

Nick Spivak

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EDUCATION

Rutgers University

Bachelor of Science in Aerospace Engineering

GPA: 3.61 | Dean's List: Fall 2025 | Graduating one year early

New Brunswick, NJ

Expected May 2028

Completed: Statics, Differential Equations, Multivariable Calculus, Calculus II, Analytical Physics IA and IB, General Chemistry I and II, Engineering Economics

In progress, Fall 2026: Dynamics, Mechatronics, Mechanics of Materials, Computer-Aided Design in MAE, Introduction to Aerospace Engineering, Analytical Physics IIA

Spring 2027: Thermodynamics, Fluid Mechanics, MAE Measurements with Lab, Aerospace Structures, Design of Mechanical Components

RESEARCH

Undergraduate Researcher, Lunar Lava Tubes

Rutgers University, advised by Prof. Haym Benaroya

2026 to Present

New Brunswick, NJ

- Read over forty papers on lunar habitats, lava tube structure, pressurization, and autonomous robotics to select a research direction.
- Proposed lava tubes as the research domain and had the direction accepted by my advisor.
- Narrowing toward characterizing whether a lava tube can hold pressure as a habitat, through rock mass strength, ceiling stability, seismic response, and meteoroid damage.
- Work aligns with NASA's Human Spaceflight Mission Directorate and its Moon Base program.

PROJECTS

Solid-Motor Rocket: Build, Flight, and Recovery Analysis

Personal project

2026

New Jersey

- Built and flew a solid-motor rocket across multiple flights, and built a reusable launch pad for it.
- Modeled the vehicle in OpenRocket to predict apogee and select motors across several flights.
- Lost the vehicle to a recovery failure, traced the root cause, and rebuilt the recovery and preflight process around it.
- Pursuing Tripoli Level 1 certification, attempt scheduled September 5, 2026, with ground ejection testing first.

Electric VTOL Airframe, Design Study and 1:5 Scale Model

Personal project

2026

New Brunswick, NJ

- Designed a welded aluminum space frame in SolidWorks across five revisions, for a 215 kg single seat aircraft.
- Ran six static and buckling studies in SolidWorks Simulation, and enlarged the arm tubes after a member reached yield.
- Chose eight T-Motor V13L motors in coaxial pairs, and split the 24S battery into two independent packs to halve per-pack current.
- Built a 1:5 scale model, which showed the CAD cut lengths were not manufacturable as drawn.

SKILLS

Proficient: SolidWorks, OpenRocket, Java

Moderate: SolidWorks Simulation (FEA), MATLAB, Simulink, Python

EXPERIENCE

Server's Assistant, Cracker Barrel, Mount Arlington, NJ, Aug. 2023 to June 2025.

Rocks & Ropes Facilitator, YMCA of the Rockies, Granby, CO, June 2025 to Aug. 2025.