

Bryce Ilcan

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EDUCATION

Schulich School of Engineering, University of Calgary

2024 - Present

Bachelor of Science, Electrical Engineering

GPA: 3.5/4.00

SKILLS

Hardware & Power Electronics

PCB schematic capture/layout, DC-DC converters, planar magnetics, soldering/reflow, prototyping, Li-ion pack fabrication, oscilloscope, multimeter

Programming & Firmware

C, C++, Python, JavaScript/TypeScript, Zephyr RTOS, React, FastAPI, PyMAVLink, WebSockets

Interfaces & Platforms

I2C, SPI, UART, QSPI, SWD, USB, nRF52840, Raspberry Pi, ArduPilot

Tools

Altium Designer, PLECS, Ansys Maxwell, FEMM, LTspice, Quartus, Fusion 360, Git, Linux, Mission Planner

WORK EXPERIENCE

University of Calgary

May 2026 - Present

Power Electronics Researcher

Calgary, AB

- Developing a 725 W, nominal 324 V-to-12 V phase-shifted full-bridge DC-DC converter with synchronous rectification and a stackable multilevel secondary architecture to reduce output ripple and current per channel
- Calculated planar transformer dimensions and winding parameters; validated magnetic performance in FEMM and Ansys Maxwell and simulated converter operation in PLECS.
- Designed a 4-layer PCB with planar transformer and inductor structures with signal routing and high-power copper planes

Schulich Unmanned Aerial Vehicles (SUAV)

October 2024 - Present

Co-Avionics Lead

Calgary, AB

Junior Executive, July 2025 - February 2026; Avionics Member, October 2024 - June 2025

- Leading the electrical team within a 60+ member student design club, coordinating PCB development and aircraft electrical integration
- Spearheading four parallel avionics projects: a custom electronic speed controller, GPS module, smart DC-DC converter, and instrumented motor test stand
- Led a three-person team creating a BQ76952-based Li-ion monitoring PCB in Altium with multiplexed I2C communication to a Raspberry Pi
- Developed C++ plugins for Lockheed Martin VCSI and supported aircraft integration and autonomous mission planning, helping the team place first out of 81 teams in SUAS 2025 design deliverables and ninth overall at C-UASC 2026

ENGINEERING PROJECTS

Custom nRF52840 Bike Computer

May 2026 - Present

Altium Designer

- Designed a custom nRF52840-based system integrating GNSS over UART, an accelerometer and barometer over I2C, QSPI flash memory, an SPI LCD, USB/SWD programming, and ESD protection
- Created a 1-cell LiPo power subsystem combining four functions: BQ24074 power-path charging, battery protection, fuel gauging, and automatic USB/battery source selection

Garmin Embedded in Embedded Program

October 2025 - March 2026

C, Zephyr RTOS, nRF52840

- Completed a Garmin engineer-led embedded systems program, developing C applications for the nRF52840 using Zephyr RTOS, GPIO interfaces, and Devicetree configuration
- Designed and implemented a reaction-time testing application integrating a touchscreen LCD

Autonomous Drone and Web Ground-Control Station

May 2025 - August 2025

- Implemented an ArduCopter-based autonomous drone and web ground-control station with 3 core functions: way-point missions, vehicle commands, and real-time telemetry.
- Fabricated custom 6S1P, 4,200 mAh Li-ion battery packs to extend flight endurance