Caleb Bourbonnais

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EDUCATION

University of Calgary **Calgary, AB**

Bachelor of Science in Software Engineering, Minor in Entrepreneurship and Enterprise development *Expected May 2027*

- Dean's Honour List, Cumulative GPA: 3.5/4.0

SKILLS

- Experienced with Agile development practices and Object-Oriented programming principles.
- Proficient in version control technologies and creating program documentation.
- Professional experience using Python, Node.js, and MYSQL.

Languages Python | C++ | C | Java | TypeScript

Technologies React.js | React Native | Expo | Qt | JUnit | MySQL | MongoDB | Node.js | Docker | Git | Jira | Confluence | Amazon Web Services: Amplify, EC2, S3, EBS

WORK EXPERIENCE

OGL Engineering **Calgary, AB**

Geomatics Engineering Intern *May 2023 – Sep 2023*

- Operation of Teledyne Galaxy LiDAR sensors in an aircraft. Created weather logging scripts in python that use XM frequency to improve survey line selection process, and decreased point cloud classification time by **~10%**.
- LiDAR survey data processing. Performed classification of LiDAR point clouds using TerraScan to improve the accuracy of terrain models.

Halton Tool & Fabricators **Burlington, ON**

Machinist Millwright Apprentice *Feb 2018 – Apr 2020*

- Engineered and installed assembly line equipment for various projects. Reduced cycle time by **30%**, leveraging Excel to analyze production data and find bottlenecks in the production process.
- Developed CNC code for manufacturing projects using BobCAD software. Reduced the entire team's design time by more than **1/2** by utilizing Excel to track previous design decisions and faults.

EXTRACURRICULAR

University of Calgary Solar Car Team **Calgary, AB**

Software Team Lead *Aug 2023 – Present*

Telemetry Team Member *Oct 2022 – Aug 2023*

- Leading a team of 26 in the development of "Schulich Helios" - 6th generation Solar powered Car. Optimized the teams' planning and assignment of tasks using Jira and Confluence, increasing output by **~20%** in accordance with Agile development practices.
- Development of a backend program which creates JSON packets from bitstream and sends it over MQTT. Uses C++ and Qt6 to reduce latency in this process from previous generation's car by **100ms**.
- Full Stack development of a Telemetry site utilizing React.js with TypeScript and Tailwind.css to display live vehicle data. Oversee and maintain the team's AWS EBS and EC2 instances to ensure application reliability and scalability.

PROJECTS

PuckJourney – *Full Stack web application*

- Ice hockey trivia game where the user guesses which teams NHL players have played for. Built using JavaScript with a Python Flask back end, utilizing the NHL API to provide content to **~30** daily users.
- Migrated to React Native with Expo and hosted using AWS Amplify, resulting in a cross-platform application with a modularized design to increase project scalability.

CT Survivor – *Mobile handheld game in C*

- Handheld game for a first-year engineering design class. Built using an Arduino Mega and TFT color display. Leveraged EEPROM memory to create efficient saved games, achieving the title of the best designed game among **80+** projects.

AutoGarden – *Automated Herb Garden*

- An automated 3d printed garden box designed in Solidworks and controlled by an Arduino development board. Able to maintain a small herb garden using UV light strips and an Adafruit soil sensor to detect soil moisture levels.

Flight Management App – *Airline Passenger Management Application in C++*

- Lead a team of 5 in the creation of a terminal program which could manage passenger booking for an airline. Built using C++, following object-oriented programming principles and agile development practices among team members.