

New York City, NY

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[Engineering Portfolio](#)

EDUCATION

Columbia University/BS Mechanical Engineering

Fu Foundation School of Engineering and Applied Science | GPA: 3.6

New York, New York

Expected 2026

Skills: SolidWorks, NX CAD, Sketching, STK, 3D Printing, MATLAB, Thermal Desktop, Milling, Lathe, Python, Java

Relevant Coursework: Spaceflight Mechanics, Robotics Studio, Aerospace Human Factors

WORK EXPERIENCE

NASA Jet Propulsion Laboratory

Intern, Mars Sample Return – Spacecraft Mechanical Engineering

June 2025 – August 2025

- Designed hydraulic press tooling for a ~5000 lbf press fit and removal operation for the spacecraft separation joint ATLO
- Modeled ground support equipment using NX for separation nut torquing operation within tight spaces on the spacecraft
- Created an excel tool linked to CAD to efficiently design and iterate mass models used during dynamic and structural testing

Psyche Inspired

Intern, Iridium Class

September 2024 – May 2025

psyche.ssl.berkeley.edu/get-involved/psyche-inspired-iridium-class/psyche-inspired-nidhi-shah/

- Completed 4 artworks that highlight NASA's Psyche mission as a mission ambassador to be posted on social media
- Collaborated with Psyche scientists and engineers to create mission-inspired visual art and a card game

L'SPACE Mission Concept Academy (MCA)

Lead Systems Engineer

May 2024 – August 2024

- Led interdisciplinary virtual team of 6 engineers and integration of all subsystems through MCR, SRR, MDR, and PDR
- Designed a rover capable of traversing and prospecting lunar volatiles within shadowed regions at the Lunar South Pole
- Developed rover CAD, CONOPS, N^2 chart and Block Diagram using JMARS and trade studies to select COTS parts
- Earned skill badges in Teaming, Requirements, Project Management, Systems Topics, Risk Management, and Heat Transfer

Space Dynamics Laboratory

Intern, University Nanosatellite Program Mission Concept Academy

May 2023– August 2023

- Developed budgets, mission requirements, and success criteria, designed payload, modeled thermal and pointing systems
- Presented at design reviews and attended 2023 SmallSat Conference in Logan, Utah, discussed with prospective vendors
- Collaborated with four university students to learn systems engineering to plan, design, and engineer a 6U cubesat
- Continued towards 2027 launch throughout school year with new members of the larger Columbia Space Initiative club

LEADERSHIP EXPERIENCE

Columbia Space Initiative

Cubesat Team Lead

March 2023 – Present

- Create 6U full and simplified CAD, thermal simulations on Thermal Desktop, analyze results and design thermal systems
- Design 1U mission for launch in April 2026 with a group of ~50 students, plan integration, vibration and thermal testing
- Present progress during design reviews to engineer and non-engineer audiences, write grant proposals for funding

NASA RASCAL Competition Team Lead

September 2022 – May 2024

- Led development of detailed mission architecture, CONOPS, budgets, risk matrix, TRL table, and requirements
- Collaborated on seven-page proposal, SolidWorks CAD modeling of innovation, created video presentation for submission
- Conducted meetings twice a week to design a large-scale lunar south pole prospector mission with a team of 15 students

Columbia Formula SAE

Body Lead, Frame Body Aero

September 2022– September 2024

- Modeled nose cone, and mounts in SolidWorks, analyzed and optimized aerodynamics in Ansys, tested body materials
- Ensured rules compliance, completed documentation, design reviews, coordinated livery design and body finishing
- Conducted weekly teamwork sessions to review progress, delegate tasks, and teach technical skills in CAD and testing