Liam Smith

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Education

Columbia University - School of Engineering and Applied Sciences
Bachelor of Science - Mechanical Engineering — Expected May 2028 | GPA: 3.51

Projects

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

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

Leadership and Community Engagement

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
SEDS-USA Fundraising and Logistics Volunteer	May 2025 - November 2025
Columbia Space Initiative Safety Officer/Responsible Person	Sept. 2025 - Present