BRENNAN CESAR

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EDUCATION

Northeastern University – *Boston, MA* *April 2027*

Candidate for Bachelor of Science in Electrical Engineering, Minor in Robotics

Relevant Coursework: Wireless Sensor Networks & Internet of Things, Robotics: Sensing & Navigation, Fund. of Electronics, Embedded Design, Electromagnetics, Circuits & Signals: Biomedical Applications, Engineering Algorithms

TECHNICAL SKILLS

Software: Altium Designer | LTSpice | SolidWorks | Onshape | C++ | Python | MATLAB | DaVinci Resolve | Blender

Hardware: Oscilloscopes | Function Generators | Digital Multimeters | FPGAs (Basic) | Soldering | Crimping | PCB Assembly

RELEVANT EXPERIENCE

Electrical Engineering Co-op – *Boston Engineering – Waltham, MA* *July 2025 – December 2025*

- Tested, debugged, and assembled custom PCBs & robots/UUVs, improving cable harnessing and updating documentation
- Redesigned and improved UUV propeller signal PCB for optimization in noisy environments
- Researched and presented energy harvesting strategies in marine environment, combining solar, wind, and wave energy converters with hybrid inverters for microgrid
- Completed power budget analysis for UUVs, considering duration and consumption in order to size battery pack

Head of Electronics – *Northeastern Electric Racing – Boston, MA* *December 2024 – June 2025*

- Led & managed electronics team of 20+ members to meet deadlines and complete projects, creating multiple custom PCBs
- Organized weekly meetings and bay times to work collaboratively and keep systems up to date
- Taught members fundamentals of Altium and schematic design using self-made courses
- Documented PCB design process & safety forms, achieving rule compliance to compete in Formula SAE events in NH and MI

Electronics Member/Lead – *Northeastern Electric Racing – Boston, MA* *September 2023 – December 2024*

- Designed, debugged, and assembled custom PCBs for steering wheel, safety indicator, and central junction board
- Assembled high-voltage battery management system boards
- Designed a 3D-printed waterproof enclosure to contain multiple boards

Team Captain – *FIRST Robotics Team #2713 – Melrose, MA* *October 2019 – July 2023*

- Led team of 40+ members to compete internationally, placing 25th in the New England region out of over 200 teams
- Specialized in electrical and mechanical design, utilized a swerve drivetrain for the first time
- Designed and iterated on prototypes with peers through significant time constraints
- Organized sponsorships and fundraising, gathering over $60,000 in our last year alone

PROJECTS

UUV Signal Conditioner Board – *Boston Engineering – Waltham, MA* *October 2025 – November 2025*

- Designed and built a custom lever shifter PCB for UUV propeller control
- Completed schematic and layout design using shielding and low noise techniques to retain signal integrity
- Tested board in full system, obtaining excellent signal control integrity

Tractive System Safety Indicator – *Northeastern Electric Racing – Boston, MA* *September 2024 – April 2025*

- Utilized gate logic to send fault signals to LED indicators, stating when vehicle is safe to approach
- Designed and assembled PCB through entire bring-up process following Formula SAE safety standards

Propulsion Injector – *NU Aerospace – Boston, MA* *January 2024 – April 2024*

- Conceived, analyzed, and designed injector for hybrid rocket engine using solid fuel and liquid oxidizer in MATLAB and CAD
- Manufactured and assembled custom injector, performing successful hotfires of hybrid and liquid fuel rockets

Activities & Hobbies: Northeastern Electric Racing | NU Aerospace | NUHOC | Backpacking | Skiing | Sewing | Rhythm Games

Awards: Xerox Award for Innovation and Information Technology – *University of Rochester, 2022*