

Shaodan Ma

Ph.D., M.Eng., B.Sc., B.Econ.

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1. GENERAL INFORMATION

1.1 Professional Experience

- **Professor** (Aug. 2021 ~ present):
Department of Electrical and Computer Engineering
Faculty of Science and Technology, **University of Macau (UM)**
- **Associate Director** (July 2023 ~ present):
State Key Laboratory of Internet of Things for Smart City
University of Macau (UM)
- **Assistant Director** (May 2020 ~ June 2023):
State Key Laboratory of Internet of Things for Smart City
University of Macau (UM)
- **Associate Professor** (Aug. 2015 ~ Aug. 2021):
Department of Electrical and Computer Engineering,
Faculty of Science and Technology, **University of Macau (UM)**
- **Assistant Professor** (Aug. 2011 ~ Aug. 2015):
Department of Electrical and Computer Engineering
Faculty of Science and Technology, **University of Macau (UM)**
- **Honorary Assistant Professor** (Oct. 2011 ~ Aug. 2015):
Department of Electrical and Electronic Engineering, **University of Hong Kong (HKU)**
- **Visiting Scholar** (Mar. 2010 ~ Aug. 2010):
Department of Electrical Engineering, **Princeton University**
Host: Professor H. Vincent Poor
- **Post-Doctoral Fellow** (Sep. 2006 ~ Aug. 2011):
Department of Electrical and Electronic Engineering, **University of Hong Kong**

1.2 Academic Background

- **Doctor of Philosophy** (Sep. 2002 ~ Aug. 2006):
Department of Electrical and Electronic Engineering, **The University of Hong Kong, Hong Kong**
- **Master of Engineering** (Sep. 1999 ~ July 2002):
Department of Electronic Engineering, **Nankai University, Tianjin, China**
- **Bachelor of Science** (Sep. 1995 ~ July 1999):
Department of Electronic Engineering, **Nankai University, Tianjin, China**

- **Bachelor of Economics** (Sep. 1995 ~ July 1999):
Department of Finance, **Nankai University, Tianjin, China**

1.3 Awards

- **Best Paper Award**, *IEEE/CIC International Conference on Communications in China (ICCC)*, 2023
- **Research Excellence Award**, *Faculty of Science and Technology, University of Macau*, 2022/2023
- **Macao Science and Technology Award (3rd prize, Natural Science Award)**, 2022
- **Outstanding Research Award**, *Faculty of Science and Technology, University of Macau*, 2019, 2021
- **Top Editor Award**, *IEEE Wireless Communications Letters*, 2018
- **Best Paper Award**, *IEEE International Conference on Communication Systems*, 2014
- **Best Paper Award**, *2012 International Conference on Wireless Communications and Signal Processing (WCSP 2012)*

2. RESEARCH AND PUBLICATIONS

2.1 Current Research Interests

Signal processing and wireless communications, particularly, array signal processing, transceiver design, localization, integrated sensing and communication, mmwave communications, massive MIMO, and machine learning for communications

2.2 Selected Publications

Published/Accepted journal articles in the past three years:

- [1] Jun Zhang, Xiaojun Huang, Yu Han, Kaizhe Xu, Shi Jin, and **Shaodan Ma**, "Transmission Design for Hybrid RIS and DMA Assisted MIMO Multiple-Access Channel over Spatially Correlated Rician Fading", accepted by *IEEE Transactions on Communications*
- [2] Chi Qiu, Meng Hua, Qingqing Wu, Wen Chen, **Shaodan Ma**, Fen Hou, Derrick Wing Kwan Ng, and A. Lee Swindlehurst, "Intelligent Reflecting Surface Empowered Self-Interference Cancellation in Full-Duplex Systems", accepted by *IEEE Transactions on Communications*
- [3] Yapeng Zhao, Qingqing Wu, Guangji Chen, Wen Chen, Ruiqi Liu, Mingmin Zhao, **Shaodan Ma**, and Yuan Wu, "Intelligent Reflecting Surface Aided Multi-Tier Hybrid Computing", accepted by *IEEE Journal of Selected Topics in Signal Processing*
- [4] Qing Xue, Hao Xia, Jiajun Mu, **Shaodan Ma**, Yongjun Xu, and Li Yan, "User-Centric Association for Dense mmWave Communication Systems with Multi-Connectivity", accepted by *IEEE Transactions on Green Communications and Networking*
- [5] Xi Yang, Fuqiang Zhu, Binggui Zhou, Ting Liu and **Shaodan Ma**, "Gridless Hybrid-Field Channel Estimation for Extra-Large Aperture Array Massive MIMO Systems", accepted by *IEEE Wireless Communications Letters*
- [6] Binggui Zhou, Xi Yang, **Shaodan Ma**, Feifei Gao and Guanghua Yang, "Pay Less But Get More: A Dual-Attention-based Channel Estimation Network for Massive MIMO Systems with Low-Density Pilots", accepted by *IEEE Transactions on Wireless Communications*
- [7] Pingping Zhang, Shiqi Gong and **Shaodan Ma**, "Double-RIS Aided Multi-user MIMO Communications: Common Reflection Pattern and Joint Beamforming Design", accepted by *IEEE Transactions on Vehicular Technology*
- [8] Linlin Zhao, Xuefen Chi and **Shaodan Ma**, "Delay-QoS-Aware Local-Information-Driven Multiple Access for MTC Networks", accepted by *IEEE Transactions on Mobile Computing*

