

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, and transistorized circuits.
- 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 \LaTeX .