Joseph Sutherland

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Objective: Design/test engineering internship in aerospace/aeronautical sector for summer 2026

Education

Rensselaer Polytechnic Institute (RPI) — Troy, NY

Bachelor of Science in **Aerospace Engineering** — Graduation year: December 2025

Masters of Engineering in **Aeronautical Engineering** — Graduation year: December 2026

Technical University of Denmark (DTU) *Fall 2024* — Copenhagen, Denmark

Technical Skills

Python	Siemens NX 3D Modeling Software	Data Visualization
Microsoft 365 Applications	Nastran	System Analysis
Simulink	MATLAB	Latex

Research / Coursework

Morphing Wing, Intelligent Structural Systems Laboratory (ISSL)

- Perform vibrational testing to determine location of nodes and natural frequencies
- Design low-fidelity model of wing to optimize computational efforts when running FEA simulations
- Implement uncertainty quantification algorithms on low fidelity model to improve results

Relevant coursework: Mechatronics, Propulsion systems, Aerospace Structures and Controls Lab, Space Vehicle Design
Fluid Mechanics, Modeling and Control of Dynamical Systems, Fluid Dynamic Lab

Experience/Projects

Quality Engineer Intern, Howmet Aerospace *Summer 2025*

- Inspect finished products to ensure they meet designated safety tolerance
- Cycle time analysis on high throughput cells increasing output by 25%
- Digitize machine instructions for operators to follow AS9100 and AS13100 standards
- Review design schematics to decide feasibility in manufacturing environment

Primary Boost Vehicle Design

- Simulate stress and modal analysis on 3d model utilizing siemens nastran
- RCS thruster sizing analysis through bang-bang control scheme
- Design deployables to ensure re-entry capability on first stage
- Apply attitude control through quaternion analysis and PD law for thrust vector control

Ingenuity Structural Analysis

- Applied simplifying assumptions to compute the location and maximum stress on the rotor blades of the rotor craft ingenuity at varying conditions including rpm and atmospheric conditions

Self Balancing System

- Designed a self balancing system with a PID control law for a lego segway
- Used MATLAB and basic modeling to obtain transfer functions for different components and needed compensators for the overall system.

Mars Space Mission Analysis Design

- Designed mission to explore Mars lava tubes and Phobos structural composition through satellites and rovercraft
- Applied orbital mechanics and imaging theory to fit within applied constraints

Leadership

Vice President of Delta Kappa Epsilon Fraternity *Spring 2025*

- Manage interfraternity relations and ensure all committees are performing to set standards

Treasurer of Delta Kappa Epsilon Fraternity *Fall 2023*

- Responsible finalizing quarterly budget of $20,000 for social, recruitment, and philanthropic committee