

ASHLEY PADRES

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY

Expected May 2026

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)

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