicle Communications Based on Machine Learning	Mi Yang, Bo Ai, Ruisi He, Chen Huang, Zhangfeng Ma, Zhangdui Zhong (Beijing Jiaotong University, China)
1570659674	The Intelligent Preparation of Scene Matching Guidance Reference Map Based on Prior Knowledge	Pan Chen, Yaozong Zhang, Jinmeng Wu and Xingxun Li (Wuhan Institute of Technology, China)

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14:00-15:30

Meeting ID: 921 8942 6117

Session 09 | SPC-2

Secure Communications

Chair

Hang Hu,
Air Force Engineering University, China

ID	TITLE	AUTHORS
1570660133	Secure Transmission Design for Dual-Polarized Satellite System via DL-MPWFRFT and Improved Chaotic Phase Modulation	Haobo Wang, Hang Hu (Aire Force Engineering University, China); Xinyu Da (Yango University, China); Lei Ni, Yu Pan, Yonghui Xu (Air Force Engineering University, China)
1570668806	Secrecy Rate and Energy Harvesting Trade-Off in Cognitive Wireless Energy Transfer Systems	Ping Sun, Haibo Dai, Pei Li, Bao-Yun Wang (Nanjing University of Posts and Telecommunications, China)
1570658935	Cooperative Fingerprint Positioning for Cell-Free Massive MIMO Systems	Jiahua Qiu, Kui Xu, Zhexian Shen (Army Engineering University of PLA, China)
1570665193	Pilot Attack Identification and Elimination in Airborne Massive MIMO Systems by Exploiting the Sparse Structures of Channel	Yurong Wang (PLA University of Science and Technology, China); Liang Wan (Nanjing University of Science and Technology, China); Kui Xu (Army Engineering University of PLA, China); Yuzhe Zhang, Yang Li, Zhiming Zhong (Nanjing University of Science and Technology, China); Gejingting Xu (Nanjing University of Posts and Telecommunications, China); Chengqian Ma (Beijing Institute of Technology, China)
1570665015	Security Performance Analysis of Cell-Free Massive MIMO over Spatially Correlated Rayleigh Fading Channels with Active Spoofing Attack	Xiaoyu Wang, Yuanyuan Gao, Guangna Zhang, Mingxi Guo (Army Engineering University of PLA, China)

14:00-15:30

Meeting ID: 979 3051 0603

Session 10 | WC-2

MIMO Channels and Systems

Chair

Sihai Zhang, University of Science and Technology of China, China

ID	TITLE	AUTHORS
1570656271	Robust Secure Beamforming in Cognitive MIMO Wiretap Channels with Bounded Channel Errors	Jun Xiong, Xuanhan Zhou (National University of Defense Technology, China); Kuo Cao (Army Engineering University of PLA, China); Xiaoran Liu, Dongtang Ma (National University of Defense Technology, China)
1570668565	A Novel 3D Non-Stationary Multi-Frequency Multi-Link Wideband MIMO WLAN Channel Model	Li Zhang, Zihao Zhou, Xinyue Chen (Southeast University, China); Cheng-Xiang Wang (Southeast University & Heriot-Watt University, China)
1570664474	DOA Clustering-Based Channel Estimation for Mitigating Pilot Contamination in Massive MIMO System	JiaShu Lin, Daofeng Li, Sihai Zhang, Jinkang Zhu (University of Science and Technology of China, China)
1570663668	Maximum Ergodic Spectral Efficiency of Reconfigurable Intelligent Surface Assisted MIMO Systems Under Correlated Channels	Jinghe Wang, Hanqing Wang, Yu Han, Shi Jin, Xiao Li (Southeast University, China)
1570661508	Spatial Multiplexing Modulation in Noncoherent MIMO-FCrSK System	Guangpeng Zhou, Lin Zheng, Chao Yang (Guilin University of Electronic Technology, China)

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Meeting ID: 959 1267 4676

Session 11 | SIN-2

Satellite Communications and Networks

Chair

Kun Zhu, Nanjing University of Aeronautics and Astronautics, China

ID	TITLE	AUTHORS
1570664287	A Novel Spectrum Sharing Scheme for Cognitive Satellite Networks: A Game-Theoretic Approach	Jili Wang, Bangning Zhang, Daoxing Guo (Army Engineering University of PLA, China)
1570664796	A Noval Satellite Network Traffic Prediction Method Based on GCN-GRU	Yang Li (Dalian University, China)
1570664203	PAPR Analysis for Faster-Than-Nyquist Signaling in Satellite Communications	Qiang Li, Yang Gao, Feng-Kui Gong and Wen-Yuan Zhao (Xidian University, China); Haiyang Ding (National University of Defense Technology & Xidian University, China); Yang Zhang (Chang'an University, China)
1570660736	Capacity-Oriented Satellite Constellation Design in Disaster Emergency Communication Network	Cui-Qin Dai, Ting Yu, Qianbin Chen (Chongqing University of Posts and Telecommunications, China)
1570661244	Satellite QoS Routing Algorithm Based on Energy Aware and Load Balancing	Linchun Hao, Pinyi Ren, Qinghe Du (Xi'an Jiaotong University, China)

14:00-15:30

Meeting ID: 948 6674 4549

Session 12 | WNUS-2

Resource Allocation and Access Control in Wireless Networks

Chair

Bo Zhang, National Innovation Institute of Defense Technology, China

ID	TITLE	AUTHORS
1570668491	Distributed Resource Allocation Algorithm in Fog Networks with Energy Cooperation	Yunjun Zheng, Weiwei Xia, Long Jiang, Feng Yan, Lianfeng Shen (Southeast University, China); Yinong Zhang (West Aware System Corporation, China); Yingbin Gao (Zgmicro Co., Ltd., China)
1570665298	5G Multi-Service Scenarios-Oriented Resource Allocation and NOMA Pairing Scheme for Energy Efficiency Maximization	Rong Chai, Pengfei Ma, Fei Zou (Chongqing University of Posts and Telecommunications, China)
1570668790	Optimal Power Allocation of Cooperative NOMA with Finite Blocklength Codes	Siling Liu, Zhengchuan Chen (Chongqing University, China); Jinfeng Xie (Chongqing Academy of Informatioon and Communications Technology, China); Liang Liang (Chongqing University, China); Min Wang (Chongqing University of Posts and Telecommunications, China); Yunjian Jia (Chongqing University, China)
1570660144	A Cournot Game Approach in the Duty Cycle in CSAT Algorithm for WiFi/LTE-U Coexistence	Zichao Qin, Aijing Li, Hai Wang (Army Engineering University of PLA, China)
1570664043	A TDMA-Based MAC Protocol with Auxiliary Reservation on a Service Channel for VANETs	Lei Huang, Lianghui Ding, Liang Qian, Feng Yang, Cheng Zhi (Shanghai Jiaotong University, China)

15:45-17:15

Meeting ID: 919 5072 4555

Session 13 | OCS-2

Optical Communications II

Chair

Wen Zhou, Fudan University, China

ID	TITLE	AUTHORS
1570659936	A Novel Algorithm for Reducing the Power Loss of Routing Paths in ONoCs	Hua Yan, Yiyuan Xie, Xiaoping Yang, Tingting Song (University of Southwest, China)
1570663904	Average Channel Capacity Analysis for Visible Light Communications with Random Receivers	Xian-Tao Fu, Rong-Rong Lu (Nanjing University of Posts and Telecommunications, China); Sheng-Hong Lin (Nanjing University of Posts and Telecommunications & Nanjing Institute of Mechatronic Technology, China); Jin-Yuan Wang (Nanjing University of Posts and Telecommunications, China)
1570668698	Super Gaussian Kernel-Aided Deep Neural Network Equalizer Utilized in Visible Light Transparent Transmission from Free-Space to Fiber	Qiuyi Lu (Fudan University, China)
1570659871	Numerical Investigation on the Nonlinear Dynamics of the Monolithically Integrated Mutual Injected Semiconductor Laser with Short-Coupled Regime	Jin Li, Jilin Zheng, Tao Pu, Zhang Xin, Xianshuai Meng, Yukai Chen (Army Engineering University of PLA, China)
1570666084	A Simulation of a Frequency Down-Converter Based on Period-One Dynamics of the Integrated Lasers	Xianshuai Meng, Jin Li (Army Engineering University of PLA, China)

