

Personal Info

Name : Xiuzhen Guo (郭秀珍) Date of Birth : 1994.11
Nationality : China Tel : 18801106518
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Area of Expertise : Internet of Things & Wireless networking
Address: Tsinghua University, 30 Shuangqing Rd, Haidian, Beijing, China



Education

2016.09-2021.06 Tsinghua University Software Engineering (PhD) Supervisor: Prof. Yuan He
2012.09-2016.06 Southwest University Communication engineering (B.E.)

Employment

2021.07-Present Tsinghua University Postdoc

Award

- **ACM China Doctoral Dissertation Award (ACM 中国优秀博士学位论文奖) , 2021**
- **Shuimu Tsinghua Scholar (清华大学水木学者) , 2021**
- Outstanding graduates in Beijing , 2021
- National Scholarship , 2017/2015/2014/2013
- Huawei Scholarship , 2018/2019/2020
- First prize in THU Challenge Cup , 2019
- INFOCOM Best-in-session Presentation Award , 2018

Research Interest

Xiuzhen Guo focuses on the research of **Cross-Technology Communication (CTC)** and **backscatter communication** technology for Internet of Things (IoT). These works break the dilemma of IoT heterogeneity and become a significant step toward "Internet of Everything".

Publication

Xiuzhen Guo published a total of 31 papers, including **16 first author papers**: 4 IEEE/ACM TON (CCF-A), 1 ACM MobiCom (CCF-A), 1 USENIX NSDI (CCF-A), 3 IEEE INFOCOM (CCF-A), 1 Journal of Computer Research and Development (CCF-T1), 1ACM SenSys (CCF-B), 1IEEE/ACM IPSN (CCF-B), 1 ACM TOSN (CCF-B), 1 ACM CSUR (SCI), and 1 IEEE IOTJ (SCI).

Journal:

1. **Xiuzhen Guo**, Longfei Shangguan, Yuan He, Jia Zhang, Haotian Jiang, Awais Ahmad Siddiqi, Yunhao Liu. "Efficient Ambient LoRa Backscatter with On-Off Keying Modulation", IEEE/ACM Transactions on Networking, 2022, 30(2) : 641-654. **(TON, CCF-A)**.
2. **Xiuzhen Guo**, Yuan He, Xiaolong Zheng. "WiZig: Cross-Technology Energy Communication over a Noisy Channel", IEEE/ACM Transactions on Networking, 2020, 28(6): 2449-2460. **(TON, CCF-A)**.
3. **Xiuzhen Guo**, Yuan He, Xiaolong Zheng, Liangcheng Yu, Omprakash Gnawali, "Harnessing Channel State Information for Cross-Technology Communication", IEEE/ACM Transactions on Networking, 2020, 28(1): 301--311. **(TON, CCF-A)**.

4. Yuan He, **Xiuzhen Guo***, Jia Zhang, Haotian Zhang, “WIDE: Physical-level CTC via Digital Emulation” , IEEE/ACM Transactions on Networking, 2021, 29(4): 1567-1579. **(TON, CCF-A)**.
5. **Xiuzhen Guo**, Yuan He, Jia zhang, Haotian Jiang, Zihao Yu, Xin Na, “Taming the Errors in Cross-Technology Communication: A Probabilistic Approach” , ACM Transactions on Sensor Networks, 2022, 18(1): 3-20. **(TOSN, CCF-B)**.
6. **Xiuzhen Guo**, Yuan He, Xiaolong Zheng, Zihao Yu, Yunhao Liu. “LEGO-Fi: Transmitter-Transparent CTC with Cross-Demapping” , IEEE Internet of Things Journal, 2021, 8(8): 6665-6676. **(IOTJ, SCI, IF=9.936)**
7. Yuan He, **Xiuzhen Guo***, Xiaolong Zheng, Zihao Yu, Jia Zhang, Haotian Jiang, Xin Na, Jiacheng Zhang, “Cross-Technology Communication for the Internet of Things: A Survey” , ACM Computing Surveys, 2022. **(CSUR, SCI, IF=10.282)**
8. 郭秀珍, 何源. 跨协议通信技术研究进展[J]. 计算机研究与发展, 2021. **(CCF-T1)**
9. Jia Zhang, **Xiuzhen Guo**, Yuan He, “Link Quality Estimation of Cross-Technology Communication: The Case with Physical-Level Emulation” , ACM Transactions on Sensor Networks 2021. 18(1): 1-20. **(TOSN, CCF-B)**.

