RENJIE ZHAO | CURRICULUM VITAE

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Computer Science Department at Johns Hopkins University
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RESEARCH INTEREST

• **Wireless Systems and Networking:** next-generation wireless network architectures (5G millimeter-wave, 6G joint communication and sensing, Internet of Things); novel radio hardware and software design (software defined radio, wireless brain interfaces, low-power ultra-wide-band).

• **Mobile and Ubiquitous Computing:** ubiquitous communication and sensing systems (smart homes, virtual/augmented reality, localization, ultra-reliable RFID for supply chains)

EDUCATION

University of California San Diego (UCSD) — **San Diego, CA, US**
Ph.D., Electrical Engineering — *Sept. 2018 - Aug. 2023*
Advisor: Professor Xinyu Zhang

University of California San Diego (UCSD) — **San Diego, CA, US**
M.S., Electrical Engineering — *Sept. 2018 - June 2020*

Shanghai Jiao Tong University (SJTU) — **Shanghai, China**
B.E. in Electric Power Engineering and Automation — *Sept. 2014 - June 2018*

EMPLOYMENT

Johns Hopkins University — **Baltimore, US**
Assistant Professor. — *Aug. 2023 - Present*

Microsoft Research — **Remote, US**
Researcher Intern. Host: Krishna Chintalapudi — *June 2021 - Dec. 2021*

Alibaba Group — **Remote, US**
Research Intern. Host: Pengyu Zhang, Yunfei Ma — *July 2020 - Sept. 2020*

Alibaba Group — **Bellevue, WA, US**
Research Intern. Host: Pengyu Zhang, Yunfei Ma — *Sept. 2019 - Jan. 2020*

UCSD — **La Jolla, CA, US**
Graduate Student Researcher. Advisor: Professor Xinyu Zhang — *Sept. 2018 - June 2023*

PUBLICATIONS

Note: '*' marks co-primary authors.

Conference Papers:

[C5] "SlimWiFi: Ultra-Low-Power IoT Radio Architecture Enabled by Asymmetric Communication"
Renjie Zhao, Kejia Wang, Kai Zheng, Xinyu Zhang, and Leung Vincent
*20th USENIX Symposium on Networked Systems Design and Implementation **(NSDI)***, 2023
(46 out of 288 submissions (Fall), acceptance ratio: 16.0%)

[C4] "RF-Chord: Towards Deployable RFID Localization System for Logistic Networks"
Bo Liang*, Purui Wang*, **Renjie Zhao**, Pengyu Zhang, Xinyu Zhang, Hongqiang Harry Liu and Chenren Xu
*20th USENIX Symposium on Networked Systems Design and Implementation **(NSDI)***, 2023
(50 out of 272 submissions (Spring), acceptance ratio: 18.4%)

[C3] "NFC+: Breaking NFC Networking Limits through Resonance Engineering"
Renjie Zhao*, Purui Wang*, Yunfei Ma, Pengyu Zhang, Hongqiang Harry Liu, Xianshang Lin, Xinyu Zhang, Chenren Xu and Ming Zhang
*Annual conference of the ACM Special Interest Group on Data Communication on the applications, technologies, architectures, and protocols for computer communication **(SIGCOMM)***, 2020
(54 out of 250 submissions, acceptance ratio: 21.6%)

[C2] "M-Cube: A Millimeter-Wave Massive MIMO Software Radio"
Renjie Zhao, Timothy Woodford, Teng Wei, Kun Qian and Xinyu Zhang
ACM International Conference on Mobile Computing and Networking ***(MobiCom)***, 2020
(62 out of 384 submissions, acceptance ratio: 16.1%)
Best Paper Award (2 out of 384 submission);
Open source research platform, *M-Cube website*, used by 20+ research groups

[C1] "OFDMA-Enabled Wi-Fi Backscatter"
Renjie Zhao, Fengyuan Zhu, Siyuan Peng, Yuda Feng, Xiaohua Tian, Hui Yu and Xinbing Wang
ACM International Conference on Mobile Computing and Networking ***(MobiCom)***, 2019
(55 out of 290 submissions, acceptance ratio: 19.0%)

