

Zhaorui WANG

Education

- 08/2015 **The Chinese University of Hong Kong**, Hong Kong
- 08/2019 Ph.D. in Information Engineering
Thesis Title: Signal Detection for Short-Packet Physical-Layer Network Coding with FSK Modulation
Supervisor: Professor Soung Chang LIEW
- 09/2011 **University of Electronic Science and Technology of China**, Chengdu, China
- 06/2015 B.Sc. in Mathematics and Physics Basic Science
Elite Class, GPA: 3.89/4.00

Work Experience

- 08/2022 **Research Assistant Professor**
- Present School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, China
- 09/2021 **Post-Doctoral Researcher**
- 03/2022 Department of Information Engineering, The Chinese University of Hong Kong, Hong Kong
Supervisor: Professor Henry CHEN
- 10/2020 **Visiting Scholar**
- 08/2021 Shenzhen University, Shenzhen, China
Collaborator: Professor Shengli ZHANG
State Key Laboratory of Scientific and Engineering Computing (LSEC), Beijing, China
Collaborator: Professor Ya-Feng LIU
- 09/2019 **Post-Doctoral Researcher**
- 09/2020 Department of EIE, The Hong Kong Polytechnic University, Hong Kong
Supervisor: Professor Liang LIU

Awards and Honors

- 2019 **Research Postgraduate Student Grants for Overseas Academic Activities**, CUHK
- 2018-2019 **Postgraduate Studentship**, CUHK
- 2015-2018 **Hong Kong PhD Fellowship**, Research Grants Council (RGC) of Hong Kong
- 2015 **Best Undergraduate Thesis Award**, UESTC
- 2012&2014 **People's Scholarship**, UESTC

Research Interests

- Massive Machine Type Communications
- Intelligent Reflecting Surface (IRS) Assisted Communications
- Physical-Layer Network Coding (PNC)

Highlights

- One ESI Highly Cited Paper, and One ESI Hot Paper (Top 0.1% by Citations for the Field and Age)
- Google Scholar Citation Increased by 57 Times after Graduation

- Awardee of Hong Kong PhD Fellowship (Highest Honor for Hong Kong Ph.D. Students)

Grant Record

- Green Tech Fund, 3,314,300 HKD, Co-PI, “Towards Green and Sustainable 6G: The Reconfigurable Intelligent Surfaces (RISs)-Aided Networks”, 2023-2025, Pending Approval.

Industrial Project

- 04/2020 **5G Standardization for Physical-Layer Network Coding**
- 03/2021 Funded by Huawei Technologies Shanghai R&D Center

Journal Publications

- [J1] **Z. Wang**, S. C. Liew, and L. Lu, “Noncoherent Detection for Physical-Layer Network Coding,” *IEEE Transactions on Wireless Communications (TWC)*, vol. 17, no. 10, pp. 6901-6916, Oct. 2018.
- [J2] **Z. Wang** and S. C. Liew, “Coherent Detection for Short-Packet Physical-Layer Network Coding with FSK Modulation,” *IEEE Transactions on Wireless Communications (TWC)*, vol. 19, no. 1, pp. 279-292, Jan. 2020.
- [J3] **Z. Wang**, L. Liu, and S. Cui, “Intelligent Reflecting Surface Design for 6G-Assisted Internet of Things,” *Chinese Journal on Internet of Things*, vol. 4, no. 2, pp. 84-95, Jun. 2020. **(Invited Paper)**
- [J4] **Z. Wang**, L. Liu, and S. Cui, “Channel Estimation for Intelligent Reflecting Surface Assisted Multiuser Communications: Framework, Algorithms, and Analysis,” *IEEE Transactions on Wireless Communications (TWC)*, vol. 19, no. 10, pp. 6607-6620, Oct. 2020. **(ESI Hot Paper and ESI Highly Cited Paper)**
- [J5] **Z. Wang**, Y.-F. Liu, and L. Liu, “Covariance-Based Joint Device Activity and Delay Detection in Asynchronous mMTC,” *IEEE Signal Processing Letters (SPL)*, vol. 29, pp. 538 - 542, Jan. 2022.
- [J6] **Z. Wang**, L. Liu, S. Zhang, P. Dong, Q. Yang, and T. Wang, “PNC Enabled IoT: A General Framework for Channel-Coded Asymmetric Physical-Layer Network Coding,” to appear in *IEEE Transactions on Wireless Communications (TWC)*.
- [J7] **Z. Wang**, L. Liu, and S. Cui, “Massive MIMO Communication with Intelligent Reflecting Surface,” under Major Revision, *IEEE Transactions on Wireless Communications (TWC)*.

Conference Publications

- [C1] Y. Zhang, **Z. Wang**, S. Wang, Y. Xiao, L. Dan, “A Low-Complexity Detection Algorithm for Spatial Modulation Systems,” in *Proc. International Conference on Wireless Communications, Networking and Mobile Computing (WiCOM)*, 2014.
- [C2] **Z. Wang**, S. C. Liew, and L. Lu, “Optimal Noncoherent Detection for Physical-Layer Network Coding,” in *Proc. IEEE Global Communications Conference (GLOBECOM)*, 2018.
- [C3] **Z. Wang**, L. Liu, and S. Cui, “Channel estimation for intelligent reflecting surface assisted multiuser communications,” in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, 2020.
- [C4] **Z. Wang**, L. Liu, and S. Cui, “Intelligent Reflecting Surface Assisted Massive MIMO Communications,” in *Proc. IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, 2020. **(Invited Paper)**

Patents

- [P1] Chinese Patent CN104333434B, “Reduced-Complexity Detector for Spatial Modulation,” November 2014.
- [P2] Chinese Patent CN104168049A, “A Signal Detection Method for Generalized Spatial Modulation in MIMO,” February 2015.

Cosupervised Students

- o Rui WANG
Ph.D. Student at PolyU
Research Topic: Intelligent Reflecting Surface Assisted Communications

Teaching Assistant at CUHK

- o ENGG 2420D Complex Analysis and Differential Equations, Fall 2018
Course Instructor: Prof. Raymond YEUNG, Recipient of 2022 Claude E. Shannon Award
- o ENGG 2470 Probability and Statistics for Engineers, Spring 2018

Technical Program Committee (TPC) Member

- o IEEE GLOBECOM 2022
- o IEEE ICC 2022
- o IEEE VTC 2022 Spring
- o IEEE VTC 2021 Spring
- o IEEE VTC 2021 Fall
- o IEEE GLOBECOM 2021

Technical Reviewer

- o IEEE Transactions on Wireless Communications (TWC)
- o IEEE Transactions on Communications (TCOM)
- o IEEE Journal on Selected Areas in Communications (JSAC)
- o IEEE Transactions on Vehicular Technology (TVT)
- o IEEE Transactions on Signal Processing (TSP)
- o IEEE Communications Magazine
- o IEEE Internet of Things Journal
- o IEEE Wireless Communications Letters
- o IEEE Signal Processing Letters
- o IEEE Global Communications Conference (GLOBECOM)
- o IEEE International Conference on Communications (ICC)
- o IEEE Wireless Communications and Networking Conference (WCNC)
- o IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)
- o IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)
- o IEEE Vehicular Technology Conference (VTC)