

Sulaiman Qazi

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EDUCATION

University of Waterloo

Bachelor of Computer Science

Waterloo, ON

Sept. 2026 – Apr. 2031

EXPERIENCE

Machine Learning Research Intern

July 2026 – Present

Sunnybrook Research Institute - Focused Ultrasound Lab

Toronto, ON

- Built a U-Net segmentation pipeline in PyTorch (2,500 lines, 14 modules), raising micro-Dice **0.23 to 0.62**
- Cut false-positive area **10×** by ensembling 3 models, raising fully clean empty fields from 3/11 to 9/11
- Proved a universally recommended augmentation was *degrading* accuracy, confirmed at $t=11$ on 25,909 images
- Traced flat returns from $21\times$ more data to an effective sample size of ~ 15 slides, not 25,909 tiles
- Caught a silent masking bug that zeroed every label, producing a model scoring 0.72 while predicting nothing
- Profiled to 30% GPU utilisation, identifying the CPU data loader as the bottleneck rather than model size

Firmware Engineering Intern

July 2025 – Aug. 2025

Sunnybrook Research Institute - Focused Ultrasound Lab

Toronto, ON

- Wrote embedded C++ firmware for an RP2040 replacing a manual switch-and-knob test rig with scripted control of 8 MOSFET-switched channels and a quad digital potentiometer over I2C
- Designed a serial command protocol and host scripts so component-failure scenarios could be replayed unattended
- Implemented an emergency-stop interrupt path and an optocoupler-isolated sync trigger with a monostable one-shot
- Reverse-engineered the undocumented predecessor board, then authored the 15-page hardware design specification
- Designed the 4-layer replacement PCB in Altium with dedicated power and ground pours, cutting cost **33%**
- Hand-soldered and bring-up tested 200+ SMD and through-hole components against firmware behaviour

PROJECTS

Game Boy Emulator | C, SDL2

- Implemented the Game Boy's CPU instruction set, memory map, and interrupt handling from hardware specs
- Built the graphics and input layer with SDL2, rendering commercial ROMs at playable frame rates

Health Tracking Smartwatch | ESP32, Altium, C++

- Designed a custom PCB integrating an ESP32, sensor array, and TFT display, reflow-soldered by hand
- Programmed heart-rate and step-tracking firmware with sensor sampling and on-device display rendering

LEADERSHIP & INVOLVEMENT

Programmer

Feb. 2025 – June 2026

FTC 22603 Hurricane Stormbots

Ajax, ON

- Programmed autonomous odometry navigation in Java; team won 1st place Inspire Award for overall achievement

Co-President - Math, STEM, and CS Clubs

Sept. 2024 – June 2026

J. Clarke Richardson Collegiate

Ajax, ON

- Ran weekly meetings, activity planning, and attendance across three clubs totalling 250+ members

Head Captain

Sept. 2022 – June 2025

VEX Robotics - J. Clarke Richardson Collegiate

Ajax, ON

- Led a team of 8 through robot design and build, earning Bronze at a regional competition

Coding Mentor

Feb. 2023 – Jan. 2026

Youth Dream Canada

- Built hands-on coding tutorials for middle school students, tailored to individual interests

TECHNICAL SKILLS

Languages: C++, C, Python, Java, JavaScript, MATLAB, SQL, PHP, HTML/CSS

Frameworks & Tools: PyTorch, NumPy, SDL2, k-Wave, Git, GitLab, Arduino, Linux

Hardware: PCB Schematic & Layout (Altium, KiCad), I2C, SPI, UART, SMD Soldering, SOLIDWORKS