ELLA WAGNER

AEROSPACE ENGINEERING STUDENT

CONTACT

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- https://stellaellaw.github.io/personal.portfolio/

SKILLS

- Microsoft Office
- LaTeX
- Proficiency in SolidWorks and CATIA
- Proficiency with ANSYS
- Proficiency with MATLAB and Python
- Familiarity with Arduino and Raspberry Pi

LANGUAGES

- English (Fluent)
- Spanish (Professional Working)

EXPERIENCE

Trauma Research Internship

- Analyzed complex medical datasets to evaluate injury outcomes and treatment efficiency.
- Collaborated with interdisciplinary teams to ensure data reliability, bridging the gap between engineering analysis and clinical application.

PROFILE

Highly motivated 3rd-year Aerospace Engineering student with a proven track record of executing complex technical projects. Proficient in a variety of CAD and CFD software suites, with a focus on applying theoretical scientific principles to real-world engineering challenges. A fast-learning collaborator dedicated to delivering high-quality technical solutions and contributing to the success of a dynamic engineering team.

PROJECTS

Aircraft Wing Structural and Aerodynamic Analysis — 2024 - 2025

- Performed a multi-physics analysis of a representative aircraft wing using Ansys Fluent to evaluate aeroelastic responses.
- Simulated complex airflow patterns to calculate lift and drag coefficients (C_L and C_D) across various flight envelopes.
- Integrated structural FEA to assess stress distribution and deformation under high-load conditions, ensuring design reliability.

Wing Design and CFD Analysis — 2024 - 2025

- Designed a high-performance lofted wing using a strategic selection of airfoils for the root, mid, and tip sections to optimize spanwise lift distribution.
- Utilized XFLR5 to conduct initial aerodynamic polars and stability analysis, iterating on wing twist and taper ratios to minimize induced drag.
- Developed a high-fidelity 3D CAD model of the integrated wing design and performed comprehensive CFD simulations using Ansys Fluent.

Autonomous Obstacle-Avoidance Rover — 2025- 2026

- Developed a 6-wheeled autonomous rover utilizing a Raspberry Pi and Python-based control logic to execute a "Search and Avoid" mission.
- Engineered an obstacle-avoidance algorithm using ultrasonic sensor data to trigger pre-defined turn sequences (Right-Left-Left-Right) to bypass obstacles and return to a parallel path.
- Integrated a Sense HAT to transmit real-time telemetry, including orientation, environmental temperature, and distance data at a 1Hz update rate.

EDUCATION

Bachelors in Aerospace Engineering — 2023 - Present
Universidad Europea de Madrid

Minor in Spanish Language — 2021 - 2023
Metropolitan State University, Denver