

Timothy C. Harrington

Boston, MA

harrington.t@northeastern.edu

tcharrington.com | [linkedin.com/in/harrington](https://www.linkedin.com/in/harrington) | (407) 718-8019

EDUCATION

Northeastern University, Boston, Massachusetts

May 2027

Candidate for Bachelor of Science, Mechanical Engineering

GPA: 3.94

Coursework: Heat Transfer, Fluid Mechanics, Mechanical Design, Dynamics, Aeronautical Propulsion, System Controls and Analysis

Activities: AerospaceNU Propulsion Team Lead, ASME Club Member

Honors: Dean's List, National Merit Commended Scholar, AP Scholar with Distinction

RELEVANT SKILLS

Software: SolidWorks (CAD, FEA, Flow Simulation, basic GD&T), AutoCAD, MATLAB, Ansys (Basic FEA and CFD), C++

Fabrication: 3D Printing, Laser Cutting, Press Brake, Manual Shop Tools; Basic CNC Milling and MIG Welding

AEROSPACE ENGINEERING PROJECTS

Propulsion Team Lead

May 2026 – Present

- Leading a team of 40+ students designing and building AerospaceNU's first liquid propellant rocket, setting technical direction and organizing subteams against an aggressive test and launch timeline
- Standardizing documentation and design reviews in Confluence to keep design decisions and tradeoffs traceable across subteams
- Improved club tasking and meeting structure, nearly doubling member retention and accelerating the project schedule

Test Infrastructure Subteam Lead

September 2026 – Present

- Leading a team of 6 students retrofitting test stand with actuated valves, accumulator tanks, and plumbing to improve test performance
- Performing concept development for structural designs of thrust bearing sled, horizontal stand tie-downs, and vertical flight stackup integration
- Calibrated pressure instrumentation and supported safe hot-fire test operations of 800lbf thrust kero-LOX rocket engine

Liquid Rocket Fuel Tanks | Design Lead

September 2025 – April 2026

- Designed LOX and kerosene tanks to meet minimum pressure safety factors of 1.5 at 750 MEOP and prevent leakage under pressure
- Performed bolt calculations to determine required preloads and safety factors against bolt failure, overload, and gasket pressure
- Sized COPV pressurant tank for flight vehicle using isentropic relations and ideal gas modeling to predict pressure drop during flow
- Validated design using SolidWorks and Ansys FEA, hosted club-wide PDR before implementing feedback and fabrication

Needle Valve Actuator

May – June 2025

- Designed and prototyped stepper motor driven needle valve actuator for active PID pressure control testing
- Designed adjustable torque limiting coupler using COTS spring detents to prevent valve stem from binding at travel limits

Ablative Rocket Engine (Intro to Propulsion) | Peer Mentor and Combustion Chamber Design Lead

April 2024 – April 2025

- Designed aluminum combustion chamber housing using thin-walled pressure vessel assumptions and fabricated waterjet-cut flanges
- Machined custom aluminum coaxial swirl injector and steel nozzle retainer for kero-GOX rocket engine
- Designed and manufactured venturi flow meter to determine fuel mass flow rate, validated through SolidWorks flow simulation and empirical testing

WORK EXPERIENCE

Acorn Product Development, Waltham, Massachusetts

Mechanical Engineering Co-op

July 2026 – Present

- Utilizing first-principles engineering to design mechanisms for the industrial automation industry
- Designing sheet metal and machined parts using SolidWorks, validating designs through hand-calcs, FEA, and testing

MORSE Corp, Cambridge, Massachusetts

Mechanical Engineering Co-op

July – December 2025

- Owned complete hardware integration of a surrogate fixed-wing aircraft for DARPA Albatross as an economical test platform for full-scale development
- Designed custom avionics integration and mounts for on-board cameras, lidar, and radar sensors. Standardized design across aircraft platforms, allowing each asset to test multiple configurations
- Modified COTS aircraft and designed avionics platforms for specific programmatic requirements, improving accessibility with swappable platforms for field testing
- Redesigned small-scale, airdroppable, autonomous paragliding system to support development of autonomy suite. Reduced weight and size to allow for full avionics integration representative of full-scale asset
- Prototyped NACA recessed air inlet for avionics cooling using thermodynamic principles to size for worst-case conditions
- Created custom cable harnesses and bespoke pogo pin PCB enclosure allowing magnetic connection and disconnection

Florida Metal Craft, Winter Garden, Florida

Metal Fabricator

Summers 2023 – 2024

- Fabricated hundreds of custom metal parts from shop sketches and engineering drawings using tools such as metal shear, press brake, MIG welder, and drill press