Brian Li

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Skills

Programming Languages:	Python, C++, Java, Java FX, HTML, CSS, Tailwind CSS, Javascript, React
Other Tools:	Arduino, Adobe Premiere Pro, Audacity, Git, Raspberry Pi, STM32CUBEIDE, Figma

Relevant Experience

St. Augustine Catholic High School
Full Stack Developer **December 2021 - June 2023**

- Managed the front and back-end of the official school app website. Reached 500+ audience.
- Utilized **HTML**, **CSS** and **Vue.js** to help build and make weekly changes to website interface.
- Worked with **Firebase** to handle back-end data and user permissions.

Waterloo Formula Electric
Firmware Developer **September 2023 - Present**

- Created hardware-in-the-loop (**HIL**) tests using **Python** to validate electric car components and determine expected behavior.
- Analyzed the Battery Management Unit (**BMU**) by stimulating its state of charge; conducted in-depth examination of **C** firmware code and schematics to identify source variables and functions.
- Utilized tools such as **STM32IDE**,**Virtual Box** and **Vagrant** to find translation between code and firmware input.

Wat.AI
Neural Network Developer **September 2023 - Present**

- Designed and prototyped **sparse** and **denoising** autoencoders using **PyTorch** and **Tensorflow** for compressing IoT cybersecurity data.
- Contributed to the testing of machine learning models focused on cyberattack detection for IoT devices.
- Helped optimize draft autoencoders through implementation of algorithms such as **exponential learning rate decays** and the Adam Optimizer.

Projects

Data Visualization Software *Java, JavaFx, CSS*

- Created a software that visualizes **real-time** data sheets in various graphic forms.
- Visualizations are **dynamic** and customizable based on user inputs and adjustments.
- Pulling from OurWorldinData, seamless **processing** of complex data.

"Are Masks Masking Your Voice?" *Audacity, Pandas, Canva, Adobe Premiere Pro*

- Completed a research project that studied the correlation between one's voice output and mask worn.
- Measured voice output using **Audacity** and edited data using **Pandas**. Utilized **Canva** and **Premiere Pro** to designed project display and video.
- The project aimed to foster new solutions to the mask mandate. Earned Gold at the YRSTF and was selected to represent for Team York at the CWSF.

"Sumo" Car Bot *Python, Arduino, Raspberry Pi, HTML, CSS*

- Created a fully functional mini car that was both **autonomous** and **controllable** by user through a **web server** using SSH protocol.
- Implemented the embedded system using **Arduino** and **Raspberry Pi**.
- The car was used as a "sumo" bot at a high school tournament against other student-built cars.

Awards

Hackathon Winner University of Toronto, Nestlé Canada
Group awarded 3rd for creating most innovative plan in perfecting Nestle's launch to the online market. Given distinctions through describing use of tools such as AWS while deducting sizing of products. October 2022

Debate Finalists EDS Debate Society
Broke as a finalist at the UOttawa 2023 Annual Debate Tournament. May 2023

Education

University of Waterloo Waterloo, ON
Candidate for Bachelor of Applied Science in Computer Engineering September 2023 - Present