ANDREW LIU

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SKILLS

Languages: JavaScript, C++, C, Python, HTML5, CSS
Tools/Technologies: React.js, Git, LaTeX, Excel
Design: Figma, Photoshop, Lightroom

PROJECTS

MuseFlare *C++*   ⌨ MuseFlare
- Developed a reactive LED lamp that uses a sound sensor connected to an **AVR microcontroller** to monitor the sound level in the surrounding environment
- Used **FastLED** library to detect and analyze analog signals which then manipulated RGB values and calculated how many lights were to be activated

Laser Gate Detection *C, VirtualBox*
- Designed and implemented a **state machine** based **embedded system** in **C** on a **Raspberry Pi**
- Used lasers and photodiodes to detect and track objects entering or exiting an area
- Implemented a **watchdog timer** to prevent runtime errors

BiteShare *Figma*   ⌨ BiteShare
- Prototyped an app that tracks a user's meals throughout the day, using pictures to motivate them into healthy eating in a fun and creative manner
- Applied user-centric design principles to design the entire mobile application

EXPERIENCE

Waterloo Hyperloop Team   **Waterloo, ON**
Embedded Systems Team   Jan 2020 - Present
- Implemented new motor control system for Linear Induction Motors by outputting a PWM signal to achieve maximum efficiency using **C++**
- Displayed the data received from sensors on the pod dashboard by connecting to serial ports

First Robotics Team 4001   **Markham, ON**
Subsystems Team   Sep 2017 - Jun 2018
- Used **Java** to program the drive train for the robot to use during competition
- Implemented the usage of **PID** (proportional-integral-derivative) controllers to monitor and correct robot movement
- Collaborated with a team of 10 programmers to reduce bugs during trials

Markham Getting Together   **Markham, ON**
Website Designer   Oct 2017 - Jun 2018
- Developed the landing page for the website of a youth council focused on social justice
- Designed and programmed a modern UI from the bottom up using **HTML**, **CSS**, and **JavaScript**

AWARDS

Hack the North 2019 Bloomberg Challenge   **Bloomberg L.P.** | Sep 2019
This award was given to the first team to successfully complete a series of cryptography challenges involving strong code breaking, logic, and computation skills.

WatPD Engineering Scholarship   **University of Waterloo** | Sep 2018
This scholarship was awarded to students who demonstrated academic excellence and potential to thrive in a professional skill environment as assessed through the Admission Information Form.

EDUCATION

University of Waterloo   **Waterloo, ON**
B.ASc in Electrical Engineering, Expected Graduation 2024   Sep 2018 - Present