Adien Haro

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Education

California Polytechnic State University **June 2025**
Bachelor of Science in Mechanical Engineering *San Luis Obispo, CA*

Skills

CAD & Manufacturing: SolidWorks, Fusion 360, Additive Manufacturing (FDM 3D Printing), Machining (Lathes, Mills)
Analysis: MATLAB, ANSYS, Microsoft Excel, Microsoft Word, Office 365
Project Management & Compliance: System Integration, Hardware Validation, Gantt Chart Scheduling, BOM Management, Material Testing, Technical Documentation, Risk Assessment
FAA Certificates: Small UAS Pilot

Collegiate Experience

Raytheon (RTX) Autonomous Vehicles Competition **Sep. 2024 – June 2025**
UAV Project Lead | Mechanical Engineering Team *San Luis Obispo, CA*

- Remote pilot in command responsible for testing, prototyping and risk mitigation among an interdisciplinary team
- Lead structural and propulsive system design for a Raytheon-sponsored aerial hexacopter drone (UAV) working in conjunction with a medical delivery vehicle (UGV), both vehicles operating autonomously
- Managed bill of materials ensuring reliable lead times meeting stakeholder requirements of a $10K budget
- Coordinated Gantt chart-based scheduling with our computer engineering team ensuring tasks were completed on time complying with competition requirements
- Conducted hazard prevention through protection systems reducing electrical fire and propeller hazard risks

Northrop Grumman Collaboration Project (NGCP) **Apr. 2023 – June 2025**
Propulsion Lead | Aerospace Engineering Team *San Luis Obispo, CA*

- Lead drone propulsion system analysis and design, ensuring alignment with Northrop Grumman project objectives
- Increased UAV flight endurance by 20% through motor/propeller optimization via MATLAB data analysis
- Modeled battery configurations using MATLAB to maximize UAV endurance and system reliability

Projects

Autonomous Scout Hexacopter Drone (UAV) | (RTX) **Sep. 2024 –June 2025**

- Conducted ANSYS composite stress anaylsis for UAV carbon fiber frame utilizing research validated mechanical properties, ensuring structural integrity under operational load conditions
- 3D printed functional prototypes iteratively testing for tolerances and mechanical load resistance through multiple design iterations, used PETG material for increased ductility and higher heat resistance
- Prepared technical reports with detailed structural calculations highlighting principle stresses and MATLAB propulsion efficiency plots to support motor selection
- Established and managed a comprehensive power budget, optimizing battery selection to improve flight endurance
- Designed drone electric propulsion achieving 2 to 1 thrust-to-weight ratio (40lbs thrust) and 25-minute flight endurance
- Designed and modeled the depth camera mount in SolidWorks to optimize UAV center of gravity and integrated a polarized filter, enhancing vision quality during flight operations
- Modeled protective chassis shell improving mechanical and thermal protection from potential hazards for flight hardware

Vertical Takeoff and Landing Aircraft (VTOL) | (NGCP) **Sep. 2024 – June 2025**

- Collaborated with an interdisciplinary student team to construct an autonomous VTOL UAV capable of stranded hiker extraction, ensuring reliable propulsion flight performance across vertical and horizontal flight modes
- Conducted market trade studies to evaluate current VTOL design configurations and used MATLAB tools to streamline motor selection and design iterations, improving team workflow and accuracy
- Performed constraint analysis sourcing viable motor and propeller combinations, validating system feasibility following Northrop Grumman's defined performance targets