Hayden Hishmeh

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Education

Northeastern University, Boston, MA

Master of Science in Mechanical Engineering Thermofluids	<u>GPA</u>: 3.58	May 2025
Bachelor of Science in Mechanical Engineering	<u>GPA</u>: 3.61	May 2024

<u>Relevant Courses:</u> Convective Heat Transfer, Essentials of Fluid Dynamics, General Thermodynamics, Gas Turbine Combustion, Aerodynamics, Mech E Design, Computational Fluid Dynamics, Fluid Dynamics

Experience

NASA's Jet Propulsion Lab, Pasadena, CA

Mechanical Engineer Co-Op   July 2023 - December 2023

➢ Owned and designed verification and validation testing for the Mars Sample Return Parachute consisting of hardware design and manufacture, system design, preliminary MATLAB verification, and management of personnel
➢ Facilitated and implemented contractor evaluations by inspecting hardware and running small-scale testing
➢ Authored technical documents for hazardous tests describing proper test procedures and assembly of test hardware
➢ Supported engineering design and test team for the Parachute Mortar by creating powerpoints, scheduling and running presentations, checking tolerances of machined parts, and communicating and coordinating with manufacturers

3D Fortify, Boston, MA

Mechanical Engineer Co-Op   January 2022 - June 2022

➢ Designed assembly fixtures that serve to simplify the construction of large and complex mechanisms reducing construction time of subassemblies by 50 percent
➢ Reduced in-field failures by creating and implementing new process failure modes and effect analysis (PFMEA) procedures which utilized collected data to optimize the management and manufacture of product consumable stock
➢ Constructed unique test fixtures and test procedures to diagnose failures and design weak points within machine subsystems resulting in design improvement and critical failure prevention

Northeastern University, Boston, MA

Research Student   September 2024 - May 2025

➢ Designed an RC robot capable of driving up to a fire and spraying liquid nitrogen to test viability as a fire suppressant

Teaching Assistant for Computational Fluid Dynamics   September 2024 - December 2024

Teaching Assistant for Cornerstone of Engineering   September 2021 - December 2021

Skills

Applications: Creo Parametric, SolidWorks, Fusion 360, ANSYS, AutoCAD, MATLAB, Microsoft Office
Programming Languages: C++, JavaScript
Machinery: 3D printing, CNC machining, Lathe (introductory), Milling (introductory)

Projects

Parachute Extraction Testing, NASA's Jet Propulsion Laboratories   July 2023 - December 2023

➢ Integrated into and promoted to engineering lead of a diverse team of management, engineers, and lab techs working on testing the extraction of the Mars Sample Return Mission's Martian hypersonic parachute from its deployment bag
➢ Test was designed to accelerate a ~500 lb parachute payload along a zipline, utilizing a pneumatic cannon, and mechanically drop said payload to analyze the extraction of the parachute from its deployment bag
➢ Designed and ran stress analysis on structural hardware capable of supporting the high loads required of such testing
➢ Performed many analytical analyses on test performance criteria, namely, created a MATLAB simulation of the trolley roll position after the dropping of the parachute resulting in design changes with respect to functionality and safety

Automatic Oil Paint Mixer and Dispenser, Northeastern University   July 2024 - May 2024

➢ Led and directed a team of 5 engineers over 6 months through engineering design, validation and verification testing, research skills, C++ and Java coding, data collection and analysis, and UI development to create a machine capable of scanning a color and dispensing the correct ratio of primary oil based paints to create the desired color output

For detailed information regarding all my projects go to my portfolio: https://haydenhishmeh13.wixsite.com/portfolio