15:45-17:15

Meeting ID: 983 4074 0239

Session 14 | ICBD-3

Machine Learning based Recognition and Classification

Chair

Shuo Feng, McMaster University, Canada

ID	TITLE	AUTHORS
1570665094	Open-Set Interference Signal Recognition Using Boundary Samples: A Hybrid Approach	Yujie Xu, Xiaowei Qin, Xiaodong Xu (University of Science and Technology of China, China); Jianqiang Chen (ZTE Corporation, China)
1570663700	Underdetermined Blind Source Separation in Reverberant Environment	Shuai Li, Hongqing Liu (Chongqing University of Posts and Telecommunications, China); Lu Gan (Brunel University, United Kingdom); Yi Zhou (Chongqing University of Posts and Telecommunications, China)
1570654840	Unsupervised Image Classification System for Mobile Devices Based on Incremental Isomap	Tiance Wu (Shanghai Jiao Tong University, China); Xinyu Tong (Tianjin University, China); Xiaohua Tian (Shanghai Jiao Tong University, China)
1570668819	Light Weight Automatic Modulation Classification for Edge Devices in Spectrum Sensing Wireless Networks	Wanli Ma, Bo Zhang, Yuli Zhang, Sudan Han, Jianchao Zheng, Jinlin Peng (National Innovation Institute of Defense Technology, China); Yuhua Tang (National University of Defense Technology, China)
1570663535	Identification and Extraction of Circular Markers in 3D Reconstruction	Yunfei Wang (Wuhan Institute of Technology, China)

15:45-17:15

Meeting ID: 921 8942 6117

Session 15 | SPC-3

Channel Model and Estimation

Chair

Tao Zhou, Beijing Jiaotong University, China

ID	TITLE	AUTHORS
1570664716	3D Stochastic Geometry Channel Model of Cell-Free Massive MIMO System	Chengjian Liao, Kui Xu (Army Engineering University of PLA, China)
1570668684	A Stochastic Coupling-Based Channel Impulse Response Matrix Model for Massive MIMO Channels	Rong Dai, Yang Liu (Jiangnan University, China); Cheng-Xiang Wang (Southeast University & Heriot-Watt University, China);Yu Yu (Nanjing Institute of Technology, China) ; Xin Guo (Jiangnan University, China)
1570664467	A Novel Channel Estimation Scheme for Frequency-Selective mmWave Massive MIMO Systems	Zhigang Song, Jian Sun, Wensheng Zhang (Shandong University, China); Cheng-Xiang Wang (Southeast University & Heriot-Watt University, China); Minggao Zhang (Shandong Provincial Key Lab of Wireless Communication Technologies, China)
1570659882	Spike and Slab Prior Based Joint Sparse Channel Estimation and Multiuser Detection in MTC Communications	Xiaoxu Zhang, Li Hao (Southwest Jiaotong University, China); Jiaqi Liu (University of Electronic Science and Technology of China, China)
1570655239	Deep Learning-Based Channel Quality Estimation in Adaptive Shortwave Communication Systems	Yaru Zhou, Yu Wang, Guan Gui (Nanjing University of Posts and Telecommunications, China); Haris Gačanin (RWTH Aachen University, Germany); Hikmet Sari (Nanjing University of Posts and Telecommunications, China & Sequans, France)

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Meeting ID: 979 3051 0603

Session 16 | WC-3

Learning-based Communications and Networks

Chair

Yuan Liu, South China University of Technology, China

ID	TITLE	AUTHORS
1570664835	A Data Protection-Oriented Design Procedure for a Federated Learning Framework	Yue Yu, Zhijie Qiu, Lei Luo, Hong Chen (University of Electronic Science and Technology of China, China); Ming Zeng (The Innovation Center of Sichuan Industrial Cloud Manufacturing Company Limited, China)
1570660267	Deep Reinforcement Learning for Distributed Computation Offloading in Massive-User Mobile Edge Networks	Jiang Bo, Kuikui Li (Shanghai Jiao Tong University, China); Bo Zhou (Virginia Tech, USA); Meixia Tao, Zhiyong Chen (Shanghai Jiao Tong University, China)
1570664196	Training Efficiency of Federated Learning: A Wireless Communication Perspective	Shunan Yang, Yuan Liu (South China University of Technology, China)
1570664389	Reinforcement Learning Based Energy Efficient Underwater Localization	You Xudong (Xiamen University, China); Zefang Lv (North China Electric Power University, China); Yuzhen Ding, Wei Su, Liang Xiao (Xiamen University, China)
1570665099	Deep-Learning-Based Bouncing-Order Prediction for Propagation Channel Characterization Using Graph Modeling	Lin Yang, Xuefeng Yin, José Rodríguez-Piñeiro (Tongji University, China)

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Meeting ID: 959 1267 4676

Session 17 | SIN-3

Space Communications and Networks

Chair

Lina Zhu, Xidian University, China

ID	TITLE	AUTHORS
1570659658	A Radio Environment Mapping Based Spectrum Awareness for Cognitive Space Information Network with GEO and LEO Coexistence	Haitao Wang, Rongkai Ren, Dexin Qu and Gengxin Zhang (Nanjing University of Posts and Telecommunications, China)
1570664817	Reliable Proactive Retransmission of Bundle Protocol for Deep-Space Communications in Presence of Link Disruption	Ruhai Wang (Lamar University, USA); Lei Yang and Yu Zhou (Soochow University, China); Kanglian Zhao (Nanjing University, China)
1570662610	Compressive Sampling for Recognition of Frequency-Hopping Spread Spectrum Signals	Hongbin Wang (Army Engineering University of PLA, China); Daoxing Guo (PLA University of Science and Technology, China); Bangning Zhang (Army Engineering University of PLA, China)
1570661216	Co-Frequency Interference Analysis Between Large-Scale NGSO Constellations and GSO Systems	Tianjia Wang (Beijing University of Posts and Telecommunications, China); Wei Li (The State Radio Monitoring Center, China); Yong Li (Beijing University of Posts and Telecommunications, China)
1570662645	A Potential Game Approach to Multiple UAVs 3D Placement in IoT Communication Networks	Binbin Wu and Bangning Zhang (Army Engineering University of PLA, China); Bing Zhao (The Army Engineering University of PLA, China); Daoxing Guo (PLA University of Science and Technology, China); Xiaobo Ma (Army Engineering University, China); Guofeng Wei (Army Engineering University of PLA, China)

15:45-17:15

Meeting ID: 948 6674 4549

Session 18 | B5G-2

IoT Networks

Chair

Mingkai Chen, Nanjing University of Posts and Telecommunications, China

ID	TITLE	AUTHORS
1570663885	Reward Maximization Strategy in Virtualized Wireless Sensor Networks	Ailing Zhong, Zhidu Li, Dapeng Wu, Ruyan Wang (Chongqing University of Posts and Telecommunications, China); Alexander Fedotov, Vladimir Badenko (Peter the Great St. Petersburg Polytechnic University, Russia)
1570663857	Multi-Task Mapping and Resource Allocation Mechanism in Software Defined Sensor Networks	Lishui Chen (Science and Technology on Communication Networks Laboratory, Shijiazhuang, China); Dapeng Wu, Zhidu Li (Chongqing University of Posts and Telecommunications, China)
1570665300	Revenue Analysis of Edge Computing Devices in Blockchain-Based IoT Networks	Shuyue Ai, Jiang Yuna, Shuang Zheng, Tao Han, Xiaohu Ge (Huazhong University of Science & Technology, China)
1570665316	Scheduling Optimization for Mixed-Type Devices of IoT in Massive MIMO Systems with Spatio-Temporal Traffic	Qi Zhang (Nanjing University of Posts and Telecommunications, China); Howard Yang (SUTD, Singapore); Tony Q. S. Quek (Singapore University of Technology and Design, Singapore); Shi Jin (Southeast University, China)
1570664572	Secure Short-Packet Transmission in Uplink Massive MU-MIMO IoT Networks	Tian Yu (Amy Engieering University of PLA, China); Xiaoli Sun (PLA Strategic Support Force Information Engineering University, China); Yueming Cai (Army Engineering University of PLA, China)

10:00-12:00

Meeting ID: 919 5072 4555

Industrial Forum:
Software Defined Wireless Communication - Prototype Research in B5G/6G

Chair

Xiaojin Li, Senior Technical Marketing Manager (5G/Satellite), NI

Brief Agenda

10:00	**Reconfigurable Intelligent Surface (RIS) for 6G: A Paradigm Shift from Adapting Channels to Changing Channels** *Linglong Dai, Associate Professor, Tsinghua University, China*
10:30	**Intelligent Reflecting Surface-Assisted Wireless Communications with Non-ideal CSI** *Caijun Zhong, Professor, Zhejiang University, China*
11:00	**NI SDR Platform to Accelerate Key Technology in B5G/6G Prototype Research** *Wes McCoy, Chief Wireless System Engineer, NI*
11:30	**The Curse of Mobility in Massive MIMO** *Haifan Yin, Professor, Huazhong University of Science and Technology, China*
12:00	

