Alex Pacheco Santiago

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SUMMARY

Mechanical Engineering with hands-on ownership from CAD through fabrication, integration, and test. Experienced in SOLIDWORKS/PDM, GD&T, and design-control workflows; comfortable building hardware, executing verification, and documenting results.

EDUCATION

University of California, San Diego - La Jolla, CA **September 2022 - June 2026**

- Major: B.S. in Mechanical Engineering
- Graduation Date: June 2026
- Relevant Coursework: Thermodynamics; Fluid Mechanics; Mechanical Design; Controls

WORK EXPERIENCE

Hardware Engineering Intern - Leica Biosystems (Danaher) - Vista, CA June 2025 - September 2025

- Resolved **~100** CAD/assembly failures; improved BOM match **15/60 (25%) to 57/60 (95%)** by adding **25** current components and removing **30** obsolete parts
- Produced SOLIDWORKS + PDM assemblies/drawings with GD&T
- Executed **15+** manufacturing build/teardown procedures and **5** formal V&V procedures; summarized results for design reviews
- Built an Excel traceability tracker for part/requirement status within design-control workflows, improving visibility across design, manufacturing, and V&V.
- Ran lifecycle durability testing per procedure **(3×360 cycles)**, documented pass/fail criteria, observations, and issues in a structured test report
- Configured/tested motors and XY stages via Linux procedures; verified positioning/timing performance and recorded results for review.

PROJECT EXPERIENCE

Triton Robotics - Mechanical Engineer **July 2024 - Present**

- Converted turret drivetrain from 2:1 belt/pulley to 1:1 direct drive in SOLIDWORKS; redesigned mount/bearing plate stack and slip-ring integration; reduced assembly/disassembly **time 15 min to 9 min (–40%)** by eliminating belt/pulley service steps.
- Prototyped and iterated mechanical interfaces using 3D printing and waterjet/laser-cut parts to resolve fit/tolerance issues

Triton UAS – Lead Engineer, Onboarding Project **September 2024 - December 2024**

- Led a one-week concept-to-CAD-to-fabrication V-tail fixed-wing UAV; coordinated motor and electronics integration; executed a shakedown flight validating controls, structural integrity, and power system (about 40 seconds controlled flight).

UCSD Mechanical Design Project (Robotics) **September 2023 - December 2023**

- Designed and built a ball retrieval robot; achieved peak throughput of 20 balls in 15 seconds with about 8/10 successful runs; placed 6th of 12.

SKILLS

- **CAD**: SOLIDWORKS (PDM), Fusion 360, AutoCAD; GD&T/DFM/DFA
- **Fabrication**: 3D printing, laser cutting, soldering, Manual machining, Waterjet, CNC Machining
- **Test Engineering:** Test plans and procedures, data collection, discrepancy documentation, traceability
- **Software/Data:** MATLAB, Python, Excel, Arduino prototyping, MS Office
- **Lab Tools:** Torque wrench, calipers, multimeter; oscilloscope, read wiring diagrams and schematics
- **Fundamentals**: Materials + Mechanisms; Solid Mechanics; Thermodynamics; heat transfer basics
- **Leadership**: Team Captain – Intramural Soccer UCSD; project lead experience Triton UAS