Bob Wei

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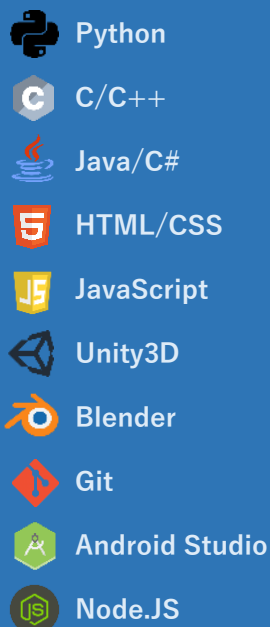## Work Experience

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 across the backend and primary 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

Infinity Runner | https://github.com/bobqywei/Runner3D

- ▶ An in-progress 3D platformer game for both Android and iOS (https://youtu.be/rk8PiT0Al7s) 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

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