Jeremy Poulin

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Education

UNIVERSITY OF WATERLOO Sep 2024 – April 2029

Bachelor of Applied Science in Computer Engineering, Honours *Waterloo, ON*

- President's Scholarship of Distinction
- Schulich Leader Entrepreneurial-Minded STEM Scholarship Nominee

Work Experience

ELECTRICAL ENGINEERING INTERN May 2025 – August 2025

Midnight Sun *Waterloo, ON*

- Designed and validated Analog Front End (AFE) PCB for the BMS system of the 2026 solar car, increased balance current by 700%, expanded cell voltage tap capacity from 12 to 18, utilized a more reliable (M.2) edge connector and reduced board size by 60% when compared to the previous car's AFE PCB
- Designed, assembled and validated a test board for the buck regulator IC implemented in the Analog Front End, characterized its functionality in simulated application environments to ensure an optimized AFE design
- Developed and visualized the high level electrical architecture of the solar car to support subteam synchronization
- Attended the 2025 Formula Sun Grand Prix competition as a hardware crew member, demonstrated the car's electrical capabilities through various tests and debugged any issues that arose

ELECTRICAL ENGINEERING TEAM MEMBER January 2025 – May 2025

Waterloo Aerial Robotics Group *Waterloo, ON*

- Researched and selected amplifier and low pass filter components for a dual frequency ground control radio transmitter to improve range and latency in the control of RPAS systems
- Designed a voltage regulator PCB in Altium Designer to facilitate testing and optimize space
- Participated in hands-on workshops involving PCB assembly and implementation

Projects

TURNTABLE DESIGN | *Altium Designer, SolidWorks, Embedded Systems* Jan 2025 – Present

- An affordable and open source device creating a modular and repairable alternative to consumer options
- Designing Phono Pre-Amplifier and Power Converter PCBs using Altium Designer, optimizing device size and cost
- Designing a tonearm and casing using SolidWorks, minimizing unwanted needle movement
- Researching and sourcing cost-optimized components and materials for factory PCB assembly

FPV DRONE DESIGN | *Soldering, Multimeter, Project Management, Cost Efficiency* Mar 2021 – Dec 2023

- Sourced affordable parts to create an open-source DIY project undercutting the monopolized consumer market
- Soldered battery leads and connections between the flight controller, 2450KV motors, ESCs and other components
- Ensured the device met government weight/registration regulations, while achieving speeds over 100km/h
- Implemented disarm and smoke-stopper mechanisms to enhance safety

LIBRARY NOISE MONITOR | *Breadboard, STM32, Git, Design Demonstration* Sep 2024 – Nov 2024

- Designed solution to address noise in libraries using an STM32 to monitor noise levels within 5dB of accuracy
- Interfaced microphone and output warning LEDs to signal high noise levels
- Utilized Git and presented the device's design and functionality to stakeholders

Extra-Curriculars

INTERNATIONAL LEVEL ATHLETE 2015 – Present

Canoe/Kayak

- Qualified for and competed in the ICF Junior Marathon World Championships in 2022 and 2023
- Qualified for and competed in the Canada Summer Games in 2022 and 2025
- Competing as a varsity athlete for the University of Waterloo Cross Country Running Team and Nordic Ski Team

Skills

Hardware: PCBA Design, Analog/Digital Design, BMS design, Debugging, Validation, Assembly
Design Tools: Altium Designer, LTspice, STM32CubeIDE, Arduino IDE, C, C++, Java, VHDL, Git, COMSOL
Lab Equipment: Oscilloscope, Multimeter, Function Generator, DMM, Soldering Station, 3D Printer
Certifications: Altium Education Basic PCB Design, Canada Amateur Radio License, RPAS Operator Basic License