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09:00-10:30

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Meeting ID: 983 4074 0239

Session 19 | SPC-4

Deep Learning-based Signal Processing

Chair

Guan Gui, Nanjing University of Posts and Telecommunications, China

ID	TITLE	AUTHORS
1570659635	Deep Reinforcement Learning for Caching Placement and Content Delivery in UAV NOMA Networks	Ziduan Wang, Tiankui Zhang (Beijing University of Posts and Telecommunications, China); Yuanwei Liu (Queen Mary University of London, United Kingdom); Wenjun Xu (Beijing University of Posts and Telecommunications, China)
1570665098	Co-Channel Modulation Recognition Based on Deep Learning	Yuhong Xue, Zhutian Yang, Zhilu Wu, Siyang Zhou (Harbin Institute of Technology, China)
1570664753	Content-Aware Facial Image Compression with Deep Learning Method	Shuzhan Hu, Yiping Duan, Xiaoming Tao, Yongjia Liu, Xuming Zhang, Jianhua Lu (Tsinghua University, China)
1570664757	A Meta-Learning-Based Approach for Hand Gesture Recognition Using FMCW Radar	Zhongyu Fan, Haifeng Zheng, Xinxin Feng (Fuzhou University, China)
1570665039	Clustered-Sparse Bayesian Learning for Channel Estimation in Underwater Acoustic OFDM Systems	Shuaijun Wang, Deshi Li, Mingliu Liu, Wei Huang, Haole Chen, Yi Chen (Wuhan University, China)

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09:00-10:30

Meeting ID: 921 8942 6117

Session 20 | SPC-5

Multi-Dimensional Signal Processing

Chair

Xiaoli Sun, National Digital Switching System Engineering & Technological R&D Center, China

ID	TITLE	AUTHORS
1570665290	Multi-Dimensional Data-Driven Mobile Edge Caching with Dynamic User Preference	Mengge Liu, Dapeng Li, Hai-tao Zhao, Xiaoming Wang, Rui Jiang (Nanjing University of Posts and Telecommunications, China)
1570665077	Adaptive SVM-Based Beam Allocation for MmWave Small Cell Networks	Jiangpei Zhu, Dapeng Li, Hai-tao Zhao, Xiaoming Wang, Rui Jiang (Nanjing University of Posts and Telecommunications, China)
1570660593	Design of Improper Constellations for Optimal Data Rates in Downlink NOMA Systems	Hao Cheng, Yili Xia (Southeast University, China); Zhaohua Lu (ZTE Corporation, China); Yongming Huang, Wenjiang Pei, Luxi Yang (Southeast University, China); Danilo Mandic (Imperial College, London, United Kingdom)
1570664583	A Novel Density-Based Performance Evaluation Index for Multipath Components Clustering	Yuanyuan Qiao (Beijing Jiaotong University, China); Zhichao Yang (China Electric Power Research Institute, China); Tao Zhou (Beijing Jiaotong University, China); Shanshan Lin (China Electric Power Research Institute, China); Daohua Zhu (State Grid Jiangsu Electric Power Company Electric Research Institute, China)
1570664488	Multi-Intelligent Reflecting Surface-Aided Wireless Network with Achievable Rate Maximization	Tao Zhou, Kui Xu (Army Engineering University of PLA, China)

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09:00-10:30

Meeting ID: 979 3051 0603

Session 21 | WNUS-3

Broadcasting, Routing and directional Antenna communication

Chair

Aijing Li,
Army Engineering University of PLA, China

ID	TITLE	AUTHORS
1570664889	A Minimum-Latency All-To-All Broadcast Algorithm in Aerial Ad Hoc Network with Directional Antennas	Lin Ge, Renhui Xu, Peng Laixian, Yaoqi Yang (Army Engineering University of PLA, China)
1570659999	Real-Time Successful Broadcasting Ratio and Distance Based Broadcast for Vehicular Ad Hoc Networks	Yi'nan Luo, Xue Su, Yanping Yu, Qichao Cao, Zhengwei Ni (Zhejiang Gongshang University, China)
1570668683	QoS Sensitive Routing Algorithm with Link Quality Prediction in SDN-Based Ad Hoc Networks	Long Jiang, Weiwei Xia, Yunjun Zheng, Feng Yan, Lianfeng Shen (Southeast University, China); Yinong Zhang (West Aware System Corporation, China); Xiaodong Yang (Nanjing Zgmicro Co., Ltd., China)
1570665054	Neighbor Discovery Algorithm in Wireless Ad Hoc Networks Based on Successive Interference Cancellation Technology	Yueyue Liang, Zhiqing Wei, Qian Chen, Huici Wu (Beijing University of Posts and Telecommunications, China)
1570664561	MSE Minimized Scheduling for Multiple-Source Remote Estimation with AoI Constraints in IWSN	Kehong Chen, Lianghui Ding, Feng Yang, Liang Qian (Shanghai Jiaotong University, China)

11:00-12:30

22 10

Meeting ID: 983 4074 0239

Session 22 | SPC-6

Signal Processing for Detection and Identification

Chair

Hongjun Wang, National University of Defense Technology, China

ID	TITLE	AUTHORS
1570664153	Source Detection of Sensor Array Based on Information Theory	Deng Pan, Dazhuan Xu, Hu Chao (Nanjing University of Aeronautics and Astronautics, China)
1570659364	Sparse Reconstruction on Robust Dictionary for Accurate Salient Object Detection	Jun Wang (Army Engineering University of PLA, China)
1570669257	Arbitrary-Oriented Ship Detection Based on Feature Filter and KL Loss	Chen Li, Lei Wang, Bin Kang, Mingkai Chen, Jingwu Cui, Baoyu Zheng (Nanjing University of Posts and Telecommunications, China)
1570665137	CNN Based Wideband Spectrum Occupancy Status Identification for Cognitive Radios	Bin Shen (Chongqing University of Posts and Telecommunications, China); Jiayuan Wang (Nanjing University of Science and Technology, China); Yan Zhang, Tingqiu Yan (Chongqing University of Posts and Telecommunications, China)
1570664953	A MAC Protocol Identification Approach Based on Convolutional Neural Network	Xutong Zhang (Nanjing University of Aeronautics and Astronautics, China); Weiguo Shen, Jianliang Xu (No. 36 Research Institute of CETC, China); Zitong Liu (Nanjing University of Aeronautics and Astronautics, China); Guoru Ding (Army Engineering University of PLA, China)

11:00-12:30

Meeting ID: 921 8942 6117

Session 23 | SPC-7

Signal Processing for Separation and Classification

Chair

Shengheng Liu, Southeast Univsersity, China

ID	TITLE	AUTHORS
1570659890	Separating Multi-Stream Signals Based on Space-Time Isomerism	Liang Jin, Yangming Lou, Xiaoming Xu, Zhou Zhong (National Digital Switching System Engineering & Technological R&D Center, China); Hu Wang (Purple Mountain Laboratories, China)
1570659395	Single-Channel Blind Source Separation of Two MPSK Signals Based on Stack Algorithm	Zhongchong Peng, Hui Li (University of Science and Technology of China, China)
1570660831	Three-Dimensional Joint Parameter Estimation Algorithm Based on Service Antenna	Yuan She, Xiaolong Yang, Mu Zhou, Zengshan Tian (Chongqing University of Posts and Telecommunications, China)
1570666807	Depthwise Separable Convolution Based Lightweight HSRRS Image Classification Method	Wang Luo (NARI Group Corporation, China); Tong Li (State Grid Liaoning Electric Power Supply Co., LTD, China); WeiDong Yang (NARI Group Corporation, China); Tongwei Yu (State Grid Liaoning Electric Power Supply Co., LTD, China); DingDing Xi (NARI Group Corporation, China); Li Shen (State Grid Liaoning Electric Power Supply Co., LTD, China); Yuan Xia (NARI Group Corporation, China); Zhibin Yang (State Grid Liaoning Electric Power Supply Co., LTD, China); HuaRong Xu (NARI Group Corporation, China)
1570667317	Network Coding-Based Relay Selection and Power Distribution for Underwater Cooperative Communication Networks	Xuekun Chen (Harbin Institute of Technology (Weihai), China); Hongjuan Yang (Harbin Institute of Technology, China); Qiming Wang, Bo Li (Harbin Institute of Technology (Weihai), China)