- [9] Ziyang Song, Zheng Shi, Jiaji Su, Qingping Dou, Guanghua Yang, Haichuan Ding, and **Shaodan Ma**, "Performance Analysis and Optimal Design of HARQ-IR-Aided Terahertz Communications", accepted by *IEEE Transactions on Vehicular Technology*
- [10] Binggui Zhou, Guanghua Yang, Zheng Shi, and **Shaodan Ma**, "Natural Language Processing for Smart Healthcare", accepted by *IEEE Reviews in Biomedical Engineering*
- [11] Xi Yang, **Shaodan Ma**, and Shi Jin, "Antenna Selection for Asymmetrical Uplink and Downlink Transceivers in Massive MIMO Systems", *IEEE Transactions on Wireless Communications*, vol. 22 (12), pp. 9218-9232, Dec. 2023
- [12] Jintao Wang, Shiqi Gong, Qingqing Wu, and **Shaodan Ma**, "RIS-Aided MIMO Systems with Hardware Impairments: Robust Beamforming Design and Analysis", *IEEE Transactions on Wireless Communications*, vol. 22 (10), pp. 6914-6929, Oct. 2023
- [13] Qing Xue, Renlong Wei, **Shaodan Ma** and Yongjun Xu, "Multi-user mmWave Uplink Communications based on Collaborative Double-RIS: Joint Beamforming and Power Control", *IEEE Communications Letters*, vol. 27 (10), pp. 2702-2706, Oct. 2023
- [14] Da Wu, Jiahui Feng, Zheng Shi, Hongjiang Lei, Guanghua Yang, and **Shaodan Ma**, "Deep Reinforcement Learning Empowered Rate Selection of XP-HARQ", *IEEE Communications Letters*, vol. 27 (9), pp. 2363-2367, Sep. 2023
- [15] Qiaoyan Peng, Guangji Chen, Qingqing Wu, Ruiqi Liu, **Shaodan Ma**, and Wen Chen, "Hybrid Active-Passive IRS Assisted Energy-Efficient Wireless Communication", *IEEE Communications Letters*, vol. 27 (8), pp. 2202-2206, Aug. 2023
- [16] Huan Zhang, **Shaodan Ma**, Zheng Shi, Xin Zhao and Guanghua Yang, "Sum-Rate Maximization of RIS-Aided Multi-User MIMO Systems with Statistical CSI", *IEEE Transactions on Wireless Communications*, vol. 22(7), pp. 4788-4801, July 2023
- [17] Feifei Gao, Liangyuan Xu, and **Shaodan Ma**, "Integrated Sensing and Communications with Joint Beam-Squint and Beam-Split for mmWave/THz Massive MIMO", *IEEE Transactions on Communications*, vol. 71(5), pp. 2963-2976, May 2023
- [18] Linlin Zhao, **Shaodan Ma**, Wanzhong Chen, and Fengye Hu, "Semi-Probabilistic Repetition Schemes for Sporadic URLLC Traffic in Multiuser Massive MIMO Systems", *IEEE Transactions on Communications*, vol. 71(4), pp. 2104-2120, Apr. 2023
- [19] Jiawen Yuan, Gong Zhang, Henry Leung, and **Shaodan Ma**, "Off-grid DOA Estimation for Noncircular Signals via Block Sparse Representation using Extended Transformed Nested Array", *IEEE Signal Processing Letters*, vol. 30, pp. 130-134, 2023
- [20] Meng Hua, Qingqing Wu, Chong He, **Shaodan Ma**, and Wen Chen, "Joint Active and Passive Beamforming Design for IRS-Aided Radar-Communication", *IEEE Transactions on Wireless Communications*, vol. 22(4), pp. 2278-2294, Apr. 2023
- [21] Zheng Shi, Hong Wang, Yaru Fu, Xinrong Ye, Guanghua Yang, and **Shaodan Ma**, "Outage Performance and AoI Minimization of HARQ-IR-RIS Aided IoT Networks", *IEEE Transactions on Communications*, vol. 71 (3), pp. 1740-1754, Mar. 2023
- [22] Qing Xue, Yijing Liu, Yao Sun, Jian Wang, Li Yan, Gang Feng, and **Shaodan Ma**, "Beam Management in Ultra-dense mmWave Network via Federated Reinforcement Learning: An Intelligent and Secure Approach", *IEEE Transactions on Cognitive Communications and Networking*, vol. 9(1), pp. 185-197, Feb. 2023
- [23] Liangyuan Xu, Feifei Gao, Ting Zhou, **Shaodan Ma** and Wei Zhang, "Joint Channel Estimation and Mixed-ADCs Allocation for Massive MIMO via Deep Learning", *IEEE Transactions on Wireless Communications*, vol. 22(2), pp. 1029-1043, Feb. 2023
- [24] Tianyu Liu, Guangchi Zhang, Miao Cui, Changsheng You, Qingqing Wu, **Shaodan Ma**, and Wei Chen, "Task Completion Time Minimization for UAV-Enabled Data Collection in Rician Fading Channels", *IEEE Internet of Things Journal*, vol. 10(2), pp. 1134-1148, Jan. 2023
- [25] Shiqi Gong, Jintao Wang, Xin Zhao, **Shaodan Ma**, and Chengwen Xing, "A Framework for Hardware

