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: Fluid Dynamics, Advanced Finite Element Analysis, Composite Materials, Statics, Intermediate Dynamics, Data Science for Engineers
- Irrelevant Coursework: Intro Print, Ciders, Risograph Printmaking, Intro to Aerials, Swing Dance

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 plane made out of carbon fiber composite material.
- Designed custom 2.5 axis gimbal for overhead tracking of plane during flight. Conducted Ansys analysis to verify that the design maintained positive safety margins for safety factors of 2 (ultimate) and 1.5 (yield). Used Lagrangian dynamic analysis to define torque requirements for motors. Final design and prototyping costs were kept under $150 excluding motors.
- Redesigned and weight reduced the plane's electrical bay by 65.4%, while maintaining a factor of safety of 2.5 in the event of an accidental full roll. Incorporated adjustability of battery positioning within the fuselage to adjust plane center of gravity.
- Designed and calculated optimal size and positioning for the plane's control surfaces. Applied fluid dynamic equations to find effectiveness parameters such as minimum runway length and maximum velocity of crosswinds. Defined minimum requirements based on competition rules and geometry of flight boundaries. Ex. plane must reach a 60 deg bank angle in under 1.5 sec while flying at 23 m/s.
- Empowered new members with skills to complete onboarding projects, answered questions, ran a series of Solidworks workshops. Integrated with other subteams to make high-level plane system decisions.

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

- Designed bracket to mount an avionics component to the payload attachment fitting for Falcon using NX. Used Ansys Modal to find the vibration modes and frequencies, employed a mass acceleration curve to find the acceleration forces on the part due to vibration environment. Computed the stress and displacement using Ansys Static Structural.
- Created sample coupons of in-development parts, tested using an Instron in order to determine the effect of a lower than 1.5 edge margin for threaded inserts in shear and tension. Compared results to predicted failure modes using hand calculations for bolted joints.
- Overhauled payload spring assembly, increasing technician safety, and reducing total number of parts.
- Designed and analyzed multiple secondary structures for the payload attachment and deploy mechanisms for Falcon including spring assemblies and casings, spacers, and brackets.

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

- Automated aftermarket assembly creation for 300+ diesel engines using Python script with 97% accuracy. Identified 10 distinct assemblies to cover more than 80% of engine overhaul forecasts.
- Tested a hand drill operated fuel priming pump. Redesigned pump to optimize performance and safety. Implemented sprag clutch mechanism to prevent accidental backflow, lowered gear tolerances.

Miscellaneous Projects

- Wrote Matlab script to separate images into custom palette of pantone colors. Used least squares estimation to best approximate image using the given colors' RGB values. Useful for risograph printing.
- Predicted and animated free motion of 2.5 axis camera gimbal using Matlab. Used Lagrangian analysis and the Differential Algebraic Equation (DAE) method to calculate the free motion of the camera when given a set of initial conditions. Checked results against each other to ensure accuracy of simulation.
- Created portfolio website from scratch while learning HTML.
- TA for flight dynamics class at Cornell, created weekly problem sets, graded work, held office hours.

Skills/Certifications

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