

## 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

*Volunteer Teacher*

**New Hampton, NY**

*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