Serena Frolli

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EDUCATION

Northwestern University - Robert McCormick School of Engineering and Applied Science**,** Evanston, IL 9/22 - present
Bachelor of Science in Mechanical Engineering and Minor in Physics, Anticipated June 2026
Relevant Coursework: Aerodynamics, Stress Analysis, Mechanical Vibrations, Heat Transfer, Fluid Dynamics - GPA: 3.5/4
Istituto di Istruzione Superiore Savoia Benincasa High School, Ancona, Italy 9/18 – 6/22

RELEVANT EXPERIENCE

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

- Develop new concepts for complex connector designs that interface electrically & mechanically with devices undergoing end-of-line testing
- Ensure continuous improvement of innovative technologies for efficient testing and unit defect detection capabilities
- Troubleshoot and sustain test equipment in production environment while driving long-term enhancements in equipment reliability, interfacing with other teams

Segal Design Institute, Northwestern University**,** Evanston, IL 1/25 – present
Machine Shop Trainer

- Guided 100+ students each quarter on the safe, precise use of mills, lathes, CNC routers, waterjets, and other shop tools, accelerating class and research projects' design and builds
- Maintained an accident-free shop by enforcing safety, troubleshooting equipment, and continually learning

MECH_ENG 495 (Aerodynamics) - Final Project: Unducted Turbofan, Northwestern University 3/25 - present

- Ran CFD using ANSYS Fluent on propfan blades at cruise (Mach 0.8), testing both with and without a duct to measure thrust, torque, and efficiency
- Compared ducted vs. open-rotor results, analyzing fuel savings for future narrow-body jets

Northwestern University Space Technology and Rocketry Society, Northwestern University 9/25 - 3/25

- Led 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 to inform future simulations

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

- Secured a $146,000 NASA and earned the Artemis Award for outstanding innovation in Space Technology in the 2024 NASA Big Idea Challenge for developing a low-SWaP (Size, Weight, and Power) inflatable technology
- Led a diverse 25-member engineering team, managing budget constraints and technical development to deliver a functional final product while staying under the allocated budget
- Performed ANSYS FEA to optimize the design, enabling it to withstand 4× the deployment pressure while preserving structural integrity under lunar gravity
- Engineered and tested 40+ metallic prototypes using TIG welding, water jet cutting, and hydroforming, reducing overall development 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

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
- Managed 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)
Technical: ANSYS Structural, ANSYS Fluent, Siemens NX, SolidWorks, Python, MATLAB, R, FIGMA, HTML, Office