11:00-12:30

Meeting ID: 979 3051 0603

Session 24 | SIN-4

UAV Communications and Convert Communications

Chair

Liang Wu, Southeast University, China

ID	TITLE	AUTHORS
1570662672	Fast Beam Training for mmWave UAV Communications Using Machine Learning	Yong Gu, Weizhi Zhong, Qiuming Zhu, Penghui Li and Xiaomin Chen (Nanjing University of Aeronautics and Astronautics, China)
1570668260	UAV-Enabled Mobile Radiation Source Tracking with Deep Reinforcement Learning	Jiangchun Gu, Haichao Wang and Guoru Ding (Army Engineering University of PLA, China); Yitao Xu (PLA University of Science and Technology, China); Yutao Jiao (Nanyang Technological University, Singapore)
1570662411	Multi-Antenna Covert Communication Achieved by Exploiting a Public Communication Link	Yuda Lin (Information Engineering University, China); Liang Jin (National Digital Switching System Engineering & Technological R&D Center, China); Hu Wang (Purple Mountain Laboratories, China); Xiaoming Xu (National Digital Switching System Engineering & Technological Research Center, China)
1570664737	Covert Communications in D2D Underlaying Cellular Networks with Multiple Wardens	Jiawei Li, Meng Wang, Yida Wang, Xin Shi, Cheng Wan (Army Engineering University of PLA, China)
1570659125	Spatial-Time MIMO Autoencoder for Physical Layer	Tianjie Mu, Xiaohui Chen, Chen Li, Huarui Yin, Guo Wei (University of Science And Technology of China, China)

14:00-15:30

Meeting ID: 919 5072 4555

Session 25 | B5G-3

Channel Modeling and Wireless Communications

Chair

Jiangbo Si, Xidian University, China

ID	TITLE	AUTHORS
1570663538	A 3D Non-Stationary Channel Model for 6G Wireless Systems Employing Intelligent Reflecting Surface	Yingzhuo Sun (Southeast University, China); Cheng-Xiang Wang (Southeast University & Heriot-Watt University, China); Jie Huang, Jun Wang (Southeast University, China)
1570660375	Block Compressed Sensing-Based Joint Source-Channel Coding for Wireless Image Transmission	Leqi Zheng, Tingting Zhu, Xiao Ma (Sun Yat-sen University, China)
1570668788	Status Update Performance in Uplink Massive MU-MIMO Short-Packet Communication Systems	Zeyuan Zhu, Baoquan Yu, Yueming Cai (Army Engineering University of PLA, China)
1570659696	Performance of Covert Surveillance via Proactive Eavesdropping	Shumin Tu (The 722 Research Institute, CSIC, China); JiangBo Si (Xi'dian, China); Zihao Cheng, Lei Guan and Chao Wang (Xidian University, China)
1570665171	Analysis and Evaluation of Hash Access for Blockchain Radio Access Networks	Bowen Zhang, Xintong Ling, Yuwei Le, Jiaheng Wang (Southeast University, China); Can Cai, Zerong Tang (China Mobile Jiangsu Company, China)

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14:00-15:30

Meeting ID: 983 4074 0239

Session 26 | ICBD-4

Distributed Learning for Wireless Networks

Chair

Dianxiong Liu,
Institute of Systems Engineering,
Academy of Military Sciences, China

ID	TITLE	AUTHORS
1570659182	User Pair-Relay Matching in a Multiple User Pair and Multiple Untrusted Relay Network	Rugui Yao, Doudou Song, Lukun Yao (Northwestern Polytechnical University, China); Theodoros Tsiftsis (Jinan University, China); Nikolaos I. Miridakis (University of Piraeus, Greece & Jinan University, Zhuhai, China); Nan Qi (Nanjing University of Aeronautics and Astronautics, China & KTH Royal Institute of Technology, Sweden); Xiaoya Zuo (Northwestern Polytechnical University, China); Danian Lou (Xi'an Institute of Space Radio Technology, China)
1570664814	Social Bandit Learning: Strangers Can Help	Jun Zong, Ting Liu, Xiliang Luo (ShanghaiTech University, China); Hua Qian (Shanghai Advanced Research Institute, Chinese Academy of Sciences, China); Zhaowei Zhu (University of California, Santa Cruz, USA)
1570663330	Distributed Community Detection on Overlapping Stochastic Block Model	Jiasheng Xu, Luoyi Fu, Xiaoying Gan, Bo Zhu (Shanghai Jiao Tong University, China)
1570664914	Delay Optimization with FCFS Queuing Model in Mobile Edge Computing-Assisted UAV Swarms: A Game-Theoretic Learning Approach	Runfeng Chen, Li Cui (Army Engineering University of PLA, China); Yuli Zhang (National Innovation Institute of Defense Technology, Academy of Military Sciences PLA, China); Jin Chen, Kailing Yao, Yang Yang (Army Engineering University of PLA, China); Changhua Yao (Nanjing University of Information Science and Technology, China); Han Han (National Innovation Institute of Defense Technology, Academy of Military Sciences PLA, China)
1570665177	Capacity of UAV-Assisted Air-To-Ground Communication with Random Perturbation of UAV Platform	Jialin Zhu, Zhiqing Wei, Huici Wu, Chen Qiu, Zhiyong Feng (Beijing University of Posts and Telecommunications, China)

14:00-15:30

Meeting ID: 921 8942 6117

Session 27 | WC-4

Internet of Things

Chair

Qinghe Du, Xi'an Jiaotong University, China

ID	TITLE	AUTHORS
1570658590	IRS-Assisted Crowd Spectrum Sensing in B5G Cellular IoT Networks	Xiaohui Li, Qi Zhu, Ying Wang (Nanjing University of Posts and Telecommunications, China)
1570658577	Joint Mode Selection and Resource Allocation in D2D-Enabled Vehicular Network	Liping Jiang (Beijing University of Posts and Telecommunications, China); Xu Yang (The State Radio Monitorning Center, China); Chaoqiong Fan, Bin Li, Chenglin Zhao (Beijing University of Posts and Telecommunications, China)
1570664152	Collaborative Online Caching with Freshness in the Internet of Things	Xu Zhao, Qi Zhu (Nanjing University of Posts and Telecommunications, China)
1570664893	Detection Schemes of Illegal Spectrum Access Behaviors in Multiple Authorized Users Scenario	Hao Fang (Army Engineering University of PLA); Tao Zhang (The Sixty-third Research Institute,National University of Defense Technology); Yueming Cai (Army Engineering University of PLA); Linyuan Zhang (Jiangnan Institute of Computing Technology); Hao Wu (The Sixty-third Research Institute, National University of Defense Technology, China)
1570660802	Symbiotic Communication: Concurrent Transmission for Multi-Users Based on Backscatter Communication	Yanyan Liu, Pingyi Ren, Qinghe Du (Xi'an JiaoTong University, China)

14:00-15:30

Meeting ID: 979 3051 0603

Session 28 | WC-5

Unmanned Aerial Vehicle Communications

Chair

Xujie Li, Hohai University, China

ID	TITLE	AUTHORS
1570669239	Robust Secure UAV-Enabled Multiple User Communication with Fairness Consideration	Wenlu Fan (Nanjing University, China); Yang Wu (Army Engineering University of PLA, China); Xiaoli Sun (PLA Strategic Support Force Information Engineering University, China); Weiwei Yang (Army Engineering University of PLA, China)
1570665027	Joint Blocklength and Power Optimization for Half Duplex Unmanned Aerial Vehicle Relay System with Short Packet Communications	Baoquan Yu, Xinrong Guan, Yueming Cai (Army Engineering University of PLA, China)
1570671387	A Smart Content Caching and Replacement Scheme for UAV-Assisted Fog Computing Network	Xujie Li, Jichang Shen, Ying Sun, Ziya Wang (Hohai University, China); Xuedong Zheng (Nanjing China-Spacenet Satellite Telecom Co. Ltd, China)
1570664512	Robust Trajectory and Scheduling Design for Turning Angle-Constrained UAV Communications	Yufang Gao, Wendong Yang, Yang Wu, Zhichao Cui (Army Engineering University of PLA, China); Yu Yu (31131 Troops, China)
1570664478	A Novel Non-Stationary Cylinder Model for Massive MIMO Air-To-Ground (A2G) Channels	Shihao Chen, Nan Ma, Jianqiao Chen, Xiaoli Yang (Beijing University of Posts and Telecommunications, China),

