Jonathan G. Tao

jon.g.tao@gmail.com http://jgtao.me (415) 812-0180

Education

Ph.D. in Electrical and Computer Engineering 2019 - 2025 (Anticipated)
M.S. in Electrical and Computer Engineering March 2022
University of California, Santa Barbara - GPA: 3.96/4.00

B.S. in Electrical Engineering & B.S. in Computer Engineering March 2016
University of California, Davis - GPA: 3.86/4.00 with High Honors

Work

Graduate Student Researcher - UC Santa Barbara in Santa Barbara, CA September 2019 - Present

- Integrated circuits for low power receiver arrays above 100 GHz under direction of Professor James Buckwalter.

RFIC Engineer - Internship at HRL in Malibu, CA June 2022 - January 2023

- Phase shifter designs and layout at W-band in HRL T3 GaN, using ADS and Microwave Office.
- LNA design and layout at V-band in GlobalFoundries 45RFSOI using Cadence and EMX.

RFIC Engineer - Internship at SpaceX in Redmond, WA June - September 2021

- Circuit designs and layout for an RFIC in an Earth terminal for a satellite internet system (Starlink).
- Used Cadence and EMX to investigate on-chip Ku-band RF isolation and performance.

Product Support Engineer - Tesla, Inc. in Palo Alto, CA February 2017 - August 2019

- Validated and maintained Tesla's Superchargers, a global electric vehicle charging network.
- Created an automation platform for engineers with Python and Supercharger telemetry to replace manual diagnostics, leading to improved customer experience and enabling rapid expansion of the network.

NPI Electrical Engineer - Internship at Keysight Technologies in Santa Rosa, CA June - August 2015

Projects and Activities

D-band 4-Element Receiver Array with Dynamic LO Power Tradeoff - at UC Santa Barbara Present

- Phased array IQ receiver in 90-nm SiGe BICMOS demonstrating adaptive LO power techniques.

Tao et al., "A D-band SiGe Subharmonic Downconverter with Dynamic Conversion Gain and Fixed Input Compression," 2024 IEEE BiCMOS and Compound Semiconductor Integrated Circuits and Technology Symposium (BCICTS), Fort Lauderdale, FL, USA, 2024, pp. 199-202

Tao et al., "A 170-260 GHz SiGe Frequency Doubler with 5-dBm Output Power and 13-dB Input Power Range," 2024 19th European Microwave Integrated Circuits Conference (EuMIC), Paris, France, 2024, pp. 22-25

Tao et al., "A 185-GHz Low-Noise Amplifier Using a 35-nm InP HEMT Process," in IEEE Microwave and Wireless Technology Letters, vol. 34, no. 5, pp. 501-503, May 2024

High Frequency Transistorized Function Generator - Personal Project January 2017

- Designed and fabricated a credit card-sized 40 MHz function generator made with 86 discrete transistors.

Formula SAE Student Electric - Race Car Design Team at UC Davis September 2013 - June 2015

Skills

Hardware

- Electronics design: mmWave RFIC, system packaging on PCB, and embedded systems.
- Use of oscilloscopes, signal generators, and network analyzers, and spectrum analyzers to verify circuits.
- Circuit design and layout with, Keysight ADS, Cadence Virtuoso, Microwave Office, Momentum, EMX, and HFSS.

Software

- Python, C/C++, BASH, MATLAB, SQL, Git, Docker.
- Embedded software development for microcontrollers. Familiar with communication protocols and peripheral devices.
- Software development with issue life-cycles, unit testing, continuous integration, and version control.