- Impairments Aware Multi-Antenna Transceiver Design in IoT Systems via Majorization-Minimization", *IEEE Internet of Things Journal*, vol. 10(1), pp. 417-433, Jan. 2023
- [26] Kaitao Meng, Qingqing Wu, **Shaodan Ma**, Wen Chen, Kunlun Wang and Jun Li, "Throughput Maximization for UAV-enabled Integrated Periodic Sensing and Communication", *IEEE Transactions on Wireless Communications*, vol. 22(1), pp. 671-687, Jan. 2023
- [27] Weiqiang Tan and **Shaodan Ma**, "Antenna Array Topologies for mmWave Massive MIMO Systems: Spectral Efficiency Analysis", *IEEE Transactions on Vehicular Technology*, vol. 71(12), pp. 12901-12915, Dec. 2022
- [28] Xianda Wu, **Shaodan Ma**, Xi Yang and Guanghua Yang, "Clustered Sparse Bayesian Learning Based Channel Estimation for Millimeter-Wave Massive MIMO Systems", *IEEE Transactions on Vehicular Technology*, vol. 71(12), pp. 12749-12764, Dec. 2022
- [29] Linlin Zhao, **Shaodan Ma**, Wanzhong Chen, and Fengye Hu, "Optimal Probabilistic Repetition for Massive MIMO-aided Grant-free Short-packet Transmissions", *IEEE Transactions on Vehicular Technology*, vol. 71(11), pp. 12407-12412, Nov. 2022
- [30] Chengzhi Ma, Huan Zhang, Xi Yang and **Shaodan Ma**, "Massive MIMO Empowered Wireless Powered Sensor Networks: An Optimal Design with Statistical CSI", *IEEE Wireless Communications Letters*, vol. 11(10), pp. 2105-2109, Oct. 2022
- [31] Liang Xiao, Hongyan Li, Shi Yu, Yi Zhang, Li-Chun Wang, and **Shaodan Ma**, "Reinforcement Learning Based Network Coding for Drone-Aided Secure Wireless Communications", *IEEE Transactions on Communications*, vol. 70(9), pp. 5975-5988, Sep. 2022
- [32] Yunxuan Dong, **Shaodan Ma**, Hongcai Zhang and Guanghua Yang, "Wind Power Prediction Based on Multi-class Autoregressive Moving Average Model with Logistic Function", *Journal of Modern Power Systems and Clean Energy*, vol. 10(5), pp. 1184-1193, Sep. 2022
- [33] Jiahui Feng, Zheng Shi, Guanghua Yang, Nikolaos I. Miridakis, **Shaodan Ma**, and Theodoros A. Tsiftsis, "Outage Performance of Cross-Packet HARQ", *IEEE Wireless Communications Letters*, vol. 11(7), pp. 1423-1427, July 2022
- [34] Kaitao Meng, Qingqing Wu, **Shaodan Ma**, Wen Chen, and Tony Q. S. Quek, "UAV Trajectory and Beamforming Optimization for Integrated Periodic Sensing and Communication", *IEEE Wireless Communications Letters*, vol. 11(6), pp. 1211-1215, June 2022
- [35] Kaizhe Xu, Shiqi Gong, Miao Cui, Guangchi Zhang, and **Shaodan Ma**, "Statistically Robust Transceiver Design for Multi-RIS Assisted Multi-user MIMO Systems", *IEEE Communications Letters*, vol. 26(6), pp. 1428-1432, June 2022
- [36] Shiqi Gong, **Shaodan Ma**, Ziyi Yang, Chengwen Xing, and Jianping An, "Throughput Maximization for Asynchronous RIS-Aided Hybrid Powered Communication Networks", *IEEE Transactions on Wireless Communications*, vol. 21(6), pp. 4114-4132, June 2022
- [37] Binggui Zhou, Guanghua Yang, Zheng Shi, and **Shaodan Ma**, "Interpretable Temporal Attention Network for COVID-19 Forecasting", *Applied Soft Computing*, vol. 120, May 2022
- [38] Xin Zhao, Kaizhe Xu, **Shaodan Ma**, Shiqi Gong, Guanghua Yang and Chengwen Xing, "Joint Transceiver Optimization for IRS-Aided MIMO Communications", *IEEE Transactions on Communications*, vol. 70(5), pp. 3467-1482, May 2022
- [39] Huan Zhang, Zhengtao Liao, Zheng Shi, Guanghua Yang, Qingping Dou, and **Shaodan Ma**, "Performance Analysis of MIMO-HARQ Assisted V2V Communications with Keyhole Effect", *IEEE Transactions on Communications*, vol. 70(5), pp. 3034-3046, May 2022
- [40] Zheng Shi, Huan Zhang, Hong Wang, Yaru Fu, Guanghua Yang, Xinrong Ye, and **Shaodan Ma**, "Block Error Rate Analysis of Short-Packet Mobile-to-Mobile Communications over Correlated Cascaded Fading Channels", *IEEE Transactions on Vehicular Technology*, vol. 71(4), pp. 4087-4101, April 2022
- [41] Guangchi Zhang, Xiaoqi Ou, Miao Cui, Qingqing Wu, **Shaodan Ma**, and Wei Chen, "Cooperative UAV Enabled Relaying Systems: Joint Trajectory and Transmit Power Optimization", *IEEE Transactions on Green Communications and Networking*, vol. 6(1), pp. 543-557, Mar. 2022

