

ASHLEY PADRES

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY

Bachelor of Science, Mechanical Engineering

GPA: 4.03; Dean's Honor List

Relevant Coursework: Statics of Solids, Dynamics, Spaceflight Mechanics, Mechanical Synthesis, Fluid Mechanics, System Dynamics, Mechanics of Materials, Thermodynamics, Heat Transfer, Innovative Product Design (FA25)

Expected May 2026

TECHNICAL EXPERIENCE

Cornell University Unmanned Air Systems, Airframe Lead, Structures and Payloads Engineer **Oct. 2022-Present**

- Led Airframe subteam's manufacturing timeline through elaborate gantt chart; held weekly meeting with subteam members to verify project progress and design quality is sufficient to meet overall team goals and timeline
 - Owned entire composite manufacturing process including timeline, research and development, mold development and post-processing, and integrations limitations
- Designed, performed FEA, manufactured and tested custom PLA and aluminum two-axis camera gimbal that allows team's camera to point at ground during flight to capture images for target detection
- Directed entire mechanical assembly of the aircraft at test flight and troubleshooted assembly issues on the field
- Developed and manufactured electronics enclosure for smart payload to collect GPS location and telemetry
- Team of 50+ students placed 1st internationally in the fixed-wing division of the SUAS AUVSI 2023 and received Most Innovative Award for being the first team to have a transitional VTOL/HTOL aircraft

SpaceX, Falcon Structures Manufacturing Engineering Intern

May-Aug. 2024, May-Aug. 2025

- Developed custom tooling to double capacity of age hardening oven, which was the bottleneck to rate capability
 - Performed weld analysis and structural hand calcs to verify structural capability of tooling
 - Created thorough work instructions to enable technicians to create and proof load the tooling in house
 - Worked around minimal documentation for oven hardware and created and released new drawings detailing the existing and new oven tooling
- Created and tested new weld schedule for new automatic tig welding machine and made bounding weld coupons to verify process change, including tolerance to needing weld repairs
- Implemented rapid improvement to hardware mounting configuration during spinform process, in order to improve product quality as needed to meet production rates
 - Performed beam bending and bearing stress hand calculations to establish the minimum component dimensions required as per loading scenario
- Conducted pneumatic blend study to qualify nominal use of various pneumatic tools to reduce rework time by 1/2; presented and defended study results to relevant impacted parties
- Designed (in NX) and analyzed (with ANSYS) new mechanical system to standardize and optimize process of rounding out work pieces prior to machining based on technician feedback
- Used SQL and Excel to investigate potential upstream root causes for a quality issue found during post-manufacturing inspections of domes

Relativity Space, Vehicle Aft Structures Engineering Intern

Jan.-May 2025

- Owned CDR level design and analysis of engine bay firewall panels that divide engine region into isolated bays
 - Worked around constraints imposed by engines and already designed/released associated mounting hardware and engine layout configuration
 - Analyzed performance of metal panels and verified minimum structural margins held with temperature knockdowns at both nominal and off-nominal flight cases using Ansa and Meta with Abaqus solver
- Created and defended conops for overpressure relief devices to be implemented on the firewall panels
 - Developed analysis and testing regime for custom hardware to be used, and flushed out potential COTS backups and the interfaces required

SPECIALIZED SKILLS

Technical: CAD Modeling (Siemens NX, SolidWorks, Fusion, Shapr3D), MATLAB, FEA (ANSYS, Ansa/Meta, Abaqus, Abaqus CAE), SQL, Python

Fabrication Skills: Composite wet-layups (fiberglass, carbon fiber honeycomb layups), operation of 3D printers (using PLA, CF Nylon and AMS); Mill, Lathe, use of scroll saws, Dremel tools, pneumatic blenders, sander belts, drill press