Zoe Matzkin

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EDUCATION

Cornell University, College of Engineering — Ithaca, NY
Bachelor of Science, Mechanical Engineering, GPA: 4.08 — **Expected May 2027**

Relevant Courses: Fluid Mechanics, System Dynamics, Mechanics of Engineering Materials, Intro to Aeronautics, Statics and Mechanics of Solids, Dynamics, Thermodynamics, Computer Science for Engineers

SKILLS

Technical: Rapid Prototyping, 3D Printing, Machining (Mill & Lathe), Composite Material Manufacturing, Integration Testing
Software: SolidWorks, Fusion 360, MATLAB, Ansys Mechanical (beginner), Python, Java, Microsoft Suite

Active Security Clearance: Secret

EXPERIENCE

Lockheed Martin Missiles and Fire Control — Grand Prairie, TX
Integration and Testing Intern — **Jun. 2025 – Aug 2025**

- Executed launcher system testing to verify compatibility with 5 unique missile systems, collaborating with engineering teams to ensure system interoperability and operational readiness
- Operated as test conductor and in-vehicle system operator on 100+ test cases, monitoring real-time data, diagnosing faults, and resolving issues to maintain mission-critical test schedules
- Performed data analysis on 150 test cases to confirm system software accuracy and troubleshoot system discrepancies

Cornell University Unmanned Air Systems — Ithaca, NY
Structures and Payloads ***Lead*** — **May 2025 – Present**

- Dedicating 12+ hours weekly to designing, testing, and manufacturing a carbon-fiber-composite search-and-rescue autonomous VTOL aircraft. Collaborating with 70+ members from 8 subteams to win 2nd in the CUASC Competition.
- Managing 10 team members and overseeing 10-15 active projects per year by guiding technical decisions and monitoring progress through 4 yearly design reviews to ensure quality and alignment with system requirements.
- Operated hardware setup and troubleshooting efforts during test flight trials, directing team members to resolve technical issues quickly and ensure aircraft readiness for horizontal and vertical maidens, airdrop & imaging testing.

Structures and Payloads ***Member*** — **Oct. 2023 – May 2025**

- Designed and 3D modeled in CAD a carbon-fiber bulkhead to support landing gear, ensuring structural stability and protection of the electronics bay, rated for 105 N on the landing gear.
- Performed dynamics calculations to analyze gyroscopic forces from tilt rotor mechanisms, informing boom, motor, and servo selection. Determined motor quantity and location through force calculations and consulting other subteams.
- Integrated a novel gas engine into the fuselage, including firewall and engine mount design/fabrication, and precision cutting using CNC/Shaper tools. Verified structural integrity by running finite element analysis to locate stress concentrations. Dedicated 35+ hours solely to drain, push, choke, and integration testing.

Private Tutor — Ithaca, NY
Statics and Mechanics of Solids — **Jan. 2025 - May 2025**

- Provided 2–3 hours per week of one-on-one tutoring in Statics, reviewing homework, past exams, and key concepts.
- Developed personalized explanations, presenting material in multiple ways to build deeper understanding.
- Supported student improvement from a low-70s test score to a 93 on the final exam, well above the class median.

Maine Space Grant Consortium — Portland, ME
Intern — **Jun. 2022 – Aug 2022**

- Programmed a Raspberry Pi to work a vision system that identifies and sorts Magic: The Gathering cards based on text.
- Tested and calibrated servos to ensure accurate and reliable sorting, and presented results to faculty and researchers.

ACTIVITIES/INTERESTS

Technical Theatre and Sound Design, Skiing, Surfing, Needle Felting