- [42] Linlin Zhao, Shaoshi Yang, Xuefen Chi, Wanzhong Chen and **Shaodan Ma**, "Achieving Energy-Efficient Uplink URLLC with MIMO-Aided Grant-Free Access", *IEEE Transactions on Wireless Communications*, vol. 21(2), pp. 1407-1420, Feb. 2022
- [43] Zheng Shi, Hong Wang, Yaru Fu, Guanghua Yang, **Shaodan Ma**, and Feifei Gao, "Outage Analysis of Reconfigurable Intelligent Surface Aided MIMO Communications with Statistical CSI", *IEEE Transactions on Wireless Communications*, vol. 21(2), pp. 823-839, Feb. 2022
- [44] Xianda Wu, Xi Yang, **Shaodan Ma**, Binggui Zhou, and Guanghua Yang, "Hybrid Channel Estimation for UPA-Assisted Millimeter-Wave Massive MIMO IoT Systems", *IEEE Internet of Things Journal*, vol. 9(4), pp. 2829-2842, Feb. 15, 2022
- [45] Xiaohong Chen, Changxing Deng, Binggui Zhou, Huan Zhang, Guanghua Yang, and **Shaodan Ma**, "High-Accuracy CSI Feedback with Super-Resolution Network for Massive MIMO Systems", *IEEE Wireless Communications Letters*, vol. 11(1), pp. 141-145, Jan. 2022
- [46] Weiqiang Tan, Xi Yang and **Shaodan Ma**, "Spectral Efficiency of Massive MIMO with LMMSE Receivers under Finite Dimensional Channel", *IEEE Wireless Communications Letters*, vol. 11(1), pp. 18-22, Jan. 2022
- [47] Kaizhe Xu, Jun Zhang, Xi Yang, **Shaodan Ma** and Guanghua Yang, "On the Sum-Rate of RIS-Assisted MIMO Multiple-Access Channels over Spatially Correlated Rician Fading", *IEEE Transactions on Communications*, vol. 69(12), pp. 8228-8241, Dec. 2021
- [48] Qing Xue, Yao Sun, Jian Wang, Gang Feng, Li Yan, and **Shaodan Ma**, "User-centric Association in Ultra-dense mmWave Networks via Deep Reinforcement Learning", *IEEE Communications Letters*, vol. 25(11), pp. 3594-3598, Nov. 2021
- [49] Zheng Shi, Hong Wang, Yaru Fu, Guanghua Yang, **Shaodan Ma**, and Xinrong Ye, "Outage Performance and Optimal Design of MIMO-NOMA Enhanced Small Cell Networks with Imperfect Channel-State Information", *China Communications*, pp. 107-128, Oct. 2021
