Steven Mu

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Education

University of Waterloo Waterloo, ON, Canada
Bachelor of Applied Science – Computer Engineering Expected Graduation: Apr 2026

- **Teams & Activities:** Varsity Athletics (Track and Field – Jumps), Co-lead of Interfacing at Watonomous Student Design Team
- **Awards:** B.P Dammizio Scholarship, USPORTS Academic All-Canadian (USports = Canadian NCAA), President's Award of Distinction
- **Relevant Coursework:** Data Structures & Algorithms, Embedded Microprocessor Systems, Real-Time Operating Systems (I snuck into lectures for this one, so not on transcript), Systems & Concurrency, Electronic Circuits, Object Oriented Programming

Skills

Programming Languages: C (User and Kernel space), C++, Python, MATLAB, VHDL, Make, ARMv8 Assembly
Developer Tools / Standards: UNIX CLI, GNU Toolchain, UART, I2C, SPI, GitHub, Docker, Kubernetes, AWS, Jira
Other Skills: Altium Designer, Circuit Analysis, Datasheets, Laboratory Equipment, AutoCAD, Autodesk Inventor,

Experience

Firmware Developer Ottawa, ON, Canada

Ford Motor Company Sep 2024 – Ongoing

- Part of the **Bootloader & BSP team**, developing embedded solutions for upcoming Ford Fully-Networked-Vehicle (FNV) products
- Working with **C in both user & kernel space**, as well as **Embedded Linux** (WRLinux), for driver development, bootloader, etc

Embedded Software Developer Tokyo, Japan (Remote)

450 Solutions Jan 2024 – Apr 2024

- Led the development of a 3rd generation POS system for restaurants, as well as its corresponding web application
- Worked with **C and C++** to primarily develop firmware for a real-time printing system and a display system. Improved the efficiency by over **20%** over the previous gen. This led to my nomination for **most valuable co-op** student award at UWaterloo
- Worked with **Python** (Flask library) for backend of web applications used for data collection and AI summarization for merchants
- Performed field testing with 5+ current clients in Canada, as well as presented solution to potential clients in Canada

Interfacing Team Developer & Team Co-Lead Waterloo, ON, Canada

WATONOMOUS Jan 2024 - Ongoing

- Co-led the development of embedded solutions for a student-designed electric autonomous vehicle project
- Worked closely with **C and the Linux kernel**, developed 5+ drivers for **storage** (eMMC) and **external display systems**
- Worked with Altium Designer to **design & fabricate PCBs**, such as part of the main networking board & debug boards
- Wrote & performed various tests on the team's designs, performed static analysis, and got to wrap the car by hand (not fun)

Projects

SprinterOS (Click to Learn More) Sep 2024 - Present

- ARMv8-based lightweight operating system, with custom bootloader, kernel, drivers and CLI, developed **completely bare-metal**
- Done completely with **C and the ARMv8** instruction set, with accuracy and speed as a focus. The OS is designed for Raspberry Pi, however is compatible with all ARMv8 based chips. Worked in a team of 4 members. Still in development stages
- Primarily working on the design and implementation of the bootloader and kernel

4-Bit Binary Adder Project w/ BJTs (Click to Learn More) Mar 2024 – Apr 2024

- Created a 4-bit binary adder with various logic gates on the **transistor level**
- Used Altium Designer for circuit design & layouts, calculations are based on content learned from ECE 240. Some PCBs were etched by me at home and SMD components soldered with hot-air. Tested / debugged with lab equipment (multimeter)

Remedy (Startup Project) (Click to Learn More) Aug 2021 – Present

- Device that utilizes facial recognition in combination with our hardware to manage and dispense medication as a way of preventing medication misuse & overdosing. The software portion of the project was designed and implemented using Python OpenCV (Custom-trained cascades). We used C & ARMv8 Assembly on the hardware end to program the PIC & Raspberry Pi units