JUNFENG (JAYDEN) GUAN

Email: jguan1019@gmail.com   **Telephone:**+1 217 254 1512   **Homepage:** jguan.page

RESEARCH INTERESTS

Wireless Sensing and Networking Systems, Millimeter-Wave Radar Perception, Integrated Sensing and Communication, Millimeter-Wave and 5G/6G Networks, Machine Learning (for Wireless and Radar)

EDUCATION

École Polytechnique Fédérale de Lausanne (EPFL)   Apr. 2023 - Present
Postdoctoral Researcher - SENS Lab   *Advisor: Prof. Haitham Hassanieh*

University of Illinois Urbana-Champaign   May. 2017 - Aug. 2022
Doctor of Philosophy in Electrical and Computer Engineering   *Advisor: Prof. Haitham Hassanieh*

University of Illinois Urbana-Champaign   Aug. 2013 - May. 2017
Bachelor of Science in Electrical Engineering (with Highest Honors)   *Advisor: Prof. Songbin Gong*

MAIN CONFERENCE AND JOURNAL PUBLICATIONS

13. [**ICASSP'23**] Junfeng Guan, Sohrab Madani, Waleed Ahmed, Samah Hussien, Saurabh Gupta, Haitham Hassanieh. "Exploiting Virtual Array Diversity For Accurate Radar Detection." *IEEE International Conference on Acoustics, Speech and Signal Processing*, 2023. [pdf]

12. [**IPSN'23**] Ishani Janveja, Jiaming Wang, Junfeng Guan, Suraj Jog, Haitham Hassanieh. "WINC: A Wireless IoT Network for Multi-Noise Source Cancellation." *ACM/IEEE International Conference on Information Processing in Sensor Networks*, 2023. [pdf]

11. [**ECCV'22**] Sohrab Madani*, Junfeng Guan*, Waleed Ahmed*, Saurabh Gupta, Haitham Hassanieh. "Radatron: Accurate Detection Using Multi-Resolution Cascaded MIMO Radar." *European Conference on Computer Vision*, 2022. [pdf] (* coprimary authors)

10. [**NSDI'22**] Suraj Jog, Junfeng Guan, Sohrab Madani, Ruochen Lu, Songbin Gong, Haitham Hassanieh. "Enabling IoT Self-Localization Using Ambient 5G Signals." *USENIX Symposium on Networked Systems Design and Implementation*, 2022. [pdf]

9. [**NSDI'21**] Junfeng Guan, Jitian Zhang, Ruochen Lu, Hyungjoo Seo, Jin Zhou, Songbin Gong, Haitham Hassanieh. "Efficient Wideband Spectrum Sensing Using MEMS Acoustic Resonators." *USENIX Symposium on Networked Systems Design and Implementation*, 2021. [pdf]

8. [**TMTT'21**] Junfeng Guan, Arun Paidimarri, Alberto Valdes-Garcia, Bodhisatwa Sadhu. "3D Imaging Using Millimeter Wave 5G Signal Reflections." *IEEE Transactions on Microwave Theory and Techniques*, 2021. [pdf]

7. [**CVPR'20**] Junfeng Guan, Sohrab Madani, Suraj Jog, Saurabh Gupta, Haitham Hassanieh. "Through Fog High Resolution Imaging Using Millimeter Wave Radar." *IEEE Conference on Computer Vision and Pattern Recognition*, 2020. [pdf]

6. [**RFIC'20**] Junfeng Guan, Arun Paidimarri, Alberto Valdes-Garcia, Bodhisatwa Sadhu. "3D Imaging using mmWave 5G Signals." *IEEE Radio Frequency Integrated Circuits Symposium*, 2020.[pdf]

5. [**NSDI'19**] Suraj Jog, Jiaming Wang, Junfeng Guan, Thomas Moon, Haitham Hassanieh, Romit Roy Choudhury. "Many-to-Many Beam Alignment in Millimeter Wave Networks." *USENIX Symposium on Networked Systems Design and Implementation*, 2019. [pdf]

4. [**VLSI'19**] Thomas Moon, <u>Junfeng Guan</u>, Haitham Hassanieh. "Online Millimeter Wave Phased Array Calibration Based on Channel Estimation." *IEEE VLSI Test Symposium*, 2019. [pdf]

3. [**SIGCOMM'18**] Sheng Shen, Nirupam Roy, <u>Junfeng Guan</u>, Haitham Hassanieh, Romit Roy Choudhury. "MUTE: Bringing IoT to Noise Cancellation." *ACM SIGCOMM*, 2018. [pdf]

2. [**IMS'17**] Brandon Arakawa, Liuqing Gao, Yansong Yang, <u>Junfeng Guan</u>, Anming Gao, Ruochen Lu, Songbin Gong. "Simultaneous Wireless Power Transfer and Communication to Chip-Scale Devices." *IEEE International Microwave Symposium*, 2017. [pdf]