- [50] Yunfei Li, **Shaodan Ma**, and Guanghua Yang, "Robust Localization with Distance-Dependent Noise and Sensor Location Uncertainty", *IEEE Wireless Communications Letters*, vol. 10(9), pp. 1876-1880, Sep. 2021
- [51] Jun Zhang, Jie Liu, **Shaodan Ma**, Chao-Kai Wen and Shi Jin, "Large System Achievable Rate Analysis of RIS-Assisted MIMO Wireless Communication with Statistical CSIT", *IEEE Transactions on Wireless Communications*, vol. 20(9), pp. 5572-5585, Sep. 2021
- [52] Shiqi Gong, Chengwen Xing, Xin Zhao, **Shaodan Ma**, and Jianping An, "Unified IRS-Aided MIMO Transceiver Designs via Majorization Theory", *IEEE Transactions on Signal Processing*, vol. 69, pp. 3016-3032, 2021
- [53] Yunfei Li, **Shaodan Ma**, Guanghua Yang and Kai-Kit Wong, "Secure Localization and Velocity Estimation in Mobile IoT Networks with Malicious Attacks", *IEEE Internet of Things Journal*, vol. 8(8), pp. 6878-6892, April 15, 2021
- [54] Huan Zhang, Junjuan Feng, Zheng Shi, **Shaodan Ma** and Guanghua Yang, "Rate Maximization of Wireless Powered Cognitive Massive MIMO Systems", *IEEE Internet of Things Journal*, vol. 8(7), pp. 5632-5644, April 1, 2021
- [55] Chengwen Xing, Shuai Wang, Sheng Chen, **Shaodan Ma**, H. Vincent Poor and Lajos Hanzo, "Matrix-Monotonic Optimization – Part II: Multi-Variate Optimization", *IEEE Transactions on Signal Processing*, vol. 69, pp. 179-194, 2021
- [56] Chengwen Xing, Shuai Wang, Sheng Chen, **Shaodan Ma**, H. Vincent Poor and Lajos Hanzo, "Matrix-Monotonic Optimization – Part I: Single-Variate Optimization", *IEEE Transactions on Signal Processing*, vol. 69, pp. 738-754, 2021
- [57] Guanghua Yang, Huan Zhang, Zheng Shi, **Shaodan Ma** and Hong Wang, "Asymptotic Outage Analysis of Spatially Correlated Rayleigh MIMO Channels", *IEEE Transactions on Broadcasting*, vol. 67(1), pp. 263-278, Mar. 2021
- [58] Liangyuan Xu, Cheng Qian, Feifei Gao, Wei Zhang, and **Shaodan Ma**, "Angular Domain Channel Estimation for mmWave Massive MIMO With One-Bit ADCs/DACs", *IEEE Transactions on Wireless Communications*, vol. 20(2), pp. 969-982, Feb. 2021