14:00-15:30

Meeting ID: 959 1267 4676

Session 29 | WC-6

Wireless Networks

Chair

Xin Wei, Nanjing University of Posts and Telecommunications, China

ID	TITLE	AUTHORS
1570661286	Low-Rank Matrix Recovery for Topological Interference Management	Xue Jiang, Baoyu Zheng, Lei Wang, Xiaoyun Hou (Nanjing University of Posts and Telecommunications, China)
1570658601	A Joint Scheme for PAPR Reduction of OFDM Signals Based on 3-D Constellation Rotation Encryption	Lu Xinjin, Jing Lei, Wei Li, Shi Yuxin (National University of Defence Technology, China)
1570658095	Research on Spectrum Map Dissemination for Data-Driven Cognitive Radio Networks	Yue Zhang (NUDT, China)
1570662306	A Robust Decentralized Multi-Sources Joint Power Spectra Separation and DOA Estimation Algorithm	Li Li, Xiaonan Chen, Jun Wang, Wei Huang, Wei Li, Shaoqian Li (University of Electronic Science and Technology of China, China)
1570659016	On Contention-Based 2-Step Random Access Procedure	Ziyang Li, Li Tian, Yachao Yin, Wei Cao (ZTE Corporation, China)

14:00-15:30

Meeting ID: 948 6674 4549

Session 30 | WNUS-4

UAV-based Networks and IoT

Chair

Hui Cheng, Sun Yat-Sen University, China

ID	TITLE	AUTHORS
1570660770	Dynamic Coordination in UAV Swarm Assisted MEC via Decentralized Deep Reinforcement Learning	Yuting Ye, Wenshu Wei, Dongqing Geng, Xiaofan He (Wuhan University, China)
1570664954	Mobility-Aware Trajectory Design for Aerial Base Station Using Deep Reinforcement Learning	Guoliang Hao, Wanli Ni, Hui Tian, Leilei Cao (Beijing University of Posts and Telecommunications, China)
1570665321	UAV-Based Estimation of Direction of Arrival: An Approach Based on Image Processing	Lingyu Wang, Yang Huang (Nanjing University of Aeronautics and Astronautics, China)
1570669269	Uplink Performance Analysis of Cellular-Based Energy Harvesting IoT Networks	Hongguang Sun, Shuqin Li, Hongming Zhang, Yuhang Nan, Huanhuan Shen, Chao Xu (Northwest A&F University, China)
1570665068	Spatial-Temporal Gaussian Visit Model for Mobile Crowd Sensing	Jixuan Zhou, Mingliu Liu, Deshi Li (Wuhan University, China)

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15:40-16:30

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Meeting ID: 919 5072 4555

Keynote III

Prof. John Thompson, IEEE Fellow
University of Edinburgh, UK

TOPIC

Overview of Green and Intelligent Technologies for Future Wireless Systems

Abstract: In 2030, wireless systems will evolve significantly from current networks to provide more integrated and energy efficient solutions. Additionally, wireless designers are increasingly targetting higher frequencies in the millimetre wave and even terahertz bands to provide increased capacity. Future systems will also target tighter integration of terrestrial and satellite communications to provide more consistent service and reduce "not-spot" regions. In this talk we will describe the motivation and design of these future systems and give examples of how optimization and machine learning methods can be applied. These challenges cover particularly how wireless devices can reason about the radio environment to enable and perform communication in an efficient manner. This talk will also explore open research problems where novel solutions can enable significant performance improvements.

BIOGRAPHY

John Thompson is currently a Professor at the School of Engineering in the University of Edinburgh. He specializes in antenna array processing, cooperative communications systems and energy efficient wireless communications. He has published in excess of three hundred and fifty papers on these topics. He was coordinator for the recently completed EU Marie Curie Training Network ADVANTAGE, which studies how communications and power engineering can provide future smart grid systems. In 2018, he was a co-chair of the IEEE Smartgridcomm conference held in Aalborg, Denmark. He currently participates in several projects which study new concepts for future generation wireless communications. In January 2016, he was elevated to Fellow of the IEEE for research contributions to antenna arrays and multi-hop communications.

16:40-17:30

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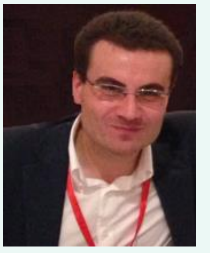
Meeting ID: 919 5072 4555

Keynote IV

Prof. Marco Di Renzo, IEEE Fellow
CentraleSupelec and Paris-Saclay University, France



TOPIC

Smart Radio Environments Empowered by Reconfigurable Intelligent Surfaces: How it Works, State of Research, and the Road Ahead

Abstract: Reconfigurable intelligent surfaces (RISs) are an emerging transmission technology for application to wireless communications. RISs can be realized in different ways, which include (i) large arrays of inexpensive antennas that are usually spaced half of the wavelength apart; and (ii) metamaterial-based planar or conformal large surfaces whose scattering elements have sizes and inter-distances much smaller than the wavelength. Compared with other transmission technologies, e.g., phased arrays, multi-antenna transmitters, and relays, RISs require the largest number of scattering elements, but each of them needs to be backed by the fewest and least costly components. Also, no power amplifiers are usually needed. For these reasons, RISs constitute a promising software-defined architecture that can be realized at reduced cost, size, weight, and power (C-SWaP design), and are regarded as an enabling technology for realizing the emerging concept of smart radio environments (SREs). In this talk, the speaker will (i) introduce the emerging research field of RIS-empowered SREs; (ii) overview the most suitable applications of RISs in wireless networks; (iii) present an electromagnetic-based communication-theoretic framework for analyzing and optimizing metamaterial-based RISs; (iv) provide a comprehensive overview of the current state of research; and (v) discuss the most important research issues to tackle. Owing to the interdisciplinary essence of RIS-empowered SREs, finally, the speaker will put forth the need of reconciling and reuniting C. E. Shannon's mathematical theory of communication with G. Green's and J. C. Maxwell's mathematical theories of electromagnetism for appropriately modeling, analyzing, optimizing, and deploying future wireless networks empowered by RISs.

BIOGRAPHY

Marco Di Renzo was born in L'Aquila, Italy, in 1978. He received the Laurea (cum laude) and Ph.D. degrees in electrical engineering from the University of L'Aquila, Italy, in 2003 and 2007, respectively, and the Habilitation a Diriger des Recherches (Doctor of Science) degree from University Paris-Sud, France, in 2013. Since 2010, he has been with the French National Center for Scientific Research (CNRS), where he is a CNRS Research Director (CNRS Professor) in the Laboratory of Signals and Systems (L2S) of Paris-Saclay University – CNRS and CentraleSupelec, Paris, France. He is a Nokia Foundation Visiting Professor at Aalto University, Helsinki, Finland, and an Honorary Professor at University Technology Sydney, Sydney, Australia. In Paris-Saclay University, he is a Member of the coordinating committee of the Ph.D. school on Information and Communication Technologies, and the Coordinator of the "Intelligent Networks" research cluster within the DigiCosme Laboratory of Excellence. He serves as the Editor-in-Chief of IEEE Communications Letters. He served as an Editor of IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Communications Letters, and as the Associate Editor-in-Chief of IEEE Communications Letters. He is a Distinguished Lecturer of the IEEE Vehicular Technology Society and IEEE Communications Society. He is a recipient of several awards, including the 2013 IEEE-COMSOC Best Young Researcher Award for Europe, Middle East and Africa, the 2013 NoE-NEWCOM# Best Paper Award, the 2014-2015 Royal Academy of Engineering Distinguished Visiting Fellowship, the 2015 IEEE Jack Neubauer Memorial Best System Paper Award, the 2015 CNRS Award for Excellence in Research and Ph.D. Supervision, the 2016 MSCA Global Fellowship (declined), the 2017 SEE-IEEE Alain Glavieux Award, the 2018 IEEE-COMSOC Young Professional in Academia Award, the 2019 Nokia Foundation Visiting Professorship, and 8 Best Paper Awards at IEEE conferences (2012 and 2014 IEEE CAMAD, 2013 IEEE VTC-Fall, 2014 IEEE ATC, 2015 IEEE ComManTel, 2017 IEEE SigTelCom, EAI 2018 INISCOM, IEEE ICC 2019). He is a Highly Cited Researcher according to Clarivate Analytics and Web of Science, and a Fellow of the IEEE.

