Brian Li

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Skills

Programming Languages:	Python, C++, Java, HTML, CSS, Tailwind CSS, Javascript, Typescript, SQL, Dart, PHP
Frameworks:	React, .NET Framework, NextJS, NodeJS, Flutter, Langchain
Tools and Technologies:	Git, Linux, RESTful APIs, STM32, Arduino, Raspberry Pi, OpenCV, FPGA

Relevant Experience

Wat.AI
Lead Neural Network Developer September 2023 - Present

- Led sub team of 3 in designing and prototyping **sparse** and **denoising autoencoders** using **PyTorch** and **Tensorflow** for compression of IoT cybersecurity data (CICIOT 2023); optimized draft autoencoders with practices like **exponential learning rate decays** and **learning curve analysis**
- Contributed in writing and updating team substack articles to highlight progress of team project; helped with the testing of **machine learning models** focused on cyberattack detection for IoT devices

Waterloo Formula Electric
Lead Firmware Developer September 2023 - Present

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

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

- Managed the front and back-end of the official school app website; website reached **300+ audience** monthly and **increased** school app downloads by **26%**
- Utilized **HTML**, **CSS** and **Vue.js** framework to conduct weekly changes to website interface; worked with **Firebase** to handle back-end data and user permissions
- Collaborated within a **Agile workflow** as scrum developer in conducting and deploying weekly/monthly changes

Projects

"Spotify-Roots" — *NextJS, Tailwind CSS, Typescript, Flask, Spotify API, Genius API, Langchain, HuggingFace*

- Developed web application that outputs the **origins** of songs, albums, or artists selected by users. Text generation component was constructed using Langchain's **HuggingFace model**
- Application built with **OAuth2 protocol** for Spotify account logins, allowing users to import personal playlists for analysis. Application enhanced with added functionality of **predicting potential liked songs for users**

"Are Masks Masking Your Voice?" — *Audacity, Pandas, Figma, Adobe Premiere Pro, UI Design*

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

"Sumo Car Bot" — *Python, Arduino, Raspberry Pi, HTML, Linux, Flask*

- Led a group of 4 in developing a fully operational miniature car capable of **autonomous navigation** and user control via a **Flask** hosted web server; organized and planned individual tasks for members
- Utilized **Arduino** and **Raspberry Pi** for the implementation of the embedded system; coded car functions within a **Ubuntu** environment using **SSH protocol** and **VIM**. Constructed with WHIMIS guidelines

Awards

Hack Attack Winner — *University of Toronto, Nestlé Canada* October 2022
Led a team of 4 to **3rd** through preparation of plan to enhance Nestle's **online market debut**; recognition stems from effective utilization of tools like **AWS**, and strategic **downsizing of product sizes**

Education

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