Chengzhi Ma

Curriculum Vitae

University of Macau, Macao, China
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Education

Aug. 2020 - Present **PhD Candidate in Electrical and Computer Engineering**, **University of Macau**, State Key Lab of Internet of Things for Smart City (SKL-IOTSC) and Department of Electrical and Computer Engineering (ECE)
Supervisor: Prof. Shaodan Ma (SMIEEE, Associate Director of SKL-IOTSC)

Sep. 2016 - Jun. 2020 **B.E. in Computer Science**, **Xiamen University**, School of Information

Research Interests

Physical Layer Transmission

Massive MIMO, Reconfigurable Intelligent Surface (RIS), Wireless Power Transfer (WPT), mmWave Communication

Algorithm Design

Transceiver Design, Beamforming Design, Prototype Platform Building

Convex Optimization

Fractional Optimization

Research Projects

Jan. 2023 - Present **AI-Driven Intelligent 6G Wireless Communications: Theory and Technology**
Student Investigator, in charge of the design of vision-aided beem steering prototype realization .
Funded by the National Natural Science Foundation of China (NSFC) and the Macao Science and Technology Development Fund (FDCT) under Grant 0087/2022/AFJ.

Publications

[1] **Chengzhi Ma**, Huan Zhang, Xi Yang, Shaodan Ma, "Massive MIMO Empowered Wireless Powered Sensor Networks: An Optimal Design With Statistical CSI," **IEEE Wireless Communications Letter**, vol. 22, no. 10, pp. 6914-6929, Oct. 2023.

[2] **Chengzhi Ma**, Xi Yang, Jintao Wang, Guanghua Yang, Wei Zhang, Shaodan Ma, "Reconfigurable Distributed Antennas and Reflecting Surface: A New Architecture for Wireless Communications," accepted by **IEEE Transactions on Communications**.

[3] **Chengzhi Ma**, Jintao Wang, Xi Yang, Guanghua Yang, Wei Zhang, Shaodan Ma, "RDARS Empowered Massive MIMO: Two-Timescale Transceiver Design With Imperfect CSI," submitted to **IEEE Transactions on Wireless Communications**, under **Major Revision**.

[4] Jintao Wang, **Chengzhi Ma**, Shaodan Ma, "Joint Beamforming Optimization and Mode Selection for RDARS-aided MIMO Systems," submitted to **IEEE Transactions on Wireless Communications**, under **Major Revision**.

[5] Jintao Wang, **Chengzhi Ma**, Shaodan Ma, "Optimal Design of RDARS-aided Multi-user Systems with Low-resolution DACs," submitted to *the 25th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2024)*.

Patents

* Shaodan Ma, Xi Yang, **Chengzhi Ma**, Binggui Zhou, Jintao Wang. "A Distributed Hybrid RIS Enhanced Massive MIMO Wireless Communication System," **Chinese Patent Application**, Feb. 2023.

Demos

* **Vision-aided Multi-user Sensing and Communications**

  Title: Vision-aided Multi-user Beam Training and Tracking for mmWave Massive MIMO Communications

  Intro: Assisted in deploying visual data-aided beam steering mmWave massive MIMO prototype demo. The vision-aided mmWave massive MIMO prototype achieves fast multi-user network access and reliable multi-user mobile communications, laying the foundation for scaling vision-aided wireless communication applications to real-world 6G scenarios and practical implementations.

Academic Services

Journal Referee

- IEEE Transactions on Wireless Communications (TWC)

Conference Reviewer

- IEEE Vehicular Technology Conference (VTC)