

# Liam Smith

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## Education

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### Columbia University - School of Engineering and Applied Sciences

Bachelor of Science - Mechanical Engineering

Expected May 2028 | GPA: 3.5/4.0

## Projects

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### Micro-G NExT EVA Tool Design Competition

Sept. 2024 - June 2025

- Collaborated with an interdisciplinary team of ~15 people to design and manufacture a mechanical tool for orientation-preserving lunar regolith sampling as a part of NASA's Micro-G NExT EVA Tool Competition.
- Led the design of critical subcomponents and managed Solidworks file systems, ensuring integration of disparate components within the tool's main base for successful function under diverse operating conditions.
- Co-authored a selected proposal (1 of 6 teams selected), designed the basis of a testing plan executed in the National Buoyancy Laboratory, conducted compliance analysis to satisfy NASA requirements.
- Presented final design to NASA engineers and industry specialists and executed a finalized testing plan at the NBL with positive feedback to verify design and manufacturing choices.

### Columbia Space Initiative CubeSAT

Jan. 2025 - Present

- Designed and rapidly prototyped deployable mechanisms and satellite housings in collaboration with external teams to ensure a successful satellite launch and deployment on May 1st, 2026, including antenna integration.
- Coordinated with CalPoly Pomona's Pleiades mission to keep structural components updated with latest overarching design changes and complete FCC- and NASA-compliant launch license documentation.
- Conducting thermal analyses using SOLIDWORKS, AutoCAD, and Ansys Thermal Desktop.

### AIAA Design-Build-Fly Competition

Sept. 2024 - Present

- Conducting aerodynamic stability studies and CFD using SOLIDWORKS and MIT/Mark Drela's AVL software to describe aircraft stability, drag, and flight characteristics for a design report ranked 14th/112.
- Designing and prototyping wheel fairings and landing gear for 2026 competition plane, using Hyperworks CFD and SOLIDWORKS FEA to optimize strength, drag, and mass characteristics.

### NASA Gateways to Blue Skies Forum

Sept. 2024 - June 2025

- Co-authored a NASA-selected (1 of 8 teams out of ~60) research proposal in the context of the NASA Gateways to Blue Skies Forum research and proposal challenge, regarding UAV- and AI-based solutions for sustainable pest control in agriculture, proposing a fully integrated solution based on pheromones.
- Presented technical and operational section to NASA and industry leaders, awarded \$9,000 for selection.

## Skills

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**Language:** English(Native), German(Native), French(B2)

**CAD/CAE:** SOLIDWORKS, Fusion 360, Onshape, AutoCAD

**Programming:** Python, Java, MATLAB, Raspberry Pi

**Simulation:** CFD(Fluent, Altair Hyperworks, MIT AVL, SOLIDWORKS), FEA(SOLIDWORKS), Thermal Analysis(ANSYS Thermal Desktop)

**Manufacturing:** 3D-Printing, Waterjet, Lasercutter, Soldering, Metalwork, Woodwork

**Norms and Regulatory:** GD&T, NASA Debris Assessment Software, Documentation, FCC

## Leadership and Community Engagement

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Columbia Student Council Engineering Student Groups Representative

Oct. 2025 - Present

Columbia Space Initiative Communications Chair

Apr. 2025 - Present

ASME Columbia Chapter Sophomore Class Representative

May 2025 - Present

Columbia Space Initiative Safety Officer/Responsible Person

Sept. 2025 - Present

SEDS-USA Fundraising and Logistics Volunteer

May 2025 - November 2025