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Meeting ID: 919 5072 4555

Keynote V

Prof. Ekram Hossain, IEEE Fellow, CAE Fellow
University of Manitoba, Canada

TOPIC

Evolution Toward 6G: Several Key Technologies

Abstract: While the fifth generation (5G) cellular wireless communication technologies are currently being developed and deployed, research on the beyond 5G (B5G) technologies, also referred to as 6G technologies, has already begun. Potential technologies for 6G systems include nano-meter wave/tera-Hertz communications, metasurface-aided wireless communications, massive non-orthogonal multiple access (m-NOMA), joint transmission coordinated multipoint transmission with NOMA (JT-CoMP-NOMA), cell-free massive MIMO communications, and drone-aided wireless communications. In addition to novel signal processing techniques, analysis of these systems in a large setting will require tools such as those from stochastic geometry. Also, for design and optimization of many of these communications systems, machine learning (ML) tools, including deep supervised learning and deep reinforcement learning, will be useful. In this talk, I will discuss several of the above potential 6G technologies, related challenges, and also the role of ML in general for design and optimization of these systems.

BIOGRAPHY

Ekram Hossain (IEEE Fellow) is a Professor in the Department of Electrical and Computer Engineering at University of Manitoba, Winnipeg, Canada. He is a Member (Class of 2016) of the College of the Royal Society of Canada and also a Fellow of the Canadian Academy of Engineering. He received his Ph.D. in Electrical Engineering from University of Victoria, Canada, in 2001. Dr. Hossain's current research interests include design, analysis, and optimization of wireless, mobile, cognitive, and green communication networks with emphasis on 5G cellular, applied game theory, and network economics. He has authored/edited several books in these areas (http://home.cc.umanitoba.ca/~hossaina). He was elevated to an IEEE Fellow "for contributions to spectrum management and resource allocation in cognitive and cellular radio networks". Currently he serves as the Editor-in-Chief of the IEEE Press and an Editor for IEEE Transactions on Mobile Computing. Previously, he served as an Area Editor for the IEEE Transactions on Wireless Communications in the area of "Resource Management and Multiple Access" (2009-2011)and an Editor for the IEEE Journal on Selected Areas in Communications - Cognitive Radio Series (2011-2014). Dr. Hossain has won several research awards including the "2017 IEEE Communications Society Best Survey Paper Award", IEEE VTC 2016-Fall "Best Student Paper Award" as a co-author, IEEE Communications Society Transmission, Access, and Optical Systems (TAOS) Technical Committee's Best Paper Award in IEEE Globecom 2015, University of Manitoba Merit Award in 2010, 2013, 2014, and 2015 (for Research and Scholarly Activities), the 2011 IEEE Communications Society Fred Ellersick Prize Paper Award, and the IEEE Wireless Communications and Networking Conference 2012 (WCNC'12) Best Paper Award. He received the 2017 IEEE ComSoc TCGCC (Technical Committee on Green Communications & Computing) Distinguished Technical Achievement Recognition Award "for outstanding technical leadership and achievement in green wireless communications and networking". He was listed as a Clarivate Analytics Highly Cited Researcher in Computer Science in 2017, 2018, and 2019.Dr. Hossain is an elected Member of the Board of Governors of the IEEE Communications Society for the term 2018-2020. He is a Distinguished Lecturer of the IEEE Communications Society and the IEEE Vehicular Technology Society. He is a registered Professional Engineer in the province of Manitoba, Canada.

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Keynote VI

Prof. Cheng-xiang Wang, MAE, IEEE Fellow
Southeast University, China

TOPIC

6G Wireless Channel Measurements and Models: Advances and Future Challenges

Abstract: For the design, performance evaluation, and test of wireless communication systems, understanding wireless channel characteristics through channel measurements and realistic wireless channel models with good accuracy-complexity-generality trade-off are indispensable. This talk starts with introducing the history of wireless channel models from 1G to 5G. Then, the 6G vision and enabling technologies will be presented, followed by introducing 6G channel model requirements coving all frequency bands and all scenarios with global coverage and full applications. We then propose a general 6G benchmark wireless channel model, demonstrating excellent agreements with available channel measurements in terms of key statistical properties. This talk will end with discussing future challenges of 6G wireless channel measurements and models.

BIOGRAPHY

Cheng-Xiang Wang received the BSc and MEng degrees in Communication and Information Systems from Shandong University, China, in 1997 and 2000, respectively, and the PhD degree in Wireless Communications from Aalborg University, Denmark, in 2004.

He was a Research Assistant with the Hamburg University of Technology, Hamburg, Germany, from 2000 to 2001, a Research Fellow with the University of Agder, Grimstad, Norway, from 2001 to 2005, and a Visiting Researcher with Siemens AG-Mobile Phones, Munich, Germany, in 2004. He has been with Heriot-Watt University, Edinburgh, U.K., since 2005, where he became a Professor in wireless communications in 2011. In 2018, he joined Southeast University, Nanjing, China, as a Professor. He is also a part-time professor with the Purple Mountain Laboratories, Nanjing, China. He has authored 4 books, 2 book chapters, and more than 400 papers in refereed journals and conference proceedings, including 24 ESI Highly Cited Papers. He has also delivered 20 invited Keynote Speeches/Talks and 7 tutorials in international conferences. His current research interests include wireless channel measurements/modeling, B5G wireless communication networks, and applying artificial intelligence to wireless communication networks.

Dr. Wang is a Member of the Academia Europaea (The Academy of Europe), a Fellow of the IEEE and IET, an IEEE Communications Society Distinguished Lecturer in 2019 and 2020, and a Highly-Cited Researcher recognized by Clarivate Analytics in 2017-2019. He is currently an Executive Editorial Committee Member of the IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS. He has served as an Editor or a Guest Editor for 16 international journals, including 6 IEEE journals. He has served as a TPC Member, a TPC Chair, and a General Chair for more than 80 international conferences. He received 11 Best Paper Awards from IEEE GLOBECOM 2010, IEEE ICCT 2011, ITST 2012, IEEE VTC 2013-Spring, IWCMC 2015, IWCMC 2016, IEEE/CIC ICCC 2016, WPMC 2016, WOCC 2019, and IWCMC 2020. Also, he received the "2020 AI 2000 Most Influential Scholar Award Honourable Mention" in recognition of his outstanding and vibrant contributions in the field of Internet of Things between 2009 and 2019.

09:00-10:50

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Meeting ID: 983 4074 0239

Industrial Panel:
Software Defined Wireless Communications – Architecture and Implementations

Info

Panel Chairman:
Dr John Glossner, Huaxia General Processor Technologies, China

Panel Members:
Dr. Xiaodong Zhang, Beijing Sylincom Technology Co. Ltd, China
Prof. Dr Jun Han, Fudan University, China
Prof. Dr Zhiyi Yu, Sun Yat-Sen University, China
Dr. Jun Yuan, Nanjing Mobile Communication & Computing innovation Institute of ICT, CAS, China

Brief Agenda

09:00	Opening Address
09:05	**Modern Heterogeneous Computing System Architecture (HSA)** by John Glossner, Chairman of HSA foundation, USA
09:40	**Spectrum sharing** by Lee Pucker, Chief Executive Officer of Wireless Innovation Forum, Canada
10:15	Panel discussions
10:35	End of Panel Session

11:00-12:30

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Meeting ID: 919 5072 4555

Session 31 | B5G-4

UAV-based Networks and IoV

Chair

Yinyu Li, Huazhong University of Science and Technology, China

ID	TITLE	AUTHORS
1570663920	A Multiple Base Station Cooperation Strategy for Downlink Transmission in Cellular and UAV Integrated Networks	Zhe Wang, Jun Zheng (Southeast University, China)
1570665320	Multi-UAV Aided Data Collection for Age Minimization in Wireless Sensor Networks	Chixiong Mao, Juan Liu, Lingfu Xie (Ningbo University, China)
1570662585	Direction Information Aided Precoding for Aeronautical Communication Systems	Songkang Huang, Lei Zhao and Ming Jiang (Sun Yat-sen University, China); Zichao Ji (vivo Mobile Communication Co., Ltd, China); Chenlu Zhang (Chongqing University of Posts and Telecommunications, China)
1570663680	UAV-UAV Communication Under Malicious Jamming: Trajectory Optimization with Turning Angle Constraint	Yang Wu, Weiwei Yang (PLA Army Engineering University, China); Xinrong Guan (Army Engineering University of PLA & Postdoctoral Station, Shenzhen Electric Appliance Company, China)
1570664758	Data-Driven Energy Efficient Predictive Resource Allocation in Internet of Vehicles	Na Xue, Haixia Zhang (Shandong University, China); Chuanting Zhang (King Abdullah University of Science and Technology, Saudi Arabia); Tiantian Li, Dongfeng Yuan (Shandong University, China)

