

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.

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.
- Shortened time to validate by optimizing and automating simulation workflow.

Projects and Activities

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 soon.

High Frequency Transistorized Function Generator - Personal Project January 2017

- Designed and fabricated a credit card-sized 40 MHz function generator made with only discrete transistors.
- Implements sine, square, and triangular waveforms using edge rate control and bandgap stabilization, with 86 transistors.
- Created a design workflow involving SPICE simulations and a Python program for design automation and verification.

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 and won 3rd place at the SAE Electric International competition of 2014 in Lincoln, Nebraska
- Wrote firmware for high voltage power management, vehicle networking, and wireless data logging.

Skills

Hardware

- Electronics design: Analog integrated chips, RF circuits, wireless systems, and embedded systems.
- Use of oscilloscopes, signal generators, spectrum/network analyzers, multimeters, and logic analyzers to verify circuits.
- Printed circuit board layout (eg. KiCad) with soldering, assembly, and testing of circuit boards.
- 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 embedded communication protocols and peripheral devices in bare-metal and RTOS implementations.
- Software development with issue life-cycles, unit testing, continuous integration, and version control.
- Familiar with platform-specific IDE development workflows and UNIX-based command line environments.