

Donald Mackinnon

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Education

Northeastern University, Boston, MA

May 2027

Bachelor of Science in Electrical and Computer Engineering, GPA 3.41

Courses: Electronics / Digital Design / Embedded Design: Enabling Robotics / Circuits and Signals / Discrete Structures /

Fundamentals of Networks / Calculus 3 / Physics 2 / Computing Fundamentals / Differential Equations and Linear Algebra

Activities: Forge, Robotics Club, Wireless Club, Northeastern BAJA SAE

Technical Skills

Electronics: Raspberry Pi, Arduino, soldering, basic lab equipment (multimeters, function generators, oscilloscopes),

Programming: C++, Python, MATLAB

Software: Altium, KiCad, SOLIDWORKS, Windows OS, Linux, Microsoft Office, Bluebeam, AutoCAD, AI

Work Experience

Boston Engineering, Waltham MA

January 2026 – Present

Electrical Engineering Co-op

- Performed various tests for firmware/hardware functionality on marine robotics PCBs and wrote test reports for final assembly
- Created and assembled a portable test fixture to validate motor control, radio functionality, software, and modules for UUV
- Drew 100+ cable drawings in Altium for marine robotics systems and worked with vendors to ensure timely delivery
- Created cables, mounted PCBs, and performed final assembly and electrical checkout of underwater profiler units

Forge, Boston MA

September 2025 – December 2025

Hardware Team Lead

- Hired and led 6 product lab members through the product development cycle to create *Share Space*
- Oversaw the financing, timeline, and documentation of *Share Space* to present at Forge's Fall 2025 Showcase

Boston City Hall, Boston MA

January 2025 – June 2025

Jr. Traffic Engineer Co-op

- Programmed and adjusted the timing of various traffic lights across the city of Boston daily to optimize traffic
- Prepared traffic engineering plans for future developments of major intersections using AutoCAD and Bluebeam
- Monitored 400+ traffic cameras and 900+ traffic lights in Boston and coordinated with BTB's signal shop to maintain them

McConnell-Talbert Stadium, Warner Robins GA

November 2022, 2023

Cashier

- Processed register transactions for a local charity event, delivering proper customer service and handling over \$1000 cash

Engineering Projects

Northeastern University, Boston, MA

Share Space

September 2025 – December 2025

- Implemented an RFID-based locking and logging system to secure outdoor library boxes
- Created and maintained circuit schematics for electrical team to reference during product assembly

Northeastern BAJA SAE

September 2024 - Present

- Designed a PCB to accurately measure and record the acceleration and braking of BAJA's competition car using laser sensors
- Tracked total cost of all parts and labor for 2025 competition car and authored a cost report to submit for competition submission
- Machined bearings and shafts using manual lathes, drill presses, and mills to be assembled onto the competition car

MATE ROV

September 2023 - Present

- Maintained and modified the primary power and data cables of the ROV for the 2023 MATE competition
- Created and tracked the power budget for the 2024's ROV's electrical system
- Waterproof soldered various connections and tested various thrusters for the 2024 and 2025 ROVs

Back Buddy

January 2025 – May 2025

- Integrated Arduino and custom control circuitry to create a functional air cushioning system for *Back Buddy*
- Presented *Back Buddy*'s electrical system design via diagrams and live demonstration at Forge's 2025 Spring Showcase

Electrocardiogram (ECG)

December 2024

- Created a functioning ECG circuit to measure heart rate using op-amps with low and high pass filters
- Digitally recorded the ECG's readings in MATLAB using a DAQ and improved them using MATLAB's digital filter functions