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11:00-12:30

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Session 32 | ICBD-5

Learning-based Resource Allocation

Chair

Yuben Qu, Shanghai Jiao Tong University, China

ID	TITLE	AUTHORS
1570663812	Spectrum Allocation Based on Partially Overlapping and Bonded Channels: A Game-Theoretic Learning Approach	Yuli Zhang and Han Han (National Innovation Institute of Defense Technology, Academy of Military Sciences PLA China); Kailing Yao, Runfeng Chen (Army Engineering University of PLA, China); Tao Li, Jiajun Bai (National Innovation Institute of Defense Technology, Academy of Military Sciences PLA, China)
1570668353	User Selection Aware Joint Radio-And-Computing Resource Allocation for Federated Edge Learning	Yunjie Zuo, Yuan Liu (South China University of Technology, China)
1570663340	Distributed Joint Optimization of Deployment, Computation Offloading and Resource Allocation in Coalition-Based UAV Swarms	Kailing Yao, Yuhua Xu, Jin Chen, Yuping Gong, Yang Yang, Changhua Yao (Army Engineering University of PLA, China); Zhiyong Du (National University of Defence Technology, China)
1570665311	Joint Computation Offloading and Resource Allocation in UAV Swarms with Multi-Access Edge Computing	Wanning Liu, Yitao Xu (Army Engineering University of PLA, China); Nan Qi (Nanjing University of Aeronautics and Astronautics, China & KTH Royal Institute of Technology, Sweden); Kailing Yao, Yuli Zhang, Wenhui He (Amry Engineering University of PLA, China)
1570666126	Device Scheduling for Energy-Efficient Federated Learning over Wireless Network Based on TDMA Mode	Youqiang Hu, Hejiao Huang (Harbin Institute of Technology Shenzhen, China); Nuo Yu (Anhui Polytechnic University, China)

11:00-12:30

Meeting ID: 921 8942 6117

Session 33 | SPC-8

Signal Processing for Communications I

Chair

**Xiaoxu Zhang,
Southwest Jiaotong University, China**

ID	TITLE	AUTHORS
1570661247	Distributed Computational Imaging with Reconfigurable Intelligent Surface	Yang Tao, Zhaoyang Zhang (Zhejiang University, China)
1570659449	Capacity Enhancement for NOMA-Based Coordinated Direct and Relay Transmission	Yao Xu (Harbin Institute of Technology, China); Bo Li (Harbin Institute of Technology, Weihai, China); Gang Wang (Harbin Institute of Technology, China)
1570662466	Coverage Probability Analysis of Three-Tier Heterogeneous Networks Based on Poisson Cluster Process	Haixia Hu, Xiangdong Jia, Peiwen Ye, Yaping Lv, Yi Lu (Northwest Normal University, China)
1570669127	Spectrum Cartography Using the Variational Bayesian EM Algorithm	Guoyong Zhang, Jun Wang, Xiaonan Chen, Li Li, Shoqian Li (University of Electronic Science and Technology of China, China)
1570663541	LSTM-Based Frequency Hopping Sequence Prediction	Gao Li (Nanjing University of Aeronautics and Astronautics, China); Jianliang Xu, Weiguo Shen (No. 36 Research Institute of CETC, China); Wei Wang, Zitong Liu (Nanjing University of Aeronautics and Astronautics, China); Guoru Ding (Army Engineering University of PLA, China)

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11:00-12:30

Meeting ID: 979 3051 0603

Session 34 | WC-7

Communication Security

Chair

Qimei Cui, Beijing University of Posts and Telecommunications, China

ID	TITLE	AUTHORS
1570669261	Physical Layer Security in the Untrusted EH Relay Networks with the Cooperative Jammer	Hui Shi (Army Engineering University of PLA, China)
1570659735	Physical Layer Security of NOMA with Decode-and-Forward Relaying in Underlay CR Network	Mengyao Zhu, Zhen Yang (Nanjing University of Posts and Telecommunications, China); Youhong Feng (Anhui Normal University, China)
1570665285	Lightweight Security Mechanism Based on Heterogeneous Construction for Virtualized Edge System: A Markov Decision Process Approach	Qimei Cui, Changzheng Huang, Zengbao Zhu (Beijing University of Post and Telecommunication, China), Xueqing Huang (New York Institute of Technology, USA); Na Li, Xiaofeng Tao, Ping Zhang (Beijing University of Posts and Telecommunications, China)
1570660768	An Improved CQA Quantization Algorithm for Physical Layer Secret Key Extraction	Lei Huang, Dengke Guo, Jun Xiong, Dongtang Ma (National University of Defense Technology, China)
1570665338	Radio Frequency Fingerprint Based Wireless Transmitter Identification Against Malicious Attacker: An Adversarial Learning Approach	Hao Han, Li Cui, Wen Li, Luying Huang, Yuan Cai, Jihao Cai, Yuli Zhang (Army Engineering University of PLA, China)

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Meeting ID: 959 1267 4676

Session 35 | WC-8

Physical-Layer Transmission

Chair

Jiaheng Wang, Southeast University, China

ID	TITLE	AUTHORS
1570660609	Channel Estimation Method Based on Transformer in High Dynamic Environment	Fanglin Gu (National University of Defense Technology, China)
1570660623	Automatic Modulation Recognition Based on Multi-Dimensional Feature Extraction	Xiaodi Zhao (Hunan University, China); Xuanhan Zhou, Jun Xiong (National University of Defense Technology, China); Lin Wang (Hunan University, China)
1570661034	3D Beamspace Index Modulation with Adaptive Activation	Chu Zhou, Zhaoyang Zhang, Jue Wang, Xiaoxia Yu (Zhejiang University, China
1570663856	Joint Beamforming and Artificial Noise Design in Intelligent Reflecting Surface Aided Secure Wireless Communications	Liu Pei, Kai Zhang, Changchuan Yin (Beijing University of Posts and Telecommunications, China)
1570659795	On the Exact and Asymptotic Analysis of Wireless Transmission over a-μ/Inverse Gamma Composite Fading Channels	Xiaoting Wang, Weijun Cheng, Xianmeng Xu (Minzu University of China, China)

11:00-12:30

Meeting ID: 948 6674 4549

Session 36 | WNUS-5

UAV Systems and Networks

Chair

Chao Dong, Nanjing University of Aeronautics and Astronautics, China

ID	TITLE	AUTHORS
1570660363	Research on Dynamic Probability Mechanism of Rebroadcasting for UAV Swarm	Zhen Qin (Army Engineering University of PLA, China); Tingjun Du (Unit 78102 of PLA, China); Hai, Wang, Fei Xiong, Aijing Li, Yajie Chen (Army Enginnering University of PLA, China)
1570664390	Delay and Transmission Rate Analysis of Buffer-Aided UAV Networks for Emergency Communications	Y. Zhang, Guangping Lu, Jing Zhang (Huazhong University of Science and Technology, China)
1570667880	Uncertain Preference Matching-Based Relay Selection and Position Adjustment in Dynamic UAV Systems	Dianxiong Liu, Yang Yang, Yuhua Xu, Ximing Wang, Yifan Xu (Army Engineering University of PLA, China)
1570660468	Min-Max Path Planning of Multiple UAVs for Autonomous Inspection	JiaYue Liu, Yan Zhang (Xidian University, China); Xijun Wang (Sun Yat-sen University, China); Xiao Ma (Shaanxi Normal University, China)
1570664880	Stochastic Geometry Analysis of Three-Dimensional Aerial Ad Hoc Network with Directional Antennas	Lin Ge, Renhui Xu, Peng Laixian, Yaoqi Yang (Army Engineering University of PLA, China)

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Meeting ID: 919 5072 4555

Session 37 | B5G-5

Scheduling and Resource Management

Chair

Xin Wei, Nanjing University of Posts and Telecommunications, China

ID	TITLE	AUTHORS
1570660223	HARQ Based Joint Uplink-Downlink Optimal Scheduling Strategy for Single-Loop WNCS	Zuoyu An and Shaohua Wu (Harbin Institute of Technology, China); Ying Wang, Jian Jiao, Qinyu Zhang (Harbin Institute of Technology, Shenzhen, China)
1570668557	Delay Optimization Based on Improved Differential Evolutionary Algorithm for Task Offloading in Fog Computing Networks	Xujie Li and Guangzhao Zhang (Hohai University, China); Xuedong Zheng (Nanjing China-Spacenet Satellite Telecom Co. Ltd, China); Siyang Hua (Talent Science and Technology Co., Ltd, China)
1570668822	Energy Efficient Resource Allocation in NOMA-Sectored Heterogeneous Network	Lei Wang, Wen Tang, Ting Qi, JingWu Cui, Baoyu Zheng (Nanjing University of Posts and Telecommunications, China)
1570665102	Joint Network Function Deployment and Route Selection for Energy Consumption Optimization in SDN	Xizheng Yang, Rong Chai, Leilei Huang (Chongqing University of Posts and Telecommunications, China); Chengli Mei, Lei Zhang (China Telecom Technology Innovation Center, China)
1570665339	Optimizing Resource-Efficiency for Federated Edge Intelligence in IoT Networks	Yong Xiao, Yingyu Li (Huazhong University of Science and Technology, China); Guangming Shi (Xidian University, China); H. Vincent Poor (Princeton University, USA)

