

Apurva Hanwadikar

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EDUCATION:

Cornell University, College of Engineering, Ithaca, NY: 2023-2027

B.S. in Mechanical Engineering with Minors in Aerospace Engineering and Physics

EXPERIENCE

Alpha CubeSat: 2023-present

- **Integration and Testing Lead:** Leading the final stages of design and prototyping for Cornell's Alpha CubeSat mission under Space Systems Design Studio Lab. Managing a multi-disciplinary team focused on antenna design and light sail deployment tests.
- **Dean Archer Undergraduate Research Program:** Secured funding to develop Alpha CubeSat ChipSat antennas and High Altitude Balloon Launch systems. Designed the mechanical apparatus for the balloon launch and solar panels. Analyzed antennas using frequency analysis, Smith Charts, and impedance matching to optimize designs for Alpha and DeSCENT mission ChipSats. Presenting my work in a poster session in the Spring.

Cornell Mars Rover: 2023-present

- **Drives Subteam:** Collaborating on the rover drive system for the University Rover Challenge, focusing on building the main electrical core. Previously developed a deployable mini-rover with Ackermann steering, 4-wheel drive, and wishbone suspension, enhancing maneuverability and performance.

Cornell WoAA (Women in Aerospace and Aeronautics): 2023-present

- **Member of the E-Board (Mentorship Coordinator):** Involved in organizing events designed to help women interested in careers in Aerospace and Aeronautics. Facilitating mentorship programs and outreach to women starting in this field through events like the campus-wide ClubFest.

Engineering Capstone Project: 2022-2023

- **Mechanical Lead:** Created an Arduino-controlled electromagnetic system of an automated door meant to stop school shooters. Presented our solution at a poster session and to our Congressional Representative Anna Eshoo.

Speech and Debate: 2019-2023

- **Public Forum Captain:** Implemented new methods of team bonding, increased team recruitment. Organized and wrote curriculum and lesson plans and then taught every week. Mentored new team members and ran practice rounds.

FRC Robotics: 2021-2023

- **CAD Team Member:** Worked on building a robotic arm, designing the drivetrain of the robot, and designing the gearbox. Worked on prototyping various mechanisms using 3D printing.

Aerospace Club: 2019-2023

- **Co-President and Founder:** Built drones & gliders and tested them in various conditions. Read about the physics behind flying, the different models of planes and their pros/cons, and aeronautical history.
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SKILLS

- **Simulation:** ANSYS (Certified)
- **CAD:** SOLIDWORKS, AutoCAD, Inventor, Fusion
- **Prototyping:** 3D printing, Red Apron Certified Machining
- **Coding:** 4+ Years in Java, Python, C++, Arduino, MATLAB
- **Electronics:** Altium, NanoVNA, Smith Chart Analysis, Circuit and PCB Design, Microsoldering,
- **Safety Certified:** ESD, Clean Room, Laser Lab Certification

ACHIEVEMENTS

- **NSDA Academic All-American (Top 2% Nationally):** Based on a record of leadership, service, and involvement in the National Speech and Debate community
 - **Invitation to the NDCA Championship:** National Debate Coaches Association Competition
 - **Semifinals at FRC (FIRST Robotics) World Championship**
 - **California Scholastic Federation:** Honors society
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RELEVANT COURSEWORK/PROJECTS

- **Coursework:** Mechanics of Materials, Thermodynamics, Quantum Physics, Statics & Mechanics of Solids, Differential Equations, Lasers & Photonics, Honors Mechanics & Special Relativity, Honors Wave and Thermal Physics, Data Structures, Electricity & Magnetism, Engineering Capstone, Multivariable Calculus, Linear Algebra
- **Projects/Past Experiences:** Tufts Pre-College Engineering Design Labs, quantum computing with Prof. Oas at Stanford, particle physics course with Stanford Pre-College, coded an elevator FSM, implemented Dijkstra's algorithm, coded Huffman Compression, automatic airplane deployer, ham radio from scratch, propeller-powered balsa plane, Science Olympiad: Astronomy, Experimental Design, Codebusters