Ayanna Fulga

asf225@cornell.edu   10 Country Corners, Wayland, MA 01778   cell: 857.654.7251
LinkedIn

EDUCATION

Cornell University, College of Engineering, Ithaca, NY
Bachelor of Science in Mechanical Engineering   **Expected May 2027**

ENGINEERING EXPERIENCE

Mechanical Reliability and Prototyping Intern, *MITRE*, Bedford, MA   **Summer 2025**
- Owned design and analysis tasks for drone capability development, contributing to their unmanned aerial systems program
- Redesigned and optimized legacy drone CAD models in SolidWorks to improve ease of assembly and disassembly, reducing turnaround time for prototyping and field testing
- Performed CFD drag analysis to assess aerodynamic performance, then parameterized the CAD to enable streamlined future optimization and iteration
- Developed an in-air drone deployment mechanism, applying CAD and prototyping tools to improve mission flexibility; the system conserved battery life and expanded potential launch environments.

Propulsion Co-Lead, *Cornell Rocketry*, Ithaca, NY   **Fall 2025**
- Owning the end-to-end design of the flight vehicle fluid system, including a mechanically actuated valve (MAV) and quick disconnect (QD) for nitrous oxide fill and release
- Applying SolidWorks for CAD modeling of components, used ANSYS Static Structural to verify MAV performance under high-pressure flow, and ran trade studies to optimize system layout
- Improving flow efficiency and integration reliability across the full system—from fill station to rocket—while managing project logistics, timelines, and subsystem coordination for the 2026 hybrid and liquid motor R&D campaigns

Propulsion Sub-team Member, *Cornell Rocketry,* Ithaca, NY   **Fall 2023 – Spring 2025**
- Solely owned the mechanically actuated valve (MAV) design, from ideation and product selection through iterative CAD modeling, static structural analysis, hardware fabrication, and full integration into the flight vehicle
- Used SolidWorks for iterative CAD design of MAV components, balancing strict mass and spatial constraints with manufacturability; accounted for CNC machining limitations and produced custom mounts for gear, ball valve, and servo
- Created and 3D-printed battery and pull-pin mounts tailored to the MAV geometry, ensuring robust and lightweight integration
- Applied static structural analysis in ANSYS to confirm MAV stability under high-pressure nitrous oxide flow, then coordinated with electrical and structures sub-teams to achieve seamless system compatibility
- Supported assembly and pressure testing of the full fluid system, culminating in a successful hybrid rocket launch to 12,100 ft with a motor burn thrust of 1,385 lbf, validating the MAV's performance at flight scale

RELEVANT ACADEMIC PROJECTS / RESEARCH

Blade Leading Edge Erosion (BLEE) Lab Member, *Sibley School of MAE*, Cornell University   **Fall 2025**
- 3D mapping the severity of erosion on a wind turbine blade to analyze the damage in ANSYS
- Determining cost effective, aerodynamic, and easily applicable methods to reduce BLEE

Tripoli High-Power Rocketry Certifications (Level 1, 2, and 3), *College of Engineering*, Cornell University   **2024 / 2025**
- Successfully earned Tripoli Level 1 Certification by constructing and launching a high-power rocket with an H motor, achieving ~2000 ft altitude while meeting all stability, recovery, and safety requirements
- Progressed to Level 2 and 3 certifications, designing and building increasingly complex high-powered rockets capable of housing motors with impulses ranging from 640 Ns to over 5000 Ns
- Designed and integrated an avionics bay with altimeter and dual-deployment recovery system, enabling precise sequencing of drogue and main parachutes
- Selected a fiberglass airframe for the Level 3 rocket to provide both structural resilience and uninterrupted GPS signal transmission through the rocket body, critical for real-time flight tracking
- Used OpenRocket simulations to model flight dynamics, optimize stability margins, and verify deployment altitude parameters prior to launch

SPECIALIZED SKILLS AND INTERESTS

FEA (Finite Element Analysis), CFD (Computational Fluid Dynamics), SolidWorks, ANSYS, LaTeX, Mill and CNC Lathe
Languages: English (fluent), Romanian (fluent), Spanish (basic), German (basic)
Affiliations: Society of Women Engineers (SWE)
Interests: Mountain biking, backcountry skiing, rock climbing, open water swimming