Conference papers in the past three years:

- [1] Changxing Deng, Ao Luo, Haibin Huang, **Shaodan Ma**, Jiangyu Liu and Shuaicheng Liu, "Explicit Motion Disentangling for Efficient Optical Flow Estimation", accepted by 2023 IEEE/CVF International Conference on Computer Vision (ICCV), 2-6 October, 2023, Paris, France
- [2] Jintao Wang, Chengwang Ji, Jiajia Guo, and **Shaodan Ma**, "Demo: Reconfigurable Distributed Antennas and Reflecting Surface (RDARS)-aided Integrated Sensing and Communication System", Proceedings of 2023 IEEE/CIC International Conference on Communications in China (ICCC), 10-12 August 2023, Dalian, China
- [3] Yi Chen, Zheng Shi, Hong Wang, Yaru Fu, Guanghua Yang, **Shaodan Ma**, Haichuan Ding, "Graph Convolutional Network Enabled Power-Constrained HARQ Strategy for URLLC", Proceedings of 2023 IEEE/CIC International Conference on Communications in China (ICCC), 10-12 August 2023, Dalian, China
- [4] Xiaojun Huang, Jun Zhang, Yu Han, Kaizhe Xu, Shi Jin and **Shaodan Ma**, "Statistical CSI-Based Transmission Design for RIS and DMA Assisted MIMO Communication System", Proceedings of 2023 IEEE/CIC International Conference on Communications in China (ICCC), 10-12 August 2023, Dalian, China
- [5] Huan Zhang, Zhengtao Liao, Zheng Shi, Guanghua Yang, Qingping Dou, and **Shaodan Ma**, "Outage Performance Analysis of Type-I HARQ Aided V2V Communications", Proceedings of 2022 IEEE/CIC International Conference on Communications in China (ICCC), 11-13 August 2022, Foshan City, China
- [6] Jian Wang, Qing Xue, Yao Sun, Gang Feng, Lun Tang, and **Shaodan Ma**, "Beam Management in Ultra-dense Millimeter Wave Network via Federated Learning", Proceedings of 2021 IEEE Global Communications Conference (GlobeCom'2021), 7-11 Dec., 2021, Madrid, Spain
- [7] Weihua Xu, Feifei Gao, Jianhua Zhang, Xiaoming Tao, Ahmed Alkhateeb and **Shaodan Ma**, "Deep Learning Based Channel Covariance Matrix Estimation with Scene Images", Proceedings of 2021 IEEE/CIC International Conference on Communications in China (ICCC), 28-30 July, 2021, Xiamen, China
- [8] Qi Cao, Huan Zhang, Zheng Shi, Hong Wang, Yaru Fu, Guanghua Yang, and **Shaodan Ma**, "Outage Performance Analysis of HARQ-Aided Multi-RIS Systems", Proceedings of 2021 IEEE Wireless Communications and Networking Conference (WCNC), 29 March – 1 April, 2021, Nanjing, China
- [9] Huan Zhang, Guanghua Yang, Zheng Shi, **Shaodan Ma** and Hong Wang, "Outage Performance Analysis of Full-Correlated Rayleigh MIMO Channels", Proceedings of 2020 IEEE/CIC International Conference on Communications in China (ICCC), 9-11 August, 2020, Virtual Conference
- [10] Jun Zhang, Jie Liu, **Shaodan Ma**, Chao-Kai Wen and Shi Jin, "Transmitter Design for Large Intelligent Surface-Assisted MIMO Wireless Communication with Statistical CSI", accepted by 2020 IEEE International Conference on Communications (ICC) Workshop - Scalable Massive MIMO Technologies for beyond 5G, 7-11 June 2020, Dublin, Ireland
- [11] Jie Chen, Lin Zhang, Ying-Chang Liang, and **Shaodan Ma**, "Effective-Throughput Maximization for Multicarrier NOMA in Short-Packet Communications", Proceedings of 2019 IEEE Global Communications Conference (GlobeCom'2019), Dec 9-13, 2019, Waikoloa, HI, USA
- [12] Zheng Shi, Chenmeng Zhang, Yaru Fu, Hong Wang, Guanghua Yang and **Shaodan Ma**, "Diversity Analysis of HARQ-CC-Aided NOMA", Proceedings of 2019 IEEE Global Communications Conference (GlobeCom'2019), Dec 9-13, 2019, Waikoloa, HI, USA
- [13] Zheng Shi, Theodoros Tsiftsis, Weiqiang Tan, Guanghua Yang, **Shaodan Ma** and Mohamed-Slim Alouini, "Effective Capacity Analysis for VR-HARQ Systems", Proceedings of The 8th IEEE/CIC International Conference on Communications in China (ICCC2019), 11-13 August, 2019, Changchun, China

3. TEACHING

3.1 Courses Taught:

- [1]. ECEN3012 / ECEB359, **Principles of Communication Systems**, UG course
- [2]. GEST1012 / GEST016 / ELEC111, **Electricity and Life**, UG course

- [3]. ECEN7011 / ELEC713, **Advanced Topics in Telecommunications, PG course**
- [4]. ECEB362, **Cellular Communication Network Design and Optimization, UG course**

