

Junbo Zhang

✉ Personal Email | ✉ Academic Email | [in](#) LinkedIn

EDUCATION

CARNEGIE MELLON UNIV
PH.D. & M.SC. IN ELECTRICAL &
COMPUTER ENGINEERING (ECE)
Aug 2024 | Pittsburgh, PA, US

TSINGHUA UNIV
B.ENG. IN ELECTRONIC
ENGINEERING (EE)
Jul 2019 | Beijing, China

RESEARCH INTERESTS

Wireless Systems & Networks
Wireless Communication & Sensing
Ubiquitous Computing
Internet of Things (IoT)
RF Backscatter & Radars
Smart Healthcare/Infrastructure

COURSEWORK

Wireless Communications
Computer Networks
Wireless Networks & Applications
Linear Systems
Intro to Machine Learning
Micro-nano Biomedical Devices
Board-level RF Systems for IoTs

SKILLS

PROGRAMMING

• C/C++ • MATLAB • Python • \LaTeX
• Java • HTML

SOFTWARE/TOOLS

• ANSYS/CST Studio • EAGLE/Altium
• GNU Radio • COMSOL • AutoCAD
• Solidworks • UltiMaker Cura

HARDWARE/PLATFORMS

• Arduino • Raspberry Pi • Ettus USRP
• NFC/RFID (RF430FRL15x & Impinj)
• mmWave (AWR1843 & TinyRad)

WORK EXPERIENCE

APPLE INC

SEP 2024 – PRESENT
CUPERTINO, CA, US
Wireless System Engineer

NOKIA BELL LABS

JUN 2022 – AUG 2022
MURRAY HILL, NJ, US
Summer Research Intern

RESEARCH EXPERIENCE

CARNEGIE MELLON UNIV | JUN 2018 – SEP 2018, AUG 2019 – AUG 2024

- Ph.D. research: low-power/battery-free backscatter, flexible material enabled IoT; experience with NFC/RFID, mmWave, LoRa, etc.
- Ph.D. dissertation: Imprinting RF Backscatter on Flexible Surfaces for Next-Generation Sensing. Ph.D. advisor: Prof. Swarun Kumar.
- Undergrad summer research internship: extending the range limit of commercial RFIDs & material sensing based on Wi-Fi signal polarimetry.

NOKIA BELL LABS, DATA & DEVICES GROUP | JUN 2022 – AUG 2022

- Summer internship (supervisor: Dr. Michael Eggleston): MAC protocol design and analysis for industrial large-scale multi-static backscatter.


TSINGHUA UNIVERSITY, EE DEPT & THSS | MAR 2018 – JUN 2019

- Graduation project (advisor: Prof. Yong Li): large-scale IoT device identification by applying machine learning to their Internet traffic packets.
- Undergrad research (advisor: Prof. Zheng Yang): cross-domain gesture recognition with deep learning on Wi-Fi channel state information.

AWARDS

Wei Shen and Xuehong Zhang Presidential Fellowship (2023)
Phillips and Huang Family Fellowship in Energy (2022)
Best Paper & Best Presentation at ACM IPSN '21 (2021)
Carnegie Mellon CIT's Dean Fellowship (2019)

PUBLICATIONS

- [1] Towards Ubiquitous IoT through Long Range Wireless Energy Harvesting
M. Ibrahim, A. Bansal, K. Yuan, [J. Zhang](#), and S. Kumar
- [2] Thermo-Mechanically Stable, Liquid Metal Embedded Soft Materials for High-Temperature Applications
R. Herbert, P. Mocny, Y. Zhao, T. Lin, [J. Zhang](#), M. Vinciguerra, S. Surprenant, W. Chan, S. Kumar, M. Bockstaller, K. Matyjaszewski, and C. Majidi
- [3] NFCapsule: An Ingestible Sensor Pill for Eosinophilic Esophagitis Detection Based on Near-field Coupling
[J. Zhang](#), G. Balakrishnan, S. Srinidhi, A. Bhat, S. Kumar, and C. Bettinger
- [4] PLatter: On the Feasibility of Building-scale Power Line Backscatter
[J. Zhang](#), E. Soltanaghahi, A. Balanuta, R. Grimsley, S. Kumar, and A. Rowe
Highlighted in GetMobile: Mobile Computing and Communications.
- [5] Locating Everyday Objects using NFC Textiles  Best Paper & Presentation
J. Wang[†](co-primary), [J. Zhang](#)[†](co-primary), K. Li, C. Pan, C. Majidi, and S. Kumar
Highlighted in Communications of the ACM Research Highlights. Demo video: 
- [6] Joltik: Enabling Energy-Efficient "Future-Proof" Analytics on Low-Power Wide-Area Networks
M. Yang, [J. Zhang](#), A. Gadre, Z. Liu, S. Kumar, and V. Sekar
- [7] Poster: NoFaceContact – Stop Touching Your Face with NFC
[J. Zhang](#) and S. Kumar
- [8] Pushing the Range Limits of Commercial Passive RFIDs
J. Wang, [J. Zhang](#), R. Saha, H. Jin, and S. Kumar
- [9] On the Feasibility of Wi-Fi Based Material Sensing
D. Zhang, J. Wang, J. Jang, [J. Zhang](#), and S. Kumar