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14:00-15:30

Meeting ID: 983 4074 0239

Session 38 | ICBD-6

Big Data, Security and Privacy

Chair

Kefeng Guo,
Space Engineering University, China

ID	TITLE	AUTHORS
1570665040	From Decoupling to Reconstruction: A Robust Graph Neural Network Against Topology Attacks	Xiaodong Wei (University of Science and Technology of China, China); Yong Li (Tsinghua University, China); Xiaowei Qin, Xiaodong Xu, Ximin Li, Mengjie Liu (University of Science and Technology of China, China)
1570663009	Real Time Air Monitoring, Analysis and Prediction System Based on Internet of Things and LSTM	Wenhua Li, Lili Yi, Xiang Yin (Zibo City Xincunxilu 266, China)
1570664928	Traffic Flow Forecasting with Spatial-Temporal Graph Convolutional Networks in Edge-Computing Systems	Xianlu Xu, Haifeng Zheng, Xinxin Feng, Youjia Chen (Fuzhou University, China)
1570660746	Video Sensor Security System in IoT Based on Edge Computing	Shaolei Jin, Bin Sun, Yusun Zhou, Hongtuo Han, Qiang Li, Jin XinYu (Zhejiang University, China)
1570664673	Privacy is Not Free: Energy-Aware Federated Learning for Mobile and Edge Intelligence	Wenqi Yang, Yang Zhang (Wuhan University of Technology, China); Wei Yang Bryan Lim (Nanyang Technological University & Alibaba Group, Singapore); Zehui Xiong, Yutao Jiao (Nanyang Technological University, Singapore); Jiangming Jin (TuSimple, China)

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Meeting ID: 921 8942 6117

Session 39 | SPC-9

Signal Processing for Communications II

Chair

Dapeng Li, Nanjing University of Posts and Telecommunications, China

ID	TITLE	AUTHORS
1570664741	Data-Driven Adaptive Control of Array Orientation in Massive MIMO Base Station	Weiliang He, Cheng Zhang, Yongming Huang (Southeast University, China)
1570664500	Uplink Analysis of Cell-Free Massive MIMO System Combined with Index Modulation	Mouhua Huang, Kui Xu, Dongmei Zhang (Army Engineering University of PLA, China)
1570660360	NOMA in Cell-Free mMIMO Systems with AP Selection	Zhiming Wang, Dongmei Zhang, Kui Xu, Wei Xie, Jianhui Xv (Army Engineering University of PLA, China); Ximing Li (Bureau of Hydrological and Water Resources Survey, China)
1570663806	Digital Channel Feature Map Assisted Airborne MIMO Communications	Xiaochen Xia, Yurong Wang, Kui Xu, Wei Xie (Army Engineering University of PLA, China)
1570662065	Cross-Layer Data Driven Beam Selection for mmWave Vehicular Communications	Shichao Wang, Dapeng Li, Haitao Zhao, Xiaoming Wang (Nanjing University of Posts and Telecommunications & NONE, China)

14:00-15:30

Meeting ID: 979 3051 0603

Session 40 | WC-9

Multiple User Access

Chair

Caijun Zhong, Zhejiang University, China

ID	TITLE	AUTHORS
1570660969	Joint Time and Beam Domain Non-Orthogonal Multiple Access	Jiajia Wu, Zhaoyang Zhang, Jue Wang (Zhejiang University, China)
1570660247	Energy Harvesting Jammer Enabled Secure Communication for Cooperative NOMA Systems	Kunrui Cao (National University of Defense Technology & Air Force Engineering University, China); Buhong Wang (Air Force Engineering University, China); Haiyang Ding (National University of Defense Technology & Xidian University, China); Feng-Kui Gong (Xidian University, China); Hang Hu, Jiwei Tian, Tianhao Cheng (Air Force Engineering University, China)
1570665084	Switching Time Optimization for Time-Division Multiplexing-Based Wide-Band Channel Sounding	Jiayi Hu, Xuefeng Yin (Tongji University, China); Linjian Zhang (Huawei Technologies Co. Ltd., Shanghai, China)
1570664848	Deep Learning-Based Joint Activity Detection and Channel Estimation for Massive Access: When More Antennas Meet Fewer Pilots	Xiaodan Shao, Xiaoming Chen (Zhejiang University, China); Derrick Wing Kwan Ng (University of New South Wales, Australia); Caijun Zhong, Zhaoyang Zhang (Zhejiang University, China)
1570659661	DGPA-ACB: Adaptive RAN Overload Avoidance Control for mMTC in 5G NR	Yue Tu, Rongtao Xu (Beijing Jiaotong University, China)

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Meeting ID: 959 1267 4676

Session 41 | WC-10

Network Control and Optimization

Chair

Lianghui Ding,
Shanghai Jiao Tong University, China

ID	TITLE	AUTHORS
1570671254	A Fairness-Oriented Carrier Selection Algorithm for LTE-U and WiFi Coexistence Networks	Jiaxin Tang, Jun Zheng (Southeast University, China)
1570660076	Device-To-Device Content Placement and Delivery Exploiting Joint Matching and Auction Theories	Xiaojing Huang, Fengxia She, Kuan Wu, Ming Jiang (Sun Yat-sen University, China)
1570664418	LoRa Network Planning Based on Improved ISODATA Algorithm	Yiqing Jin, Lianghui Ding, Feng Yang, Liang Qian, Cheng Zhi (Shanghai Jiao Tong University, China)
1570668742	Low Complexity ICI Mitigation in OFDM Based RadCom Systems	Qing Zhou, Xuanxuan Tian, Tingting Zhang (Harbin Institute of Technology, Shenzhen, China)
1570665324	Worst Case Latency Optimization-Based Joint Computation Offloading and Scheduling for Interdependent Subtasks	Tiantian Yang, Rong Chai, Zhang Liping, Qianbin Chen (Chongqing University of Posts and Telecommunications, China)

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23 10

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Meeting ID: 948 6674 4549

Session 42 | WNUS-6

Wireless Communication and Networks

Chair

Qiong Wu, Jiangnan University, China

ID	TITLE	AUTHORS
1570663825	Realization of Reconfigurable Intelligent Surface-Based Alamouti Space-Time Transmission	Wankai Tang, Jun Yan Dai, Ming Zheng Chen, Yu Han, Xiao Li (Southeast University, China), Chao-Kai Wen (National Sun Yat-sen University, Taiwan), Shi Jin, Qiang Cheng, Tie Jun Cui (Southeast University, China)
1570665114	Change the Pattern: Exploring Sensing-Communication in Wireless Networks	Siyang Liu (Shanghai Jiaotong University, China); Tingting Yang (Dongguan University of Technology, China); Xiaoying Gan (Shanghai Jiaotong University, China); Minghua Xia (Sun Yat-sen University, China)
1570663718	The Implementation of Asynchronous Advantage Actor-Critic with Stigmergy in Network-Assisted Multi-Agent System	Kun Chen, Rongpeng Li (Zhejiang University, China); Zhifeng Zhao (Zhejiang Lab., China); Honggang Zhang (Zhejiang University & Université Européenne de Bretagne (UEB) and Supelec, China)
1570664496	Learning-Based Safety-Stability-Driven Control for Safety-Critical Systems Under Model Uncertainties	Lei Zheng, Rui Yang, Jiesen Pan, Hui Cheng, Haifeng Hu (Sun Yat-sen University, China)
1570668712	Networked Robotic System Simulation Platform: Hardware-In-The-Loop Architecture, Enabling Technologies and Implementations	Han Han (National Innovation Institute of Defense Technology, China); Wei Gao and Honglei Yan (Tianjin Artificial Intelligence Innovation Center, China); Jiajun Bai, Jun Cai, Xiaolei Wang, Bo Zhang, Jinlin Peng (National Innovation Institute of Defense Technology, China); Xiaodong Yi, Yuhua Tang (National University of Defense Technology, China)