Evan Li

ez3li@uwaterloo.ca
github.com/HappyRedMapleLeaf
linkedin.com/in/evan-zc-li
happyredmapleleaf.github.io

SKILLS

Languages: C, C++, Python, Bash, Java, JavaScript, TypeScript, SQL, VHDL, VBA

Firmware/Embedded: STM32, BeagleBone, PCB Schematics, UART, CAN, I^2C, FreeRTOS, Embedded Linux

Libraries/Frameworks: React, Node.js, Flask, Selenium, NumPy, OpenCV, TensorFlow, Torch

Other: Git, GitHub, Docker, Kubernetes, AWS, Jira, Generative AI, NLP, Soldering, 3D Printing, SOLIDWORKS

EXPERIENCE

Core Firmware Member — *UWaterloo Formula Electric FSAE Team*🔗 Sept 2023 - Present

- Wrote **C** firmware for **I^2C** communication between BMI088 IMU and custom **STM32**-based telematics control unit
- Prototyped CAN message logging through **SDIO** to a microSD card, handling 1000+ messages per second
- Added circuitry and firmware to power distribution unit's **HIL testing** board to imitate DC-DC power supply toggling
- Fixed dashboard button detection and double-click issues in dashboard control unit firmware and **embedded Debian** UI scripts
- Implemented APPS/brake pedal plausibility check with **FreeRTOS** to ensure safety in case of accelerator pedal failure

AI/ML Engineering Co-op — *Eon Media Corp.*🔗 Jan 2024 - Apr 2024

- Led backend development of AI journalism assistant from inception to prototype with **Flask**, **Selenium**, and fine-tuned **LLMs**
- Reduced runtime of newscast **video processing** pipeline on distributed **AWS EKS** cluster by **~26%**
- Automated code deployment, data preprocessing, and result validation using **Bash** and **Python** scripts
- Created and optimized video encoding, object detection, and text detection algorithms using **FFmpeg, OpenCV**, and **Torch**
- Containerized algorithms with **Docker** to facilitate debugging, cloud deployment, and reuse within pipelines

PROJECTS

FreshGuard — C, STM32, PWM, ADC🔗

- Developed a milk bag holder that alerts users to potential spoilage by monitoring temperature, time out of the fridge, etc.
- Wrote **C** firmware for **STM32** MCU to interface with three analog sensors via **ADC** and generate buzzer melodies with **PWM**
- Built a compact circuit to connect MCU to 5 inputs and 5 outputs within a constrained 16cm² footprint

"HAZARD 2.0" Competitive Robot — Motor control, Java, OpenCV, TensorFlow, Mechanical Design & Manufacturing🔗

- Led team Devolotics to place **#1 in Ontario** for the FIRST Tech Challenge; competed in World Championships
- Wrote **autonomous** programs integrating 7 sensors, 15 motors, and a camera, tracking objects with **OpenCV** and **TensorFlow**
- Manufactured 6 robot iterations with commercial, 3D printed, and machined parts made of aluminum, PLA, and polycarbonate

Portfolio Website — JavaScript, TypeScript, React, 3D Rendering, CSS, HTML🔗

- Constructed a mobile-friendly *website* in 10 days with a dynamic **3D .obj wireframe renderer** built from scratch

Multiplayer Snake — JavaScript, Node.js, Express.js, AWS

- Recreated the popular Snake game for two players (or one player and a bot) seamlessly on separate computers/browser tabs
- Created **REST API** to send and receive player data, hosting the backend on **AWS** with **Node.js** and **Express.js**

EDUCATION

Bachelor of Applied Science in Computer Engineering — *University of Waterloo* Sept 2023 - Present

- 96.5% cumulative GPA
- **Relevant Courses:** Linear Circuits; Digital Circuits and Systems, Fundamentals of Programming (C++)