3.2 *Student Supervision*

• **PhD Student Supervision**

- [1]. Songyi Cao (Sep. 2023 – present), on-going
Research topic: Integrated sensing and communication
- [2]. Chengwang Ji (Sep. 2022 – present), on-going
Research topic: AI-aided communications
- [3]. Binggui Zhou (Sep. 2021 – present), on-going
Research topic: AI-aided communications
- [4]. Pingping Zhang (Sep. 2021 – present), on-going
Research topic: Integrated sensing and communication
- [5]. Chengzhi Ma (Sep. 2020 – present), on-going
Research topic: Millimeter wave communications
- [6]. Jintao Wang (Sep. 2020 – present), on-going
Research topic: Simultaneously wireless information and power transfer
- [7]. Kaizhe Xu (Sep. 2019 – Aug. 2023), graduated, Assistant Professor in Xi'an Jiaotong-Liverpool University
Thesis: Transceiver Design for RIS-assisted MIMO Systems
- [8]. Yunxuan Dong (Sep. 2018 – Dec. 2022), graduated, Assistant Professor in Guangxi University
Thesis: Wind Power Forecasting: Model Optimization and Feature Learning
- [9]. Huan Zhang (Sep. 2017 – Apr. 2022), graduated, Senior Engineer in Xiaomi
Thesis: Performance Analysis and Optimal Design for Spatially Correlated Massive MIMO Systems
- [10]. Xianda Wu (Sep. 2016 – July 2021), graduated, Associate Professor in South China Normal University
Thesis: Low Complexity Channel Estimation for Millimeter-Wave Massive MIMO Communication Systems
- [11]. Yunfei Li (Jan. 2016 – April 2021), graduated, Associate Professor in Anhui Polytechnic University
Thesis: Robust and Secure Localization in Harsh Mobile Environments
- [12]. Junjuan Feng (Sep. 2014 – Mar. 2019), graduated, Post-Doctoral Fellow in Queen's University Belfast, UK
Thesis: Analysis of Two-Way Massive MIMO Relaying Systems with Spatial Correlation and Hardware Impairments
- [13]. Zheng Shi (Sep. 2013 – July 2017, Co-supervisor), graduated, Associate Professor in Jinan University, China
Thesis: Analysis of HARQ-IR over Time Correlated Fading Channels

• **Master Student Supervision**

- [1]. Kehui Li (Sep. 2022 – present), on-going
Research topic: Wireless localization
- [2]. Changxing Deng (Sep. 2020 – Aug. 2023), graduated, Senior engineering in ZTE
Research topic: Smart sensing
- [3]. Xiaohong Chen (Sep. 2019 – Aug. 2022), graduated
Thesis: High-Accuracy CSI Feedback for Massive MIMO Systems
- [4]. Binggui Zhou (Sep. 2018 – Aug. 2021), graduated
Thesis: Interpretable Multivariate Learning for Time Series Forecasting
- [5]. Nan Lin (Sep. 2017 – Jan. 2021), graduated
Thesis: Multi-head Attention Neural Networks for Nonintrusive Load Monitoring

- [6]. Yuanmeng Zhang (Sep. 2016 – July 2019), graduated
Thesis: Non-intrusive Load Monitoring based on Convolutional Neural Network with Differential Input
- [7]. Kaichen Guo (Sep. 2014 – July 2017), graduated
Thesis: Passive Localization in Quasi-Synchronous Sensor Networks with Sensor Uncertainty and Non-Line-of-Sight Measurements
- [8]. Nanmiao Wu (Sep. 2013 – July 2016), graduated
Thesis: Robust beamforming design for relay systems
- [9]. Xuanxuan Yang (Sep. 2011 – Aug. 2014), graduated
Thesis: Performance analysis of HARQ schemes operating over time correlated fading channels
- [10]. Yuan Wang (Sep. 2011 – Aug. 2014), graduated
Thesis: Passive localization in quasi-synchronous sensor networks
- [11]. Binkai Ou (Sep. 2011 – Aug. 2013, Co-supervisor), graduated
Thesis: Design of a mobile RFID reader system with closely placed array and its application to segway vehicle

- **Postdoctoral Fellows**

- [1]. Dr. Jiajia Guo (April 2023– present), on-going
- [2]. Dr. Qian Wan (May 2022– present), on-going
- [3]. Dr. Qing Xue (Dec. 2021– Nov. 2023), Assistant Professor in Chongqing University of Posts and Telecommunications
- [4]. Dr. Shiqi Gong (Jan. 2021 – Aug. 2022), Associate Professor in Beijing Institute of Technology
- [5]. Dr. Xi Yang (July 2020 – July 2022), Professor in East China Normal University
- [6]. Dr. Linlin Zhao (Dec. 2019 – Dec. 2021), Associate Professor in Jilin University
- [7]. Dr. Weiqiang Tan (Nov. 2019 – Nov. 2021), Associate Professor in Guangzhou University

