

Kyle Mackenzie

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TECHNICAL SKILLS

Languages: Java, JavaScript, C++, Python, HTML/CSS

Frameworks / Packages: React, MongoDB, Node.js, JUnit, NumPy & Pandas, Selenium

Tools/Environments: Git & Github, Jupyter Notebooks, Simulink

EDUCATION

Engineering Physics

University of British Columbia

Vancouver, BC

Sep. 2020 - May 2025 (expected)

Relevant Coursework: Software Design, Algorithms and Data Structures, Robotics Design, Signals and Systems

RELEVANT EXPERIENCE

Full-Stack Developer Co-op

ICBC

Jan. 2022 – Apr. 2022

Vancouver, BC

- Proposed, designed, and prototyped a new type of automation solution used internally that reduced development costs by 50% compared to company standard.
- Researched and developed company standard prototype for automation solutions using Robot Framework, while cutting time to get products to customers by 50%.
- Automated the development of test cases using Robot Framework to increase test coverage of web application, reducing development costs.
- Used ThreeJS, ExpressJS and Node to prototype a 3D, gamified version of current ICBC Knowledge Practice Test to increase customer engagement and learning, and improve road safety.

Drivetrain Firmware Developer

UBC Formula Electric Student Design Team

Sep. 2022 – Present

Vancouver, BC

- Developing traction control algorithms in C using Simulink for STM microcontrollers, for real-time autonomous stabilization in slipping accidents.
- Researched and documented experimental control algorithms for high-performance electric cars.

Front-End Developer

Charlene's Web Services

May 2021 – Sep. 2021

Remote

- Developed a slideshow application using JS, express.js, HTML/CSS for deployment on WordPress marketplace.

Embedded Systems Developer

UBC Solar Student Design Team

Jan. 2021 – Sep. 2021

Vancouver, BC

- Helped develop multi-threaded communication firmware in C for micro-controllers to communicate through serial, radio, and cellular for real-time data acquisition during solar car races.
- Wrote documentation for embedded software algorithm to ensure complete understanding for future employees.

TECHNICAL PROJECTS

Social Network Analysis Project | 3 person project - Java, Git, JUnit

Oct. 2021

- Developed a Graph data structure to represent relationships between co-workers from a company's email records.
- Implemented methods for depth-first and breadth-first search, as well as finding the shortest path between 2 users.

Autonomous Robot | C, Arduino, STM32

Aug. 2021

- Designed and built embedded software system for an autonomous robot that interacted directly with sensors and actuators
- Designed and soldered a Butterworth bandpass filter circuit to clean an Infrared signal before software processing
- Developed tape-following PID Motor Control Algorithm for custom-fabricated robot
- Designed, soldered, and tested PCBs for all of the robot's electrical systems

Image Classifier | Python, TensorFlow, Google Colab Notebooks

Sep. 2020 – Oct. 2020

- Developed a Convolutional Neural Network with TensorFlow to classify images of clothing items
- Achieved a 90%+ Accuracy

INTERESTS

Hiking • Robotics • Music Production • Web Design