Journal:

[J5] "Enabling OFDMA in Wi-Fi Backscatter"
Fengyuan Zhu, **Renjie Zhao**, Bingbing Wang, Xinbing Wang, Xinping Guan, Chenghu Zhou, and Xiaohua Tian
IEEE/ACM Transactions on Networking, 2023

[J4] "M-CUBE: A Millimeter-Wave Massive MIMO Software Radio" (Invited, Highlighted)
Renjie Zhao, Timothy Woodford, Teng Wei, Kun Qian, and Xinyu Zhang
GetMobile: Mobile Computing and Communications, Volume 25, Issue 1, Mar. 2021, pp 30–33

[J3] "Synthesis of CuInS2 nanowire arrays via solution transformation of Cu2S self-template for enhanced photoelectrochemical performance"
Ming Li, **Renjie Zhao**, Yanjie Su, Jing Hu, Zhi Yang, and Yafei Zhang
Applied Catalysis B: Environmental, Volume 203, Apr. 2017, pp 715-724

[J2] "Hierarchically CuInS2 Nanosheet-Constructed Nanowire Arrays for Photoelectrochemical Water Splitting"
Ming Li, **Renjie Zhao**, Yanjie Su, Jing Hu, Zhi Yang, and Yafei Zhang
Advanced Materials Interfaces, Volume 3, Issue 20, Oct. 2016, 1600494

[J1] "Carbon Quantum Dots Decorated Cu2S Nanowire Arrays for Enhanced Photoelectrochemical Performance"
Ming Li, **Renjie Zhao**, Yanjie Su, Zhi Yang, and Yafei Zhang
Nanoscale, Volume 8, Issue 16, 2016, pp 8559-8567

Patents:

[P1] "A carbon nanotube/indium sulfide heterojunction nano wire and a preparing method thereof"
Yanjie Su, **Renjie Zhao**, Ming Li, Yafei Zhang, Zhi Yang,
Patent of invention (publicated), Publication Number : CN106391054(A), Feb. 2017

HONORS AND AWARDS

- ACM MobiCom Best Paper Award **(2 out of 384 submissions)** *2020*
- Academic Records Scholarship (first-class) of SJTU **(Top 1 out of 158)** *2016 - 2017*
- National Scholarship **(Top 3 out of 158)** *2016 - 2017*
- Meritorious Winner of the Interdisciplinary Contest in Modeling, COMAP *2016 - 2017*
- Academic Records Scholarship of SJTU (second-class) *2015 - 2016*
- Ultra High Voltage Scholarship **(Top 5 out of 160)** *2015 - 2016*
- Academic Records Scholarship of SJTU (third class) *2014 - 2015*

COURSE

EN.601.716 Advanced Topics in Internet of Things, Spring 2024

PRESENTATIONS

- Highly Reliable Communication and Sensing for Battery-free IoT
Visit talks at SJTU, THU, PKU, NJU, USTC, HUST, SEU, ZJU, MSRA, NWU, PolyU, CUHK, HKU, FDU, Nov. and Dec. 2023

• Tutorial on M-Cube RF front-end and phased arrays
Tutorial at the M-Cube User workshop, La Jolla, August 2023

• SlimWiFi: Ultra-Low-Power IoT Radio Architecture Enabled by Asymmetric Communication
Conference talk at NSDI, Boston, April 2023

• M-Cube: A Millimeter-Wave Massive MIMO Software Radio
Conference talk at MobiCom, Virtual, September 2020

• NFC+: Breaking NFC Networking Limits
Conference talk at SIGCOMM, Virtual, August 2020

• OFDMA-Enabled Wi-Fi Backscatter
Conference talk at SIGCOMM, Los Cabos, October 2019

PROFESSIONAL SERVICES

• HotMobile PC, 2024
• SenSys Shadow PC, 2022
• Reviewer of IEEE/ACM Transactions on Networking, ACM Transactions on Internet of Things, IEEE Transactions on Wireless Communications, ACM Transactions on Sensor Networks, IEEE Internet Computing