LOLA ANDERSON

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EDUCATION

Cornell University, Ithaca, NY   Aug 2021 - May 2025

Bachelor in Science in Mechanical Engineering | GPA: 3.86 | Dean's List 2021-Present

- Relevant Coursework: System Dynamics, Spaceflight Mechanics, Materials, Statics, Python
- Interests: Aerospace, Design, Materials Science, FEA, Mathematics, Manufacturing, Fluid Mechanics

EXPERIENCE

Cornell University Unmanned Air Systems, Integration and Testing   Oct 2021 - Present

- Selected as Integration and Testing Operations subteam lead for a project team that designs and builds a 55 lb autonomous VTOL aircraft with a 12 ft wingspan made out of Carbon Fiber composite material.
- Oversaw design and fabrication of the plane's electrical bay and control surfaces as well multiple testing projects. Made custom testing rigs, enabling data collection and flight validation for critical systems.
- Simulated flight load conditions on aircraft wings using a custom whiffletree testing rig with integrated load cells. Collected performance data using strain gauges on wing skin.
- Empowered new members with skills to complete onboarding projects, answered questions, ran a series of workshops on Solidworks.

SpaceX, Falcon Structures and Payloads Engineering Intern   May 2024 - August 2024

- Designed a bracket to mount an avionics component to the payload attachment fitting for Falcon using NX. Used ANSYS Modal to find the vibration modes of this bracket, then employed a mass acceleration curve program to find the acceleration forces on it. Computed the stress of this piece using ANSYS Static Structural.
- Designed and analysed multiple other secondary structures for the payload attachment and deploy mechanisms for Falcon including spring assemblies and casings, spacers, and brackets.
- Created test coupons and used an Instron to determine the effect of lower than 1.5 edge margin on certain parts with threaded inserts

Caterpillar Incorporated, Diesel Engine Engineering Intern   May 2023 - August 2023

- Streamlined aftermarket assembly creation for over 300 diesel engines using Python with a 97% hit rate. Identified 10 distinct arrangements to cover more than 80% of the company's engine overhaul forecasts.
- Tested a hand drill operated gerotor fuel priming pump. Redesigned pump to optimize performance and safety. Implemented sprag clutch mechanism to prevent accidental backflow, lowered gear tolerances.

DESIGN PROJECTS

Custom VTOL Aircraft Electrical Bay (ebay), CUAir   Jun 2022 - Nov 2022

- Redesigned and weight reduced the ebay by 65.4%, using Finite Element Analysis and ANSYS. Simultaneously, maintained a factor of safety of 2.5 in the event of an accidental 360 deg roll.
- Incorporated adjustability of battery positioning within the fuselage to eliminate the need to add extra weight for center of gravity repositioning.
- Rapidly iterated on design via design reviews with stakeholders. Successfully designed a system to securely hold over 7 kgs of battery weight during flight.

Custom VTOL Aircraft Control Surfaces, CUAir   Feb 2023 - May 2024

- Calculated optimal size and positioning of Ailerons, Elevators and Rudders. Wrote Matlab scripts to quickly apply fluid dynamic equations to find effectiveness parameters for each control surface. Two of these parameters were minimum runway length, and maximum velocity of crosswinds.
- Defined minimum requirements based on competition rules and geometry of competition flight boundaries. For example, plane must reach a 60 deg bank angle in under 1.5 sec while flying at 22.94 m/s.
- Created a manufacturable CAD model of my design using Solidworks. Minimized the gap between the lifting body and the surface to maximize aerodynamic efficiency.

SKILLS/CERTIFICATIONS

- Technical Skills: Python, Matlab, Hand Calcs, 3D Printing, Carbon Fiber Composites, Machining
- Software: ANSYS, Solidworks, NX, Bluehill University, Power BI, Ultimaker Cura, SuperSlicer