Adrian Ho

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Technical Skills

Languages: C/C++, Python, Javascript, Java, HTML/CSS
Frameworks and Tools: Git, Object Oriented Programming, React, Node.js, Express.js, Arduino, Linux, RTOS, I2C
Activities: YRHacks 2021 Best Bot/AI, Hack the Valley Finalist

Experience

Firmware Developer July 2023 – Present
UW Orbital *Waterloo, Ontario*

- Implemented a driver for a hardware **watchdog timer** in a **Real-Time Operating System** environment to increase system reliability and decrease system downtime by **50%**
- Created an address generator function for the **AX.25** data link layer protocol, allowing communication to multiple ground stations and increasing data transmission speeds by **15%**

DevOps May 2023 – Aug 2023
DATA Commuications Management *Brampton, Ontario*

- Developed a **Powershell** script to automate server monitoring by pinging servers periodically, decreasing the speed of task by **85%** and to maintain an up-to-date active server list.
- Created network diagrams using **Microsoft Visio** for 14+ DCM locations and Azure Virtual Networks, to decrease network troubleshooting times by **60%**

Hardware Subteam Member Sep 2022 – Jan 2023
Midnight Sun Solar Car Team *Waterloo, Ontario*

- Designed printed circuit boards for the Battery Management System Carrier using **Altium Designer** to increase the speed of firmware implementation and accuracy of the current sensor by **50%**
- Searched and added new I/O expanders and kill switches on Digi-Key for the **Altium 365** component library to decrease the time to search for parts

Teacher Assistant Sep 2018 – Jun 2020
Spirit of Math *Richmond Hill, Ontario*

- Prepared and conducted weekly classes for **20+** students in the 3rd, 4th and 8th grade to teach practical math knowledge to children
- Adapted teaching methods and instructional materials to effectively meet students' varying needs and interests

Projects

Taser Chess | *Javascript, Arduino, React, Node.js, Express.js, Sockets.io*

- Developed a chess robot that provides real-time feedback through electrical shock from a TENS Unit controlled by an **Arduino** when a player makes a sub-optimal move
- Implemented web sockets using **Sockets.io** with a **Node.js** server to handle game logic, board evaluation, and communication between the **Arduino serial port**, a **React** webpage, Stockfish chess engine
- Integrated reed sensors and magnets to track the positions of chess pieces on a physical chess board to display the current board state and score on a **React** webpage in real time

Markhov Music | *C++, Markhov Chains*

- Developed a transition matrix utilizing **binary data parsing** to effectively model the distribution of notes and rhythms in a MIDI file
- Implemented the two transition matrix in **Markhov chains** to compile unique sheet music using the Lilypond Module in under 20 seconds

League of Legends Role Analyzer | *Javascript, Python, React, Flask*

- Designed a responsive webpage using **React** and **react-chart-js** to analyze the most played roles and win rates of top League of Legends players
- Fetched the data of 400+ matches using the Riot Games API to create a **RESTful API** with **Flask**

Education

University of Waterloo Waterloo, Ontario
Candidate for Computer Engineering Honours, Co-operative Program *Expected Apr 2027*