Resume

Haoran Zhang

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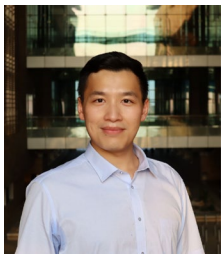

Education

King Abdullah University of Science and Technology Saudi Arabia, Jeddah
Antenna Design and RF system PhD Degree 2019.7-Present

King Abdullah University of Science and Technology Saudi Arabia, Jeddah
Antenna Design and RF system Master Degree 2017.8-2019.6

University of Electronic Science and Technology of China China, Chengdu
Integrated Circuit Design Bachelor Degree 2013.9-2017.6

Skills

- Languages: English & Chinese
- Software: Ansys HFSS, Cadence IC6, Agilent ADS, CST Microwave Studio
- Hardware: VNA, Spectrum Analyzer, RF Signal Generator, Antenna Chamber, RF Probe Station

Projects

1. **Hybrid 2D/CMOS Microchips for Memristive Technologies** **2022.05-Present**
- The group designed and fabricated a hybrid 2D/CMOS microchips memristor
- Simulated and tested the RF performance and power handling performance of the designed microchips memristor up to 110 GHz
- This work has been submitted to Nature and is undergoing the 1st stage revision

2. **Sub-THz Phased Array Design for Future 6G Technology** **2022.02-Present**
- Design a wideband passive phase shifter with a high figure of merit
- Implement a wideband and wide beam-scanning sub-THz phased array for high-capacity real-time communication

3. **mmWave 5G Phased Array Design for 5G Base station** **2020.08-2022.05**
- Designed a wideband and wide beam scanning 5G phased array
- Designed the complete feeding network and beamforming network for the phased array
- Measured the performance of the proposed phased array and its communication performance

4. **Semi-Flexible Wearable Radar for Visually Impaired People** **2020.03-2021.06**
- Designed a collision avoidance radar system (76-81 GHz, including antenna array, embedding system, power management module on a semi-flexible PCB
- Based on FFT and MUSIC algorithms, providing the user with the information of the obstacles angle and range in the voice messages
- It made to the TOP 6 finalist in the 2020 IEEE APS Student Design Contest

5. **Bluetooth-based Electrically Small Antenna for RPW Detection** **2019.07-2020.01**
- Designed and optimized a Bluetooth electrically small antenna
- Designed a Bluetooth Low Energy module for Red Palm Weevil tracking

6. **Tackling the Issues of mmWave On-chip Antenna Measurements** **2018.05-2018.10**

- Studied the measurement errors of mmWave on-chip antenna impedance and radiation
- Proposed an optimized measurement solution for mmWave on-chip antenna measurement

7. Gain Enhancement Techniques for 71GHz On-Chip Antenna 2017.10-2019.02

- Designed a coplanar waveguide fed monopole antenna in TSMC CMOS 180nm
- Designed the on-chip artificial magnetic conductor, superstrate, and 3D-printed Fresnel lens package for antenna gain enhancement
- Designed the integrated circuits with Cadence for driving the on-chip antenna and conducted the entire CMOS tape-out process in TSMC

Awards

- 2021-2022 KAUST Academic Excellence Award 2022.06
- 2022 First prize in KAUST Research Conference poster contest 2022.03
- 2020-2021 CEMSE Dean Excellence Award 2021.11
- Shortlist for 2020 IEEE R. W. P. King Award 2021.02
- Top 6 finalist in 2020 IEEE APS Student Contest 2020.07

Visiting

- 2022 IEEE AP-S and USNC-URSI Radio Science Meeting Denver, USA, 2022.07
- MVG μ-Lab mmWave antenna chamber training Philadelphia, USA, 2019.09
- 13th European Conference on Antenna and Propagation(EuCAP) Krakow, Poland, 2019.04
- Visiting student-KAUST Thuwal, Saudi Arabia, 2016.08-2017.01
- Academic Visiting-NUS, NTU Singapore, 2014.07

Teaching

- Teaching Assistant: Electromagnetic Theory (ECE221) 2022.08-2022.12
- Equipment Trainer: Cascade RF probe-station (up to 500 GHz) 2021.11-2021.12
- Teaching Assistant: Microwave Measurement Laboratory (EE323) 2021.05-2021.08
- Equipment Trainer: MVG μ-Lab mmWave antenna chamber 2019.10-2019.11
- Teaching Assistant: Microwave Circuits (EE223) 2019.08-2019.12

Publications

Journal:

1. K. Zhu, S. Pazos, M. Lanza, **H. Zhang** et al. “Hybrid 2D/CMOS Microchips for Memristive Technologies,” Nature. (Submitted and Passed 1st stage review)
2. **H. Zhang** and A. Shamim, “Wideband and Wide Beam-Scanning Dual-Polarized Phased Array Antenna-in-Package Design for 5G Applications,” IEEE Transactions on Antennas and Propagation. (Submitted, under review process)
3. **H. Zhang** and A. Shamim, “Figure of Merit for the Objective Assessment of mmWave 5G Phased Arrays,” IEEE Antennas and Propagation Magazine. (Submitted, under review process)
4. **H. Zhang**, Y. Yang, J. Zhou, and A. Shamim, "Wearable Radar System Design on Semi-Flexible PCB for Visually Impaired People, " in Frontiers in Communications and Networks, Dec 2021.”
5. W. Li, **H. Zhang**, S. Kagita, and A. Shamim, "All Screen-Printed, Polymer-Nanowire based Foldable Electronics for mm-Wave Applications," in Advanced Materials Technologies, July 2021. (**Cover Article**)
6. **H. Zhang** and A. Shamim, "Gain Enhancement of Millimeter-Wave on-Chip Antenna through an Additively

Manufactured Functional Package," in IEEE Transactions on Antennas and Propagation, Feb 2020

Conference:

1. **H. Zhang** and A. Shamim, "Figure of Merit for Objective Assessment of mmWave 5G Phased Arrays," 2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Denver, USA, 2022
2. **H. Zhang**, Y. Yang and A. Shamim, "Wearable Radar Antenna Array Design on Flexible PCB for Visually Impaired People," 2021 International Applied Computational Electromagnetics Society Symposium, 2021
3. **H. Zhang** and A. Shamim, "An Electrically Small Antenna in Package Design with Embedded Electronics for RPW Detection," 2020 IEEE APS & USNC/URSI Conference, Online 2020
4. **H. Zhang** and A. Shamim, "Tackling the Issues of Millimeter-wave On-chip Antenna Measurements," 2019 13th EuCAP, Krakow, Poland, 2019
5. A. Shamim and **H. Zhang**, "Gain Enhancement Techniques for mm-Wave On-Chip Antennas on Lossy CMOS Platforms," 2018 18th ANTEM International Symposium, Waterloo, Canada, 2018
6. **H. Zhang** and A. Shamim, "Gain and Efficiency Enhancement of a 77 GHz On-Chip Antenna through AMC and Superstrate Package," 2018 IEEE APS & USNC/URSI Conference, Boston, USA, 2018

Book Chapters:

1. A. Shamim and **H. Zhang**. Chapter 6: On Chip Antenna: Challenges and Design Considerations. In IET Book: *Antennas and Propagation for 5G and Beyond.* (Published 2021)
2. A. Shamim and **H. Zhang**. Chapter 6: Antenna-in-package Designs in Multilayered Low-temperature Co-fired Ceramic Platforms. In Wiley Book: *Antenna-in-Package Technology and Applications*. (Published 2020)