

James Seto

(236) 878-3059 | jameseto1@gmail.com | [LinkedIn](#) | [Portfolio](#)

Professional Experience

- Tesla** Palo Alto, CA
Vehicle Software Intern - Low Voltage Power Distribution Feb – Aug 2023
- Developed *MISRA-compliant C* firmware and *Python* simulations to engineer low voltage health checks for the Cybertruck, ensuring compliance with public road driving requirements.
 - Debugged *CAN* messages and implemented a firmware fix to resolve communication issues with the Electronic Stability Program, resulting in a drastic reduction of over 444 service visits per month across S3XY platforms.
 - Presented complex feature behaviors at cross-functional meetings, such as impedance estimation algorithms.
 - Integrated time acceleration interface into Software-in-the-Loop simulation using *Rust*, enabling 24+ hour tests to be conducted within seconds.
- Ensemble Scientific** Remote
Hardware Engineer Intern May – Aug 2022
- Developed a solar-powered dual Li-ion battery module with cell balancing and protection circuits using *Altium* and *C++*, enabling off-grid environmental monitoring systems.
 - Designed 3 stackable PCB modules incorporating *LoRa*, *WiFi*, and *GPS* transceivers, expanding the customization options for our environmental monitoring package.
 - Implemented a logbooking system for tracking 6+ projects, resulting in efficient knowledge transfer, traceability of design decisions, and enhanced company knowledge accumulation.
- A&K Robotics** Vancouver, BC
Experimental Robotics Engineer Intern Sep – Dec 2021
- Successfully resolved issues with a faulty RGB LED striplight on an autonomous vehicle, utilizing IC datasheets, *Arduino* programming, and splicing spare parts within a tight deadline for a client showcase. Resulted in attracting 3 airports as clients.
 - Implemented p-FETs, voltage and current protection circuits to develop a robust load switch for robot power distribution during a chip shortage. Validation was carried out using *LTSpice* simulation software.
 - Transformed a powered wheelchair into a rugged 3D LIDAR mapping vehicle equipped with *Nvidia Jetson* brain. Designed and fabricated sensor mounts using *Fusion 360* and *Simplify3D* slicing software to enable outdoor mapping.

Technical Projects

- UBC Solar Design Team | Co-leader of Power Electronics and Main Driver** Jun 2021 – Present
- Researched, replicated electroluminescence imaging tests by processing IR images with *Raspberry Pi* to determine solar cells with optimal performance properties for our solar vehicle
 - Diagnosed an electrical shortage between solar arrays and aeroshell at competition using silicone and liquid electrical tape, restoring solar charging to our vehicle, enabling us to drive 60 track laps over 2 days at Topeka Heartland Motorsports Park on first race-qualified vehicle in team's history
- FuelCell Energy | High Power Smart Switch for Fuel Cell Application (team of 4)** Sep 2021 – Apr 2022
- Devised novel dual common-sink power FET architecture to handle 500V, 80A, bidirectional power flow
 - Investigated transient current response of switch using *LTSpice* to determine compatibility with solid oxide fuel cells
 - Planned, performed thermal tests with 100A-capable power supply and thermal camera, verifying switch's ability to withstand 80A of continuous current at acceptable temperatures
 - Chaired time-effective meetings with project sponsors to make critical decisions for progression of project

Education

- BASc. in Engineering Physics | University of British Columbia** Sep 2018 – May 2024
- Exchange Student | ETH Zürich - Dept. of Information Technology and Electrical Engineering** Sep 2022 – Feb 2023
- Highlighted Courses:** Design of Power Electronics, Embedded Systems, Solar Cells

Technical Skills

- Programming** C, Python, Numpy + Pandas, TensorFlow, Rust, ROS, Java OOP, Shell Script, SystemVerilog
Prototyping Altium, PCB Assembly, LTSpice, Solidworks, ANSYS FEA, 3D Printing, Lab Tools, Antenna Design