

PATRICK MALONEY

Biomedical Engineering
University of Waterloo

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SUMMARY OF QUALIFICATIONS

- **Languages:** C++, C#, C, Java, JavaScript, HTML, SQL, Python, MATLAB
- **Tools:** Linux, QNX, Agile Development, React, Vue.js, Unity, VS Code, Momentics, MySQL, gtest, gmock, Git, SonarQube, SolidWorks
- Strong time management, communication, and problem-solving skills

EXPERIENCE

Power Management Software Developer

Ford Motor Company of Canada

Jan. 2020 - April 2020

- Produced large-scale, thread-safe and performance-oriented software using **C++** to manage data from Controller Area Networks (**CAN**) across three Electronic Control Units (ECUs)
- Used **VS Code** and **Momentics** to develop cross-platform code to run on **Linux** and **QNX** embedded systems
- Delivered debugging tool which enabled CAN messaging, resource state querying, and power states requests during testing

Sept. 2020 - Dec. 2020

- As the person second-most experienced with the code base, I brought forward major design decisions and implemented critical new features while increasing code stability and maintainability
- Expanded unit test coverage by 25% using **gtest** and **gmock** frameworks in first two weeks
- Completely redesigned the team's API to allow for request status callbacks and a simplified use case based requesting interface

Software Developer

Big River Technologies Inc.

May 2019 - Aug. 2019

- Designed and built a **MySQL** database to improve tracking of employee provisioning and access management
- Wrote clean code in **JavaScript**, **HTML**, and **CSS** for the company's internal and external websites
- Developed coding best practice and company standards documentation

Cancer Radiotherapy Research Assistant

Grand River Regional Cancer Centre

Sept. 2019 - Mar. 2020

- Worked with doctors and professors in a study to analyze retrospective radiation therapy data for the optimization of brain cancer treatment
- Wrote **Python** scripts to extract and visualize treatment plan data from radiation modelling system

Vice-President of Finance

UWaterloo Residence Council

Sept. 2018 - April 2019

- Managed spending of \$7200 account to ensure all events could be successfully run and efficiently co-lead general council meetings

PROJECTS

Augmented Reality Android App

Best VR/AR Hack, BrickHack 5

Feb. 2019

- Developed a facial recognition and information display app for the Vuzix Blade smart glasses in under 24 hours with the use of **Unity**, **Vysor**, and **Vuforia**

Biomechanics Design Team

Robotic Prostheses Design

Sept. 2018-Present

- Used biomechanics principles to design, CAD, and 3D print a robotic hand prosthesis
- Developed BLE protocol using **C++** for the Myo Armband and ESP32 to send EMG data

Grocery/Meal Prep. Web App

BrickHack 6,

Feb. 2020

- Built a dynamic grocery list application using **Vue.js**, **Spring** and **MySQL** that monitors the user's pantry and determines what products need purchasing for selected recipes

EDUCATION

Candidate for BAsC. in Biomedical Engineering, Computing Option

University of Waterloo

2018 - exp. 2023

Dean's Honours List

89% Avg, 3.82 GPA

Relevant Courses:

- Software Design
- Data Structures and Algorithms (**C++**)
- Digital Computation (**C#**)
- Circuits and Instrumentation
- Statistics
- Image Processing

ACTIVITIES/INTERESTS

- University orientation organizer/leader
- Competing in hackathons
- Engineering Society Council
- Hockey, Skiing, Volleyball, Ultimate Frisbee