

Rushi Faldu

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Aerospace Engineering graduate with experience in CAD design, MATLAB/Python analysis, CFD, propulsion, orbital mechanics, aerospace structures, composites coursework, and prototype development. Interested in aerospace design, UAVs, composites, tooling, advanced manufacturing, and lightweight structures.

EDUCATION

North Carolina State University

B.S. Aerospace Engineering; Minor in Business Entrepreneurship

Raleigh, NC

GPA: 3.67/4.0 | May 2026

TECHNICAL SKILLS

CAD and Design: SolidWorks, Fusion 360, FreeCAD, ANSYS, OpenFOAM

Programming/Analysis: MATLAB, Simulink, Python, Octave, GMAT, AVL, XFOIL, OpenVSP

Aerospace: CFD, structures, composites, propulsion, orbital mechanics, aerodynamics, controls

Prototyping: 3D printing, balsa fabrication, hand tools, soldering, drilling, assembly

Documentation: MS Office, Google Workspace, LaTeX, technical reports

PROJECTS

NASA RASCAL Lunar Rover Concept

Senior Aerospace Capstone; Thermal and Financial Lead

NC State

2025–2026

- Designed lunar rover subsystems for a NASA RASCAL concept to drill, analyze, and collect 10–100 kg of lunar regolith for Helium-3 extraction.
- Developed thermal-control concepts using ceramic fiber insulation, heat shielding, radiators, and thermoelectric coolers for lunar operating conditions.
- Selected a LIBS spectrometer concept for in-situ soil analysis, supported SolidWorks subsystem design, led prototype budgeting under a \$2,000 constraint, and presented the completed project at the NC State University Symposium.

2D CFD Solver for Grid Bump and Half-Cylinder Flows

MATLAB, CFD, Numerical Methods

NC State

2026

- Developed a MATLAB-based 2D CFD analysis program using structured grids for grid-bump and half-cylinder geometries.
- Implemented Green-Gauss gradient reconstruction and Gauss-Seidel iterative solution methods to compute flow-field variables.
- Created post-processing visualizations to evaluate pressure, velocity, and flow-field trends across computational domains.

Glider Design, Analysis, Build, and Flight Testing

Flight Stability and Control; AVL, Octave, 3D Printing

NC State

2026

- Designed and built a flight-tested glider using balsa wood and 3D-printed components for a flight stability and control project.
- Used AVL to generate aircraft geometry, evaluate aerodynamic derivatives, and analyze dimensional and non-dimensional stability characteristics.
- Wrote Octave scripts to automate AVL geometry-file generation and support aerodynamic/stability calculations.

Liquid Rocket Engine Design

MATLAB, GMAT, ANSYS, SolidWorks

NC State

2025

- Designed a preliminary liquid rocket propulsion system for payload transfer from LEO to GEO.
- Performed ΔV budgeting, mass-ratio calculations, propellant stoichiometry, tank pressurization modeling, and preliminary chamber, nozzle, feed-system, cooling, and tank design.

RESEARCH AND EXPERIENCE

Undergraduate Research Assistant

Python, Optimization, Bayesian Analysis

NC State

Jan. 2024–Jan. 2025

- Developed Python-based optimization methods to improve reaction-coordinate evaluation for protein folding cases by approximately 40%.
- Implemented conjugate-gradient optimization workflows and presented research at the NC State Undergraduate Spring Symposium.