

LOUIS FOLEY JR.

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Education

Northeastern University

Bachelor of Science in Mechanical Engineering, Computer Science Minor

Boston, MA

May 2026

Technical Skills

Design Applications: SolidWorks and SW Simulation, NX CAD, Rapid Prototyping, DFM/DFA,

Programming: C++, Java, MATLAB, Python, GitHub, Microsoft Excel

Work Experience

SharkNinja: *Design and technology company in home-consumer industry; Hair Care*

Needham, MA

R&D Mechanical Engineering Co-op

January 2026 - June 2026

- Iterated 10+ outlet grille geometries in SolidWorks, applying DFM principles to optimize heat distribution toward product KPI objectives for a high-volume consumer haircare product.
- Built Python-based web app, using LLMs, to quantitatively score heat distribution across varying outlet grille geometries, eliminating vague, qualitative comparisons. Adopted as the team's standard for communicating R&D heat distribution results.
- Designed and validated a gentle drying attachment using CAD, conducting thermal and mechanical performance testing to confirm design against product specifications.
- Modeled 10+ new device configuration changes rapidly to test and quantify airflow and heat distribution impacts, enabling data-driven decisions in a fast-paced R&D product cycle.

Entegris: *Supplier of materials and equipment for the semiconductor industry*

Bedford, MA

R&D Mechanical Engineering Co-op

June 2024 - December 2024

- Designed and 3D-printed 5+ prototype filter cores, using SolidWorks, to reduce differential pressure to standard while maintaining structural integrity of teflon membrane under 30+ psi loads.
- Fabricated custom test fixture enabling testing of 5+ core geometries, cutting validation time by minimum 40%.
- Constructed drop-test mechanism that identified key failure points of filters, leading to improvement in impact resistance.
- Led weekly R&D syncs for the engineering team, presented testing results and proposed next-gen core concepts that were adopted for 2025 pilot design iteration.

PolyJoule Inc: *MIT start-up, sustainable polymer energy storage*

Billerica, MA

Mechanical Engineering Co-op

January 2023 - May 2023

- Optimized polymer electrolyte formulations through 15+ design iterations, achieving increase in ionic conductivity and improved physical consistency.
- Researched methods of improvement for production processes and established relations with 4 production companies to aid in manufacturing and data collecting.

Projects

Aphrones Headphones

Boston, MA

Founder / Designer

September 2025 - Present

- Inventing, prototyping a convertible headphone system designed for hairstyles of high volume, featuring a behind-the-neck band that transitions into a traditional overhead configuration through rotating cup hinges.
- Developing a dial-to-clamp adjustment mechanism using Bowden cables and worm gears to deliver customizable, symmetric pressure for comfort and acoustic seal in both orientations.
- Applied human factors principles to produce SolidWorks CAD and prototypes, with aim of feasibility, ergonomics, and durability of the subsystems.

PEAK Award: Northeastern University Undergraduate Research Grant

Boston, MA

Nutrient Film Technique (NFT) Hydroponic System

September 2023- May 2024

- Built closed-loop Nutrient Film Technique (NFT) hydroponic system in a three-person team with industrial applications that monitor environmental growth factors and is equipped with software to remotely control the system.