Luca Flick-Kaiser

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Experience:

-***Student Assistant, CFD, Cal Poly*** • Summer 2024 - Winter 2024

- Performed CFD simulations of a Ludwieg Tube hypersonic wind tunnel using Siemens STAR-CCM+
- Focused on characterizing the flow within the converging-diverging nozzle and test section for various viscous and inviscid flows
- Analysis for the flows around a variety of test articles
- Unsteady simulations for determining the change in flow characteristics throughout a test
- Produced technical documents discussing methodology and results

-***Student Assistant, CFD, Cal Poly*** • Summer 2024 - Present

- CFD simulations for shockwave boundary layer interactions in the future Cal Poly Hypersonic Wind Tunnel

-***Design, Build, Fly: Mechanical Team Lead, Cal Poly*** • Spring 2023 - Present

- Engineered and manufactured an aircraft featuring a 15-foot wingspan designed to transport a 35-pound payload
- Led structural analysis, CAD design, and construction of a model aircraft that achieved 6th place at the 2024 SAE Aero Design West competition
- Contributed significant portions of the technical design report, discussing mechanical design, structural analysis, testing, and manufacturing
- Developed MATLAB scripts for structural optimization, preliminary drag build up, and stability analysis
- Generated detailed CAD designs and fabricated traditional balsa wood model aircraft wings
- managed the construction and repair of two prototype aircraft
- Operated a 4-axis CNC hot wire foam cutter, laser cutter, and 3D printers, ensuring proper maintenance and functionality

Education:

-***California Polytechnic State University, San Luis Obispo*** • Fall 2021 - Present

- BS in Aerospace Engineering, Aeronautics Concentration, 3.9 GPA, expected completion spring 2026
- MS in Aerospace Engineering, expected completion spring 2026
- Courses in CAD, CAM, aerospace structures, fluid mechanics, aerodynamics, systems engineering, aircraft controls, aircraft design, boundary layer theory, numerical analysis
- Dean's List, Fall 2021-Present
- President's List, 2021-Present

Projects:

-***3D Printer Design and Construction*** • 2019 - 2020

- Designed and constructed a CoreXY 3D printer featuring a build volume of 60x60x60 cm
- Produced custom 3D printed parts and integrated commercially available components when appropriate

Skills:

Programming | MATLAB - Python - Arduino
CFD | Ansys Fluent - Siemens STAR-CCM+
CAD | SolidWorks - Fusion 360 - Onshape
Manufacturing | Lathe - Mill - Composites - Mach 3 - DevFoam - Cura - Bambu Studio
Soft Skills | Communication - Teamwork - Adaptability - Critical Thinking