Conference

1. **Xiuzhen Guo**, Longfei Shangguan, Yuan He, Nan Jing, Jiacheng Zhang, Haotian Jiang, Yunhao Liu, “Saiyan: Design and Implementation of a Low-power Demodulator for LoRa Backscatter Systems” , **USENIX NSDI**, 2022. **(CCF-A)**
2. **Xiuzhen Guo**, Yuan He, Zihao Yu, Jiacheng Zhang, Yunhao Liu, Longfei Shangguan, “RF-Transformer: A Unified Backscatter Radio Hardware Abstraction” , **ACM MobiCom**, 2022. **(CCF-A)**
3. **Xiuzhen Guo**, Yuan He, Xiaolong Zheng, Zihao Yu, Yunhao Liu, “LEGO-Fi: Transmitter-Transparent CTC with Cross-Demapping” , **IEEE INFOCOM**, 2019. **(CCF-A)**
4. **Xiuzhen Guo**, Yuan He, Xiaolong Zheng, Liangcheng Yu, Omprakash Gnawali, “ZigFi: Harnessing Channel State Information for Cross-Technology Communication” , **IEEE INFOCOM**, 2018. **(CCF-A)**
5. **Xiuzhen Guo**, Xiaolong Zheng, Yuan He, “WiZig: Cross-Technology Energy Communication over a Noisy Channel” , **IEEE INFOCOM**, 2017. **(CCF-A)**
6. **Xiuzhen Guo**, Longfei Shangguan, Yuan He, Jia Zhang, Haotian Jiang, Awais Ahmad Siddiqi, Yunhao Liu. “Rethinking ON-OFF Keying Modulation for Ambient LoRa Backscatter” , **ACM SenSys**, 2020. **(CCF-B)**
7. **Xiuzhen Guo**, Yuan He, Jia Zhang, Haotian Zhang. “WIDE: Physical-level CTC via Digital Emulation” , **IEEE/ACM IPSN**, 2019. **(CCF-B)**
8. **Xiuzhen Guo**, “Cross Technology Communication in Heterogeneous Wireless Networks” , **ACM EWSN**, 2019.
9. Xin Na, **Xiuzhen Guo**, Zihao Yu, Jia Zhang, Yuan He, Yunhao Liu, “Leggiero: Analog WiFi Backscatter with Payload Transparency”, **ACM MobiSys**, 2023. **(CCF-B)**
10. Chenning Li, **Xiuzhen Guo**, Longfei Shangguan, Zhichao Cao, kyle Jamieson, “CurvingLoRa to Boost LoRa Network Throughput via Concurrent Transmission” , **USENIX NSDI**, 2022. **(CCF-A)**
11. Jia Zhang, **Xiuzhen Guo**, Yuan He, “Link Quality Estimation of Cross-Technology Communication” , **IEEE INFOCOM** 2019. **(CCF-A)**
12. Haotian Jiang, Jiacheng Zhang, **Xiuzhen Guo***, Yuan He, “Sense Me on the Ride: Accurate Mobile Sensing over a LoRa Backscatter Channel” , **ACM SenSys** , 2021. **(CCF-B)**
13. Jiacheng Zhang, **Xiuzhen Guo***, Yuan He, “Location tracking over a LoRa backscattering channel” , **CWSN**, 2021. **()**
14. Xiaolong Zheng, Yuan He, **Xiuzhen Guo**, “Stripcomm: Interference-resilient Cross Technology Communication in Coexisting Environments” , **IEEE INFOCOM**, 2018. **(CCF-A)**
15. Weiguo Wang, Jinming Li, Yuan He, **Xiuzhen Guo**, Yunhao Liu, “MotorBeat: Acoustic Communication for Home Appliances via Variable Pulse Width Modulation” , **ACM UbiComp**, 2022. **(CCF-A)**
16. Zihao Yu, Xin Na, Carlo Alberto Boano, Yuan He, **Xiuzhen Guo**, Pengyu Li, Meng Jin, “SmarTiSCH: An Interference-Aware Engine for IEEE 802.15.4e-based Networks” , **IEEE/ACM IPSN**, 2022. **(CCF-B)**

