
Education

University of British Columbia, Sept 2018 - Present

Bachelor of Applied Science: 3rd Year Electrical Engineering (prev. Engineering Physics)

Cumulative Average: 86.3%

Expected Graduation: May 2024

Technical Skills

- Experienced with component selection, schematic capture and PCB Layout using Altium Designer
 - Construction of analog circuits (LCR, Op-Amps, FETs, BJTs) and digital circuits (Logic Gates, Flip-flops, Counters)
 - Experience with test and measurement equipment: oscilloscope, multimeter, signal generator, e-load, etc.
 - Capable with surface mount and through hole soldering and board rework
 - Circuit simulation and design verification using LTSpice and NI Multisim
 - Experience with power supply testing/characterization (thermal, ripple, efficiency, quiescent current, transients, etc.)
 - Familiar with communication protocols: SPI, I2C, CAN, ethernet, PWM
 - Software skills: Python, C, C++, Java, BASH, MATLAB/Simulink, Linux, Git
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Tesla

Industrial Energy/Charging and Battery Electronics Hardware Intern

Sep 2021 – Dec 2021

- Supported validation and bring-up for 6 different PCBAs across 3 new Tesla Energy/Charging products.
- Optimized design for a custom high voltage >1kV flyback converter focusing on synchronous rectifier controller design challenges for cost reduction and thermal performance.
- Fully responsible for design (schematic, layout, sourcing, purchasing) of CAN repeater boards used for extending CAN bus for debug purposes on Tesla Megapack.

Tesla

Low Voltage Systems Validation Intern

May 2021 – Aug 2021

- Designed, implemented, and tested a full automation process for validating exterior lighting on all Tesla vehicles including system design, hardware, firmware, and automation software to automatically run tests through a Jenkins pipeline.
- Designed 4-layer data acquisition and motor actuation PCB with a CAN interface to integrate into existing automated test infrastructure.
- Wrote and tested firmware for I2C controlled ICs, analog multiplexers, PWM, and CAN interface.
- Managed project for construction of a Model 3 Body Controls Tester box using CAN controlled hardware.
- Mentored two other interns in firmware and software development for automation.

Tesla - Energy

Systems Integration and Test Automation Intern

Jan 2021 – May 2021

- Researched and designed a new method for AFCI testing to significantly reduce manual test time by using a waveform generator, power op-amp, and a bulk current injection probe to inject a current signal of a physical arc into a PV inverter.
- Automated data collection and analysis of current noise in a solar panel system's impedance network to make data driven recommendations to firmware teams for improving Tesla's arc fault detection algorithm.
- Designed automated pytest scripts for feature and regression testing of Tesla Energy products at the system level.
- Debugged critical fleet issues, recreated fault scenarios in system test, and recommended design changes to firmware and power electronics controls teams.

UBC Rocket – Electrical Team Member

Sep 2020 – Mar 2021

Designed layout of the rocket's 4-layer power regulation and computing PCB, which regulates a Li-ion battery power source into 24V, 5V and 3V3, collects data from sensors via I2C, SPI, RS422, Ethernet, and CAN to communicate flight critical data and detect apogee.

Engineering Physics Autonomous Robot Competition Finalists: 4th out of 16 teams

May 5 – August 6, 2020

Built a fully autonomous robot with circuits to perform PID tape following using IR reflectance, detection of 1 kHz IR beacon using amplifier and bandpass filter, and a PWM controlled H-bridge motor driver circuit.

UBC Collaborative Robotics Laboratory

Robotics Research Intern

Jan 2020 – May 2020

Developed robotics software and debugged hardware for a CS/robotics research team creating a control system and interface for cognitively impaired adults to learn to drive powered wheelchairs while sharing control with a trainer

UBC Sailbot – Motion Planning Software Team Member

Jan 2020 – Sept 2020

Developed path planning software for a fully autonomous sailboat to compete in the Vic-Maui International Yacht Race

Relevant Coursework

ELEC 204 (A+, 100%) – Circuit Analysis

ENPH 253 (A+, 95%) – Introduction to Instrument Design

CPEN 312 (A, 97%) – Digital Systems and Microcomputers

ELEC 342 (A, 100%) – Electro-Mechanical Energy Conversion and Transmission

ELEC 301 (A, 86%) – Electronic Circuits