



Work Experience

TECHNICAL SKILLS



Embedded Software Developer | Waterloo

September 2017 – Current

- ▶ Increased the **memory 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**

Physics Research Assistant | Brock University

June 2016 – June 2017

- ▶ Developed **Python** programs for material physics research conducted at Brock University
- ▶ Automated **data collection** involving oscilloscopes, piezoelectric sensors, and accelerometers, significantly improving the efficiency of such experiments. Increased **precision** of experiments by **50%** through frequency optimization algorithms (Fast Fourier Transforms)
- ▶ Research conclusions provided a **novel experimental approach** to studying energy transformation in particle systems, an area typically dominated by theoretical studies. Presented the research 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

Governor General Academic Medal

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 platforms.
- ▶ 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