Kiana Arroyo

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Education

Embry-Riddle Aeronautical University – B.S. in Aerospace Engineering Dec 2025

Relevant Coursework: Fluid Mechanics, Experimental Aerodynamics, Aerospace Structures, Engineering Materials, Flight Dynamics and Control, Preliminary and Detailed Aircraft Design

Projects

Detailed Design/Analysis of UAV Wing github.com/oirroyo/DSD

• Designed the high-wing pylon and strut system for a UAV targeting stratospheric flight; performed cross-sectional sizing, modeling and static load analysis under FAA standards.

• Delivered a structurally efficient configuration with positive safety margins, optimizing material selection and stability for high-altitude performance.

Fixed-Wing Passenger Aircraft Design github.com/oirroyo/PAD

• Collaborated with Boeing mentors to design a conceptual regional aircraft for 2040 market entry, maintaining sustainability and manufacturability.

• Conducted aerodynamic, economic and performance analyses that validated design feasibility and trade-offs for sustainable flight.

UAV Automatic Flight Control System github.com/oirroyo/UAVFCS

• Developed an autonomous flight control system in MATLAB/Simulink to guide UAV through climb, level flight, and descent via user-defined waypoints.

• Achieved stable altitude control through tuned feedback loops and real-time m-file interaction, improving system reliability.

Beechcraft Full Power Stability Analysis github.com/oirroyo/BeechcraftFSA

• Performed aerodynamic stability and control analysis of the Beechcraft Model 18 using hand calculations and Digital DATCOM.

● Evaluated longitudinal stability and control characteristics to achieve 10% static stability margin at full power.

Visualized Space Mechanics Simulation github.com/oirroyo/STM

• Simulated satellite orbital motion in MATLAB using numerical integration (ODE45) to determine key orbital parameters.

● Generated plots of trajectory, energy, and eccentricity; validated results against theoretical orbital mechanics equations.

Launch Vehicle Design Project github.com/oirroyo/AeroWall

• Collaborated in a 4-person team to design a solid-fuel launch vehicle for LEO payload delivery.

● Developed propulsion and trajectory models, strengthening project management and technical presentation skills.

Drone Tank – Covid-19 Response Innovation github.com/oirroyo/AeroDime

• Designed drone-based solutions to support pandemic response through autonomous delivery and surveillance systems.

● Conducted UAS research, developed system concepts, and enhanced teamwork and problem-solving skills through competition.

Experience

Daycare Teacher, 4TD Kids Park Avenue Learning and Childcare Center – Apopka, FL Sep. 2021 – Present

- Improved classroom engagement by designing and leading lessons in math, science, and language arts that increased children's participation and enthusiasm for learning.
- Maintained a safe and healthy environment by implementing structured routines and hygiene standards, resulting in consistent positive feedback from parents and staff.
- Strengthening team efficiency by collaborating with co-teachers to plan creative activities, boosting instructional effectiveness and student learning outcomes.

Skills

CAD and CFD: Siemens NX, CATIA V5, XFOIL, Simulink, Inventor, Fusion 360, XFLR5, VSP, PASCO Capstone
Analysis and Control: MATLAB, FEA, Python, Microsoft Excel, Digital DATCOM