Serena Frolli

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EDUCATION

Northwestern University, Robert McCormick School of Engineering**,** Evanston, IL 9/22 - present
Bachelor of Science in Mechanical Engineering and Minor in Physics, Anticipated June 2026
GPA: 3.6/4 - Relevant Coursework: Aerodynamics, Stress Analysis, Mechanical Vibrations, Heat Transfer, Fluid Dynamics
Masters of Science in Mechanical Engineering, Anticipated March 2027
Istituto di Istruzione Superiore Savoia Benincasa High School, Ancona, Italy 9/18 – 6/22

RELEVANT EXPERIENCE

Zipline, South San Francisco 9/25 - 12/25
Technical Program Management Intern, Avionics

- Managed timelines for three key products in a company-wide cost and mass-reduction redesign campaign, enabling integration into first next-generation aircraft builds
- Drove cross-functional execution by facilitating goal alignment, tracking dependencies, and communicating progress between engineering and leadership stakeholders using Jira and Wrike
- Coordinated between electrical, mechanical, and systems engineers to resolve blockers during design iterations
- Provided updated "source of truth" documentation to align priorities across avionics team

Tesla, Gigafactory Berlin Brandenburg 6/25 - 9/25
Mechanical Design Engineering Intern, Manufacturing and Testing Team

- Owned the redesign of a high voltage end effector for a top level assembly tester for Supercharger V4, improving manufacturability, durability, ergonomics and ensuring unit defect detection capabilities
- Designed a frame for an end of line precision PCBA tester considering electrical routing and tolerance requirements for fine alignment of tester pins with unit under test, conducting mechanical design reviews with stakeholders
- Improved testing technologies and equipment reliability through continuous troubleshooting, defect detection optimization, and long-term system enhancements

METALS (Metallic Expandable Technology for Artemis Lunar Structures), Evanston, IL 9/23 - 3/25
Lead Test Engineer

- Led a diverse engineering team, managing budget constraints and technical development to deliver a functional final product while staying under allocated budget as part of the 2024 NASA Big Idea Challenge
- Performed FEA simulations in ANSYS, optimizing the design to achieve a 35% reduction in stowed volume while maintaining structural integrity in lunar gravity conditions
- Fabricated 40+ metallic prototypes using TIG welding, water jet cutting, hydroforming, reducing design cycle time
- Executed vacuum chamber and cryogenic testing, validating performance in a relevant lunar environment and elevating the structure's Technology Readiness Level (TRL) from 3 to 5
- Won the Artemis Award outstanding innovation in space technology and secured a $146,000 NASA grant for developing a low-SWaP (Size, Weight, and Power) inflatable technology

Northwestern University Space Technology and Rocketry Society, Northwestern University 9/24 - 2/25

- Conducted wind tunnel testing for the NUSTARS Active Drag System (ADS) for the 2025 NASA Student Launch Competition Rocket, with the goal of mapping actuation states to drag coefficients
- Optimized 16-hour test schedule, maximizing the number of design points for wind tunnel test experiment by varying velocity (up to Mach 0.31), angle of attack, and ADS actuation state
- Analyzed discrepancies between Computational Fluid Dynamics (CFD) and empirical results in order to inform future simulations

LEADERSHIP EXPERIENCE

Northwestern University Women's Cross Country Team, Evanston, IL 9/22 - present
Student-Athlete

- Cultivated teamwork, communication, and resilience as a competitor at the NCAA Division I level
- Balanced academics with 25+ hours of weekly athletic commitments, earning Academic All-Big 10 Honors
- Fostered a positive team dynamic by supporting teammates, resolving conflicts constructively, and encouraging accountability

LANGUAGES AND SKILLS

Language: Italian (native), English (bilingual), French (proficient), Spanish (conversational)
Computer: ANSYS Structural, ANSYS Fluent, Siemens NX, SolidWorks, Python, MATLAB, R, FIGMA, HTML, Office