17. Xiaolong Zheng, Dan Xia, Xiuzhen Guo, Liang Liu, Yuan He, Huadong Ma, “Portal: Transparent Cross-technology Opportunistic Forwarding” , **ACM MobiHoc**, 2020. (CCF-B)
18. Xin Na, Xiuzhen Guo, Yuan He, “Wi-attack: Cross-technology Impersonation Attack against iBeacon Services” , **IEEE SECON**, 2021. (CCF-B)
19. Weiguo Wang, Xiaolong Zheng, Yuan He, Xiuzhen Guo, “AdaComm: Tracing Channel Dynamics for Reliable Cross-Technology Communication” , **IEEE SECON**, 2019. (CCF-B)
20. Zihao Yu, Pengyu Li, Carlo Alberto Boano, Yuan He, Meng Jin, Xiuzhen Guo, Xiaolong Zheng, “BiCord: Bidirectional Coordination among Coexisting Wireless Devices” , **IEEE ICDCS**, 2021. (CCF-B)
21. Shuo Lian, Xiuzhen Guo, Zhenge Guo, Xu Zhao, “Error Scene Restoration with Runtime Logs of Wireless Sensor Networks” , **IEEE MSN**, 2016. (CCF-C)
22. Zihao Yu, Chengkun Jiang, Yuan He, Xiaolong Zheng, Xiuzhen Guo, “Crocs: Cross-Technology Clock Synchronization for WiFi and ZigBee” , **ACM EWSN**, 2018.

Fund

1. National Natural Science Funds for Young Scholar (国家自然科学基金), 62202264, Research on Theories and Key Technologies for Wide-area and battery-free Sensing Networks, 2023.01—2024.12, 20 万元.
2. Key Program of China Postdoctoral Science Foundation (博士后基金特别资助), 2022T150354, Research on Theories and Key Technologies of Transmission Performance and Energy Optimization for Wide-area and Battery-free Sensing Networks, 2022.09--2023-09, 18 万元.
3. China Postdoctoral Science Foundation (博士后基金面上资助), 2021M701888, Research on programmable LoRa backscatter networks, 2021.09--2023-09, 8 万元.

Patent

1. Xiuzhen Guo , Yuan He , Xiaolong Zheng. An adaptive communication method from ZigBee to WiFi, ZL201710888799.6. Authorized.
2. Yuan He, Xiuzhen Guo. Design and implementation of LoRa backscatter system, ZL202011263113.2. Authorized.
3. Yuan He, Xiuzhen Guo. Cross technology communication method and device, ZL201611019727.X. Authorized.
4. Yuan He, Xiuzhen Guo. Cross technology communication method from WiFi to BLE, ZL201910904628.7. Authorized.
5. Yuan He, Xiuzhen Guo, Xiaolong Zheng. A communication method and device from ZigBee to WiFi, ZL201710888643. Authorized.
6. Yuan He, Xiuzhen Guo. A cross technology communication method and device from WiFi to ZigBee, ZL201811420188.X. Authorized.
7. Yuan He, Xiuzhen Guo. Data transmission method for cross technology communication, ZL201611027173.8. Authorized.

Academic Service

1. Submission Chair of IEEE SECON 2022
2. Co-publicity Chair of IEEE ICPADS 2022
3. TPC member of IEEE SECON 2023, ACM EWSN 2023, IEEE MASS 2022、IEEE ICPADS 2022、IEEE DCOSS 2021、IEEE ICPADS 2021、ACM EWSN 2022、EAI MobiQuitous 2022
4. Reviewer of IEEE/ACM TON、IEEE TMC、IEEE TDSC、IEEE TWC、ACM TOSN