Jonathan Bourget

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Education

BENG **Bachelor of Electrical Engineering, Co-op Option** Sept 2024 – Present

- 2nd Year Standing, 10.95/12 GPA (A)
- Carleton Academic Scholarship Recipient
- **Expected Graduation:** April 2029

Skills Overview

- **Embedded Systems and PCB Design:** Experienced in the full design cycle of IC's from Altium schematic creation to custom PCB fabrication and component soldering for various applications.
- **Hardware Control, Software and Firmware:** Proficient in C/C++, Python, Java and Verilog HDL for Arduino, Raspberry Pi and FPGA control and programming. Good knowledge of electronic components and concepts.
- **Lab Instrumentation and Simulation:** Skilled in system verification, testing and troubleshooting using oscilloscopes and multimeters, paired with circuit simulation and testbench creation in NI Multisim and Vivado environments.
- **Leadership and Technical Documentation:** Proven ability to lead in high-pressure environments while maintaining proper technical documentation in LaTeX and other formats.

Projects

MOSFET/Arduino Integration for Vehicle 2025

- Used MOSFET components to integrate a high-power lighting system into Arduino controls for modular use on a vehicle. Goal was to keep costs low and deliver the proper switched voltage and current from a complex automotive power source.
- **Skills used:** Spec-Based Component Selection, Power Analysis, Soldering, C++ for Arduino

Designed and Built a Modular Bicycle Lighting System 2022

- Developed a device that enables configurable lighting display options for bikes or scooters. Designed and implemented a custom PCB design and 3D printed components for mounting.
- **Skills used:** Arduino, C++, PCB Design, Soldering, CAD and 3D Printing

Built and Optimized an Electric Go-Kart 2019

- Designed and manufactured a functional go-kart from scratch. Hand-built a rigid steel frame which was fitted with a 1.6kW electric power system and self-manufactured steering components. With various electrical and mechanical optimizations, we managed to achieve 49km/h top speed and 5hr average run time.
- **Skills used:** Power Analysis, Wiring, Welding and Material Testing.

Work Experience

Lifeguard/Swim Instructor, City of Ottawa

- Certified and maintained various first aid and leadership qualifications (Standard First Aid, CPR-C with AED, Airway Management and Oxygen, SFA Instructor/Examiner, etc.)
- Provided tailored feedback based on professional knowledge of swimming skills and strokes
- Demonstrated consistent ability to perform under pressure and take on a leadership role in a range of emergencies
- Held to a high standard for documentation in a high-stakes liability environment

Speed Skating Coach, Ottawa Pacers Speed Skating Club (Volunteer)

- Assisted other coaches in preparing detailed practice plans for younger skaters
- Evaluated individual performance and provided one-on-one feedback to various high-achieving skaters (Travis Huffman Memorial Award Recipient - 2022).

Technical Proficiencies

- **Programming Languages:** C, C++, Python, Java, Verilog HDL, LaTeX, Git Version Control, Jupyter Notebook
- **Design and Simulation:** Altium, NI Multisim, Vivado, Autodesk Fusion CAD
- **Hardware Skills:** Soldering, Component Analysis, Oscilloscope and Multimeter use, 3D Printing and Prototyping, Breadbording
- **Communication and Reliability:** Fluent in English and French, Excellent oral, written and presentation skills, Quick learner