

Morgan Underwood

Email: Morgan@MUnder.ca | Portfolio: MUnder.ca

Skills

Microcontrollers: ESP32, Arduino, Linux-based Microcontrollers

Communication Protocols: Bluetooth (LE), UART, RS-232, I²C, SPI, Wi-Fi, SBD satellite

Design: KiCad, Autocad, Documentation, Op-Amps, Filters

Hardware: Soldering, PCB Assembly, 3D Design & Printing, Prototyping, Mechanical Integration

Tools: Multimeter, General Tools (Screwdrivers, Wrenches, etc.), Oscilloscope, Function Generator, Spectrum Analyzer

Programming: C, C++, Python, Ladder Logic (PLCs) and some HTML and CSS.

Other Software: Git, Microsoft Office Suite, Linux & Windows Systems

Experience

Research Assistant, Nova Scotia Community College – Dartmouth, NS May 2026 - June 2026

- Hired as a student for a five-week work term.
- Worked on an industry prototype using Iridium 9602 board with SBD satellite communication.
- Involved in troubleshooting the receiving software written in Python on a Linux embedded device.
- Involved in documenting code, fixing code and testing procedures to identify any faults.

Driving Instructor, Young Drivers of Canada – New Minas, NS Jan 2024 – Nov 2025

- Dealt with high stress scenarios with quick thinking to resolve any conflicts.
- Delivered clear and concise instructions under stress.
- Worked as a 'team' with students to make sure they understood all information, what needed to be improved on and excelled having a ~20% higher success rate than other instructors on driving tests.

Projects

Motion Controlled Gaming Controller (Team Project)

- Designed and built a head-tracking motion controller for people who have hand dexterity issues. To simulate a joystick with some button functionality.
- Used 2 ESP32's transmitting over Bluetooth low energy with an inertial measurement unit to detect roll, pitch and yaw.
- Assisted in designing printed circuit boards, enclosure design and 3D printing enclosures.

Raspberry Pi Solar System Simulation (Team Project)

- Coded a solar system model that detects planetary position of current date that simulates +/-100 days taking variable voltage from an Arduino transmitted serially to a Raspberry Pi.
- Designed all the graphics for the project in SDL2, rotation calculations and assisted the group in implementing serial communication.

Combat Robots

- A hobby of designing 150 gram 3D printed robots and assembling them with hardware and mechanical aspects and troubleshooting safely to ensure I cause no injury to myself, but the robots and weapons work the intended way.

Education

Nova Scotia Community College—Electronics Engineering Technology June 2026

Nova Scotia Community College—Electronics Engineering Technician June 2022