

ADITYA BAJAJ

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EDUCATION

University of Maryland, College Park
B.S. Mechanical Engineering

Expected Fall 2027

- **Relevant Coursework:** Assistive Robotics, Mechatronics and Internet of Things, Electronics and Instrumentation II, Machine Design, Control Systems, Applied Machine Learning, Product Engineering and Manufacturing.

TECHNICAL EXPERIENCE

Vacuum System Redesign
Project Manager

August 2026 - Present

- Leading a team of 6 engineering students to redesign and improve a commercially designed vacuum cleaner.
- Directing multi-system design efforts including suction performance, energy efficiency, thermal management, power consumption, and sustainability at minimum manufacturing cost.
- Coordinating team members, establishing project priorities, delegating responsibilities, tracking progress, and integrating individual design efforts into a final system deliverable.

6 DOF Robotic Arm
Private Project Endeavor

Sep 2025 - Dec 2025

- Built and integrated a multi-degree-of-freedom robotic arm assembly with 43 3D-printed components and commercial hardware.
- Performed tolerancing on 3D-printed parts over 4 iterations to accommodate commercial hardware from various vendors and account for non-standard dimensions.
- Designed wiring channels within linkages to neatly organize and later identify wiring, which was soldered and crimped for desired dimensions, for servo components.
- Diagnosed and resolved potentiometer input discrepancies within 4 percent of error.

Material Identification Rover
Systems and Navigation Lead

Jan 2024 - May 2024

- Programmed navigation in Arduino IDE which utilized force sensors to accurately identify the weight and material properties of cubic matter.
- Calculated and specced out motors for optimal traction, powder, and speed of an autonomous vehicle.
- Corrected motor and Arduino board interfacing to sync Aruco marker tracing and streamline navigation process to under 5 minutes.

Cube Satellite Team
CAD and Structures Development Member

Sep 2023 - Feb 2024

- Helped develop a student CubeSat platform with a GPS tracking payload as a part of NASA mission.
- Engaged in FEA to estimate performance prior to fabrication and simulate duress under 10G load.
- Utilized Siemens NX to optimize structural supports and systems of Cube Satellite, optimizing the functionality of onboard electronics and reducing overall weight.

TECHNICAL SKILLS:

Programming: Python, MATLAB, C++, Arduino IDE, and Processing.

CAD and Simulation: SolidWorks, Siemens NX, ANSYS, Fusion360, QIDI Studio, Tinker CAD, and Multisim.

Manufacturing: 3D-printing, Wiring, Soldering, Crimping, Woodworking, Machine Maintenance, Computer Assembly, and Laser Cutting.