

Evan Li

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SKILLS

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

Firmware/Embedded: STM32, BeagleBone, PCB Schematics, UART, CAN, I²C, Ethernet, 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, Onshape

EXPERIENCE

Core Firmware Member — *UWaterloo Formula Electric* 🔗

Sept 2023 - Present

- Wrote C firmware for I²C 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++)