James Seto

T: 604.822.9677 | F: 604.822.9676 | science.coop@ubc.ca | www.sciencecoop.ubc.ca

3rd Year Engineering Physics | jameseto1@gmail.com | https://www.linkedin.com/in/james-seto-278767165/

Technical Skills

Prototyping	SolidWorks, ANSYS FEA, Soldering, Oscilloscope, Microcontrollers
Programming Languages	Bash Shell, Python, MATLAB, Java, C++, VHDL
Tools and Frameworks	Linux, Git, Jupyter, JIRA, PostgreSQL, Keras/Tensorflow, ROS, Pandas

Technical Professional Experience

Hardware and Firmware Engineer | BRAVE Technologies **May 2021 - Current**

Programmed, assembled and commissioned drug overdose sensors with Vancouver clients

- **Firmware:** Performed systematic workbench testing on dev firmware. Implemented backwards compatibility of dev firmware onto legacy hardware in production. Commissioned firmware onto fleet of Wi-fi/LTE-connected Particle development kits.
- **Site Work:** Communicated with correspondents at shared homes and health clinics to troubleshoot or install sensor modules.

Technical Project Experience

Gas, Brake Pedal Assembly | UBC Solar **May - Jun 2020**

Designed pedals, mounting, and brake line routing of UBC Solar's solar-powered competition car

- **Evaluation:** Drafted several mounting configurations and selected a design with the determined constraints. Formally presented design decisions to admin team.
- **Modelling:** Modelled assembly in SolidWorks to determine positioning about chassis and driver. Designed pedal geometries to provide mechanical leverage for full braking capability. Validated safety by simulating emergency braking with ANSYS FEA.
- **Component Selection:** Selected cost-effective fasteners to meet competition and design constraints. Analyzed and selected appropriate flange bearings, torsion springs, and hydraulic line adapters. Specified a bill of materials to track total costs, streamline manufacturing, and determine EOL.

Recycling Robot | UBC ENPH Program **May - Aug 2020**

Autonomous soda can retriever with hobbyist tools at home (team of 4)

- **Mechanical:** Designed chassis in OnShape to plan component placement. Iterated rapidly through prototyping cycles with household materials to develop a backdoor trigger, enabling can disposal without an extra servo. Prepared detailed procedures of assembly instructions to teammates to collaborate virtually.
- **Electrical:** Verified breadboard prototypes of motor H-bridge with an oscilloscope before constructing through-hole soldered circuit boards. Shrink-wrapped and keyed external connections to reduce risk of shorting. Isolated microcontroller from motors with optocouplers to prevent damage from noise.
- **Software:** Programmed control software in C++ for an STM-32 microcontroller to track tape path and control tire speeds. Wired potentiometers to calibrate PID parameters and tape sensors.

PiPosture Posture Reporting App | nwHacks **Jan 2021**

Raspberry Pi-powered deep learning posture monitoring application developed in 24-hour timeframe (team of 3)

- **Model Training** Created a diverse dataset of postures and created a Python script to extract silhouettes with Canny edge detection to reduce unimportant details. Split the dataset to train and validate a CNN model with Keras to recognize slouching.
- **Integration** Scripted a Raspberry Pi to autonomously photograph user's posture periodically. Embedded CNN model into Pi to generate predictions locally and send to server on cloud via API.

Education

BASc. in Engineering Physics | University of British Columbia **|** Average 88.6% **Sep 2018 – May 2023 (Expected)**