Timothy C. Harrington

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EDUCATION

Northeastern University, *Boston, Massachusetts* **May 2027**
Candidate for Bachelor of Science, Mechanical Engineering **GPA: 3.95**
Coursework: Heat Transfer, Fluid Mechanics, Mechanical Design, Dynamics, Aeronautical Propulsion, System Controls and Analysis
Activities: AerospaceNU Propulsion Structures and Tanks Design Lead, ASME Club Member
Honors: Dean's List, National Merit Commended Scholar, AP Scholar with Distinction

RELEVANT SKILLS

Software: SolidWorks (CSWA, PDM Experience), AutoCAD, MATLAB, C++
Fabrication: 3D Printing, Laser Cutting, Press Brake, Manual Shop Tools; Basic CNC Milling and MIG Welding

WORK EXPERIENCE

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

Northeastern University, *Boston, Massachusetts*
Cornerstone of Engineering Peer Mentor *February – April 2025*

- Mentored first-year engineering teams through design projects, providing technical guidance and feedback

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
- Communicated directly with management to ensure all components met quality expectations for customer pickup

AEROSPACENU ENGINEERING PROJECTS

Liquid Rocket Fuel Tanks (Design lead) *September 2025 - Present*

- Sizing COPV pressurant tank for flight vehicle using isentropic relations and ideal gas modeling
- Designing LOX and kerosene tanks to meet minimum pressure safety factors of 1.5 and prevent leakage under pressure
- Collaborating with airframe and propulsion teams to design full flight vehicle structure and integrate engine feed system
- Performing structural validation prior to fabrication and pressure testing

Needle Valve Actuator *May – June 2025*

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

Rocket Engine Test Stand *January 2024 - June 2025*

- Calibrated pressure instrumentation and supported safe hot-fire test operations
- Installed fuel and pressurization plumbing using tube forming and custom 3D printed components

Ablative Rocket Engine (Peer mentor, combustion chamber lead) *April 2024 – April 2025*

- Designed aluminum combustion chamber housing and fabricated flanges via waterjet cutting
- Manufactured custom fuel injector via CNC milling in collaboration with propulsion team
- Designed venturi flow meter to determine fuel mass flow rate and required tank pressure