

## Work

### Product Support Engineer - Tesla, Inc. in Palo Alto, CA

February 2017 - Present

- Validated and maintained Tesla's Superchargers, a global electric vehicle charging network with thousands of units.
- Create a scalable automation platform with Python and Supercharger telemetry to replace manual diagnostics, leading to faster issue resolution and an improved customer experience
- Implemented fleet-wide analysis programs and refactored existing applications, such as a critical analysis program whose running time was reduced by over 50 percent, allowing for low-latency daily results on customer impact.
- Developed an electro-thermal model for high power electrical connectors and implemented it in Python for empirical design evaluation and for simulated customer throughput analysis.
- Improved product reliability by investigating root causes of failures, documenting new issues, and providing advanced engineering support to technicians in the field.

### 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 simulation workflow with BASH and Make. Created new metrics and wrote new programs to quantify simulation quality. Wrote documentation for new and existing software.

## Experience and Projects

### High Frequency Transistorized Function Generator - Personal Project

January 2017

- Designed and fabricated a credit card-sized 40 MHz function generator made with only transistors and passives.
- Sped up design by writing SPICE simulations and a Python program for design automation and verification.

### Software Defined Frequency Synthesizer - Personal Project

June 2016

- A PLL-style synthesizer implemented in software with an Atmel AVR microcontroller and a discrete transistor VCO.
- Can reliably tune to a wide range of frequencies from 100 kHz to 1800 kHz at 200 ppm.

### 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 that managed high voltage vehicle systems for power-up, shut-down, driving modes, and emergencies.
- Built a CAN bus sensor network logger with a Cypress PSoC and wireless telemetry to a desktop application.
- Worked on a networked high voltage battery management system implemented with LTC6804 interface chips.

## Education

**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 (Engineering Dean's Honor List, 10 quarters)

## Skills

### Hardware

- Electronics design involving embedded systems, power, transistorized circuits, and mechanical integration.
- Use of oscilloscopes, signal generators, spectrum 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 (eg. NGSPICE, LTSPICE).
- Failure analysis (FMEA) for new or deployed electronic designs.

### Software

- Python, C/C++, Lua, BASH, MATLAB/Octave, SQL, Git.
- Embedded software development for microcontrollers. Familiar with embedded communication protocols and peripheral devices in bare-metal and RTOS implementations.
- Maintainable 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..
- Typesetting in HTML and L<sup>A</sup>T<sub>E</sub>X .