



## Work Experience

### TECHNICAL SKILLS



### Embedded Software Developer | Waterloo

September 2017 – Current

- ▶ **Increased** the **efficiency** of the **Hyper-loop** pod's **AVR micro-controller** architecture (Arduino & Raspberry Pi) **by 30%**, specifically designing and writing the **C++** code libraries responsible for string manipulation and memory management
- ▶ Participated in **critical design/architecture decisions** relating to the **embedded systems** and data transfer protocols to be implemented in the Hyper-loop pod, taking into consideration various software failure scenarios and software compatibility
- ▶ **Deployed Python code** for parsing the raw data coming from various temperature, pressure, and proximity sensors located throughout the pod. Such data is used for monitoring and diagnosing the overall **state of the Hyper-loop pod**

### Research Assistant | Brock University

June 2016 – June 2017

- ▶ Developed **Python** programs for material physics research conducted at Brock University
- ▶ **Automated data collection** from piezoelectric sensors and accelerometers, significantly improving the efficiency of such experiments. **Increased precision** of experiments **by 40%** through frequency optimization algorithms (Fast Fourier Transforms)
- ▶ Presented **novel experimental approach** and research conclusions at the **2017 Canada Wide Science Fair**, receiving **Bronze Medal** honors and scholarship recognition from Western University and the University of Ottawa



## Projects

### AWARDS

Canada Wide Science Fair Bronze Medal  
 Canadian Secondary School Rowing Championships Silver Medal  
 Sir Winston Churchill Staff Award  
 Professional Engineer's of Ontario Engineering Award

### Infini-Runner: Unity3D Game |

<https://github.com/bobqywei/Runner3D>

- ▶ An in-progress 3D platformer game for both Android and iOS (<https://youtu.be/rk8PiT0AI7s>)
- ▶ Implemented **procedural path generation**, **object oriented programming**, and built-in **Perlin Noise** randomization algorithms to provide unique continuous gameplay

### Raspberry Pi Coding Assistant |

<https://github.com/bobqywei/Coding-Assistant>

- ▶ A **voice assistant** developed specifically for the needs of those learning **C programming**
- ▶ Includes functionality for pulling code excerpts and concepts off the internet and for editing and compiling C files

### miniML: Sign Language App |

- ▶ Developed a proof of concept for an **American Sign Language recognition** mobile app, specifically using the Darknet Neural Network framework (C) for training data
- ▶ Submitted as a group project for **Hack the North 2017**



## Education

### HOBBIES

Rowing  
 Personal Training  
 Basketball  
 Computer Hardware  
 Graphic Design

### University of Waterloo

- ▶ Bachelor of Software Engineering (3.95/4.0 GPA)

### Relevant Academic Work |

- ▶ Competed in the **2017 Canadian Computing Competition** using **Python**, achieving the highest score in the District School Board of Niagara as a high school senior
- ▶ Studied **C** in the CS137 course, as well as **Python** and **Java** through high school courses