

Ahmed Arif

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EDUCATION

CORNELL UNIVERSITY

Bachelor of Science in Mechanical Engineering

Ithaca, NY

Expected May 2028

CURRENT GPA: 3.43

RELEVANT COURSEWORK: Intro to Python, General Chem, Physics I, Calculus I-III, Operations Research, Differential Equations, Statics and Mechanics of Solids, Thermodynamics, Physics E&M

SKILLS

- Technical skills: Python, Autodesk Fusion 360, Inventor, and Vault, ANSYS FEA & CFD, OpenRocket

ENGINEERING EXPERIENCE

LIQUID PROPULSION AT CORNELL

Propulsion Subteam Member

November 2025 - Present

- Selected to join a technical initiative developing a 500 N Nitrous Oxide/Ethanol liquid bipropellant rocket engine (Ursa I) featuring regenerative cooling.
- Conducting preliminary analytical calculations to validate design parameters, serving as the baseline for upcoming ANSYS FEA and CFD simulations to verify thermal and structural margins.
- Tasked with performing computational analysis to optimize regenerative cooling and film cooling efficiency and ensure safety factors meet design requirements.

CORNELL MARS ROVER PROJECT TEAM

Arm Subteam Member

Ithaca, NY

September 2025 - Present

- Designed a 2-DOF camera gimbal for the rover's vision system, successfully passing Critical and Final Design Reviews and refining geometry to accommodate changing end-effector constraints.
- Collaborated with electrical team members to select servos and optical hardware, and with software members to select proper imaging hardware
- Certified for machining to manufacture components for the rover's final assembly.

ENGINEERING PROJECTS

10000 FT APOGEE MODEL ROCKET

June - July 2025

- Independently developed a fiberglass rocket in OpenRocket powered by a Cesaroni Tech 3727L 1050-P motor, targeting a 10,000 ft apogee for competition-level performance inspired by the Spaceport America Cup.
- Applied optimization tools to refine aerodynamics, producing two designs that achieved 9,945 ft in windy conditions and 9,999 ft in nominal conditions while ensuring stability, recovery reliability, and thermal protection.

5 DOF ROBOT ARM

July 2025 - Aug 2025

- Engineered a 5-DOF robotic arm in Fusion 360, applying advanced CAD modeling to design multi-axis joint systems that maximized range of motion and structural stability.
- Designed and validated a 360° rotating joint and 4-bar linkage claw mechanism, integrating motion analysis to ensure reliable kinematics for a 1.5m workspace.

ROVER PATHFINDING SIMULATION

June 2025

- Developed a Python [pathfinding simulation](#) from scratch which navigates a rover on a multi-terrain grid to reach its target in the shortest amount of time (with .001 tile accuracy) using a custom function for Dijkstra's Algorithm
- Programmed a logging-system that displays various attributes of the rover for every step in real time, such as position and progress, for the entirety of the rover's journey

VOLUNTEER/LEADERSHIP EXPERIENCE

MIDDLETOWN ISLAMIC CENTER WEEKEND SCHOOL

New Hampton, NY

Volunteer Teacher

September 2019 - June 2024

- Created and adapted lessons for 15+ students weekly, with detailed final reports for school administrators
- Discussed with school administrators about student performance to facilitate an effective educational environment
- Fostered student interest and curiosity through engaging classroom activities

CERTIFICATIONS

GE AEROSPACE SUPPLY CHAIN [JOB SIMULATION](#) ON FORAGE

February 23 2025

- Developed a procedure to disassemble a GEnx-1B high bypass turbofan engine core
- Utilized engineering data in order to specify applicability, capacity, and size requirements
- Successfully dispositioned non-conforming turbine blades using GE's Digital Thread and engineering data