1. [**IMS'17**] Ali Kourani, Yong-Ha Song, Brandon Arakawa, Ruochen Lu, <u>Junfeng Guan</u>, Anming Gao, Songbin Gong. "A 150 MHz Voltage Controlled Oscillator using Lithium Niobate RF-MEMS Resonator." *IEEE International Microwave Symposium*, 2017. [pdf]

POSTERS AND ARTICLES

4. [**SIGCOMM'22 Poster**] <u>Junfeng Guan</u>, Suraj Jog, Sohrab Madani, Ruochen Lu, Songbin Gong, Haitham Hassanieh. "Enabling IoT Self-Localization Using Ambient 5G mmWave Signals." *ACM SIGCOMM*, 2022. [pdf]

3. [**GetMobile'21**] <u>Junfeng Guan</u>, Jitian Zhang, Ruochen Lu, Hyungjoo Seo, Jin Zhou, Songbin Gong, Haitham Hassanieh. "Efficient Wideband Spectrum Sensing Using MEMS Acoustic Resonators." *ACM GetMobile: Mobile Computing and Communications*, 2021. [pdf]

2. [**IEEE D&T'20**] Thomas Moon, <u>Junfeng Guan</u>, Haitham Hassanieh. "Know Your Channel First, then Calibrate Your mmWave Phased Array." *IEEE Design & Test Magazine*, 2020. [pdf]

1. [**MobiCom'18 Poster**] Sheng Shen, Nirupam Roy, <u>Junfeng Guan</u>, Haitham Hassanieh, Romit Roy Choudhury. "Networked Acoustics Around Human Ears." *ACM MobiCom*, 2018. [pdf]

SELECTED HONORS AND AWARDS

ACM SIGMOBILE Research Highlights	2021
Qualcomm Innovation Fellowship [website]	2020
RFIC'20 Industry Best Paper Finalists	2020

PATENTS

L3. Saeed Reza Khosravirad, <u>Junfeng Guan</u>, Harish Viswanathan, Jakub Sapis. "Resource Allocation in Joint Communication and Sensing." *Patent Number: US-20230284122-A1*, 2023.

L2. <u>Junfeng Guan</u>, Bodhisatwa Sadhu, Arun Paidimarri, Asaf Tzadok, Alberto Valdes Garcia. "Imaging With Wireless Communication Signals." *Patent Number: US-20210215814-A1*, 2021.

L1. <u>Junfeng Guan</u>, Sohrab Madani, Suraj Jog, Saurabh Gupta, Haitham Hassanieh. "Neural Network-Based Millimeter-Wave Imaging System." *Patent Number: US-20210192762-A1*, 2021.

PROFESSIONAL EXPERIENCE

Nokia Bell Labs — Jun. 2021 - Aug. 2021
Radio Systems Bell Labs Summer Intern — *Murray Hill, NJ (Remote)*
- Publications & Patents: L3.

IBM Research — May. 2019 - Aug. 2019
Graduate Research Intern — *Thomas J. Watson Research Center, Yorktown Heights, NY*
- Publications & Patents: [TMTT'21], [RFIC'20], L2.

TEACHING EXPERIENCE

- Communication Networks (ECE 438, UIUC)   Aug. 2019 - Dec. 2019
- Communication System Laboratory (ECE 463, UIUC)   Aug. 2018 - Dec. 2018

SERVICES

- Shadow Program Committee - ACM SenSys 2022

- Conference Reviewer:
  - IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2024
  - IEEE Vehicular Technology Conf. (VTC) 2023
  - International Conference on Computer Vision (ICCV) 2023
  - IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) 2023
  - European Conference on Computer Vision (ECCV) 2022
  - IEEE Globecom Workshops 2022

- Journal Reviewer:
  - IEEE Transactions on Microwave Theory and Techniques (TMTT)
  - IEEE Transactions on Instrumentation and Measurement
  - IEEE Transactions on Mobile Computing
  - IEEE Access
  - Internat. J. of Wireless Information Networks

REFERENCES

- **Prof. Haitham Hassanieh**
  Associate Professor, École Polytechnique Fédérale de Lausanne (EPFL)
  School of Computer and Communication Sciences
  Website: https://people.epfl.ch/haitham.alhassanieh

- **Prof. Romit Roy Chouhury**
  Professor, University of Illinois Urbana-Champaign
  Department of Electrical and Computer Engineering & Computer Science
  Website: http://croy.web.engr.illinois.edu

- **Prof. Saurabh Gupta**
  Assistant Professor, University of Illinois Urbana-Champaign
  Department of Electrical and Computer Engineering
  Website: http://saurabhg.web.illinois.edu

- **Prof. Songbin Gong**
  Associate Professor, University of Illinois Urbana-Champaign
  Department of Electrical and Computer Engineering
  Website: http://ilirm.ece.illinois.edu/a_professor.html

- **Dr. Alberto Valdes Garcia**
  Principal Research Scientist, IBM T. J. Watson Research Center
  Manager, RF Circuits and Systems
  Website: https://researcher.watson.ibm.com/researcher/view.php?person=us-avaldes