

Education

Ph.D. in Electrical and Computer Engineering 2019 - 2024 (Anticipated)
with focus on Communication Electronics
University of California, Santa Barbara - GPA: 3.96/4.00

Bachelor of Science in Electrical Engineering March 2016
Bachelor of Science 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

- Radio frequency integrated circuit research and design under direction of Professor James Buckwalter.

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.
- Implemented fleet-wide analysis programs with data-streaming platforms and Apache Spark for real-time insights.

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

- Analyzed power and bias design of a vector signal generator with SPICE simulations, leading to a more reliable product.

Projects and Activities

BiCMOS SiGe IQ Downconverter at 210 GHz - Research Project at UC Santa Barbara April 2021 - Present

- Designed and taped-out a 210 GHz SiGe BiCMOS (130 nm) receiver using Cadence Virtuoso and EMX.
- Second revision ongoing to reduce chip area for phased array applications

InP HEMT Low Noise Amplifier at 210 GHz - Research Project at UC Santa Barbara November 2020

- Designed and taped-out a 210 GHz InP HEMT (35 nm) LNA, using Keysight ADS and Momentum EM.
- Simulated gain of 25 dB and noise figure of 5.3 dB, using 22 mW. To be measured.

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

- Designed, built, and raced an electric formula car with a team for the Formula SAE competition.

Skills

Hardware

- Electronics design: Analog integrated chips, RF circuits, and embedded systems.
- Use of oscilloscopes, signal generators, network analyzers, multimeters, and logic analyzers to verify circuits.
- Simulation and test-driven circuit design with SPICE, Keysight ADS, and Cadence Virtuoso.

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.