



Work Experience

TECHNICAL SKILLS



Software Developer | Waterloo

September 2017 – Current

- ▶ Designed and implemented the software infrastructure responsible for **communications** and **data-transfer** onboard the **Hyperloop** pod. Integrated **CAN-BUS** and **I2C** protocols throughout the main backend and controls systems
- ▶ **Increased** the **efficiency** of the **Hyperloop** pod's micro-controller systems by **30%**, specifically writing and refining the **C++** code responsible for memory management onboard the various low memory micro-controllers (Arduino Uno and Mega) being used
- ▶ Participated in **critical design/architecture decisions** relating to the **embedded** and **backend** systems onboard the Hyperloop pod, taking into consideration various software failure scenarios and compatibility issues

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

DISTINCTIONS

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

Infinity Runner |

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

- ▶ An in-progress 3D platformer game for both Android and iOS (<https://youtu.be/rk8PiT0AI7s>) developed in **C#** using the **Unity3D** Engine and the **Blender** CAD software
- ▶ 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**
- ▶ Utilizes IBM Watson's Speech-to-Text and Text-to-Speech API's
- ▶ Developed **Python** and **JavaScript** backend for handling, editing, and compiling local source code and for scraping relevant code examples and concepts from the internet

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 region as a high school senior