Max Halanen

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Technical Skills

Languages: C/C++, Python, ARM assembly, x86 assembly, Java, Powershell, Bash

Tools: Git, gdb, QEMU, Valgrind, FreeRTOS, Docker, KiCad, Linux, Doxygen

Networking: Wireshark, Light weight IP (LwIP), TCP/IP, ESXi, vSphere, PuTTY

Embedded & Hardware: ARM TrustZone, STM32, ESP32, Oscilloscope, Logic Analyzer

Experience

General Dynamics (GDMS-C) Sep 2025 - Present
Embedded Software Developer - Internship *Ottawa, ON*

- Migrating touchscreen controller library to an STM32H5 microcontroller, leveraging Cortex-M33 TrustZone architecture to implement on board security
- Developing Cortex Microcontroller Software Interface Standard (CMSIS) compliant drivers to allow for better application portability

General Dynamics (GDMS-C) Sep 2024 - Aug 2025
Systems Engineer - Internship *Ottawa, ON*

- Developed router automation app that outperformed a competing in-development solution, saving the company thousands in expected development costs
- Built RAG chain LLM to increase lab efficiency by assisting in document search and retrieval processes
- Created cross-network remote installer deploying software across hundreds of machines using PowerShell and WinRM
- Programmed a custom Wireshark packet dissector to support debugging and analysis

Geek Education Sep 2021 - Dec 2021
Programming Instructor *Remote*

- Provided lessons for over 20 students in Python and Scratch, fostering their coding skills and computations thinking abilities
- Instructed a diverse age group, ranging from 6 to 14, adapting teaching methods to cater to varying learning styles and needs

Projects

Handheld GPS device | *C/C++, ESP32, GPS* May 2025 - Jun 2025

- Developed a handheld GPS navigation device using an ESP32 to display maps in real time based on user location. Loaded maps from SD card to TFT LCD over SPI, integrated a magnetometer via I2C

STM32 IoT Thermostat System | *C/C++, STM32, LwIP* Jul 2025 - Aug 2025

- Built an IoT thermostat using STM32H5 microcontroller with BMP180 sensor for temperature, pressure, and altitude monitoring
- Implemented UDP server using LwIP stack to transmit sensor data to HTTP server on home lab, accessible globally through Tailscale VPN network

Education

Carleton University Graduating: **April 2027** | GPA: 3.84
Bachelor of Computer Science Honors *Ottawa, ON*

Relevant Courses: Abstract Data Types and Algorithms, Database Management Systems, Applied Cryptography and Authentication, Introduction to Systems Programming