ANDREW FISCHER

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Education

University of Victoria Expected Dec 2027

B.Eng., Electrical & Computer Engineering | CGPA: 7.53/9.0 (~3.8/4.0) | 4 co-op terms (1 in progress)

Coursework: Electromagnetics & Photonics, Telecommunications, Control, Analog Electronics, DSP, Digital Design

Skills

Embedded Systems: Arduino (AVR), STM32 (ARM Cortex-M), Raspberry Pi Pico (RP2040), FreeRTOS

Interfaces & Comms: CAN, UART, USB, SPI, I2C; CCSDS

Languages: C, C++, Python, MATLAB, Bash, VHDL, Verilog, JavaScript, Lua

Tools: Linux, Git, TeamCity, Robot Framework, PyTorch, MCP (FastMCP), LiteLLM, OpenCode, Docker, CMake

Design & Lab: KiCAD, LTspice, Altium, AutoCAD; logic analyzer, oscilloscope, multimeter, signal generator

Qualifications: Licensed Amateur Radio Operator - Basic and Advanced (Honours)

Work Experience

Spacecraft Operations Automation Intern | Rocket Lab, Auckland, NZ MAY 2026 – DEC 2026

- **Telemetry anomaly detection:** Developing PyTorch LSTM autoencoders on ECHO spacecraft telemetry for RF (conditioned on TT&C mode, bit rate, Eb/N0) and thermal data, for ground alerting; RF model in validation.
- **Flight-software testing:** Rebuilt the Robot Framework keyword library for a new test framework, porting 8 resources with non-blocking waits, bounded timeouts and safe exits. Validated each with SITL and LOXSAT HITL (FlatSat) telemetry, command and FDIR tests; reused across missions.
- **AI-HUB:** Technical lead (team of 2) for an AI engineering platform (OpenCode, LiteLLM, FastMCP) with 10+ agents and skills. ITAR/CUI repos link in via existing GitLab permissions, so data stays in place; CI enforces contribution standards. In use by Ops engineers (10+ installs); demoed biweekly to ~15.
- **Agent tooling:** Built write-guarded MCP servers (TeamCity, Epsilon3) and integrated GitLab, Confluence and Jira; agents iterate on test failures while builds stay human-triggered.

Electrical Engineer (Internship) | ContainerWest, Richmond, BC JAN 2025 – AUG 2025

- **Annunciator panel:** Independently designed, built and documented a panel that simulates alarm events for a firefighter-training unit: ATmega328P on a 4-layer KiCAD PCB; 2 units delivered on schedule.
- **Interfaces & firmware:** C++ on the Arduino framework so coworkers can maintain it without deep firmware experience. Daisy-chained SPI panels with the LCD on a separate bit-banged bus to avoid contention; pin-change-interrupt button matrix.

Technical Projects

Supercapacitor E-Bike Drive (in progress) | GitHub

- Designed and built an ATmega328P BLDC controller (IR2104 half-bridges, Hall-interrupt commutation) and interrupt-driven series/parallel supercap bank switching (MOSFETs, relays); tested on a bench supply.
- Traced commutation glitches to routing Hall sensors through I2C (67.8 µs/read, NACK errors); rewired them to MCU interrupt pins, cutting Hall-edge response to under 3 µs.

Course Projects

- **STM32 frequency meter:** register-level code reads a 555 timer or signal generator, displays on an LCD.
- **RP2040 alarm-clock radio:** custom FFT firmware that drives LEDs in time with the music.
- **FreeRTOS:** a traffic-light controller, plus a custom task scheduler written from scratch.
- **VHDL video filters:** Sobel edge detection and grayscale filters on an Artix-7 FPGA, on live 640×840 video.