4. PROFESSIONAL SERVICES

- **Academic Services**

- [1] **Distinguished Lecturer**, IEEE Communications Society (ComSoc), 2024 – 2025
- [2] **Editor**, *IEEE Wireless Communications*, 2024 – present
- [3] **Editor**, *IEEE Communications Letters*, 2023
- [4] **Editor**, *Journal of Communications and Information Networks*, 2021 – present
- [5] **Editor**, *IEEE Transactions on Wireless Communications*, 2018 – 2023
- [6] **Editor**, *IEEE Transactions on Communications*, 2018 – 2023
- [7] **Editor**, *IEEE Wireless Communications Letters*, 2017 – 2022

- **Conference Organization**

- [1] **Co-Chair**, Signal Transmission and Reception Track in the 2024 IEEE 99th Vehicular Technology Conference (VTC2024-Spring), Singapore, 2024
- [2] **Co-Chair**, Communications and Signal Processing Symposium in 2023 International Conference on Future Communications and Networks (FCN'2023), Queenstown, New Zealand, Dec. 2023
- [3] **Lead Co-Chair**, Signal Processing for Communications Symposium in 2021 IEEE International Conference on Communications (ICC'2021), Montreal, Canada, May 2021
- [4] **Technical Program Co-Chair**, 2020 IEEE International Conference on Signal Processing, Communications and Computing (ICSPCC 2020), Macau SAR, China, Aug., 2020

- [5] **Co-Chair**, Wireless Communications Symposium in International Conference on Computing, Networking and Communications (**ICNC'2020**), Big Island, Hawaii, USA, Feb. 2020
- [6] **Co-Chair**, Internet of Things Symposium in the 8th IEEE/CIC International Conference on Communications in China (**ICCC'2019**), Changchun, China, Aug., 2019
- [7] **Co-Chair**, Symposium for Selected Areas in Communications (Millimeter Wave Communications Track) in 2019 IEEE International Conference on Communications (**ICC'2019**), Shanghai, China, May, 2019
- [8] **Co-Chair**, Signal Processing Symposium in The Ninth International Conference on Wireless Communications and Signal Processing (**WCSP'2017**), Nanjing, China, Oct., 2017
- [9] **Co-Chair**, Wireless Communications Symposium in 2016 IEEE Global Communications Conference (**GlobeCom'2016**), Washington DC, DC, USA, Dec., 2016
- [10] **Co-Chair**, Signal Processing for Communications Symposium in 2016 IEEE International Conference on Communications (**ICC'2016**), Kuala Lumpur, Malaysia, June 2016
- [11] **Chair**, Track on Wireless Communication & Networks in 2015 IEEE **TENCON**, Macau, Nov., 2015
- [12] **Co-Chair**, Track on Fundamentals and PHY in 2015 IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (**PIMRC'2015**), Hong Kong, Sep. 2015
- [13] **Co-Chair**, Track on SIP for communications and networking in the Third IEEE China Summit and International Conference on Signal and Information Processing (**ChinaSIP 2015**), Chengdu, China, July 2015
- [14] **Co-Chair**, International Workshop on Emerging Technologies towards Heterogeneous Wireless Networks and 5G Communications, 21 Nov. 2014, Macao
- [15] Technical Program Committee member, IEEE GlobeCom, ICC, WCNC, PIMRC, VTC, etc.

- **National Research Grant Review**

- [1] **Research grant reviewer**, *National Natural Science Foundation of China (NSFC)*, 2018 – present

- **Professional Societies**

- [1] **Vice-Chair**, Women in Communications Engineering Committee (WICEC), **IEEE Communications Society Asia Pacific Board (APB)**, 2024-2025
- [2] **Chair**, IEEE ComSoc Macau chapter, 2018 - present
- [3] **Vice-Chair**, Membership Development Committee, **IEEE Communications Society Asia Pacific Board (APB)**, 2014-2015
- [4] **Member**, Selection Committee, **IEEE Communications Society Student Competition**, 2014- present

- **Local Industry and Government Committees**

- [1] Member of Task Force for Industrialization of Research Results, Higher Education Committee of Macau, Nov. 2019 – present
- [2] Member, Board of Supervisors, Zhuhai UM Science & Technology Research Institute, Nov. 2020 - present