

CESAR PEREZ

[Portfolio Website Link](#)



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San Marcos, CA



SUMMARY

As an undergrad, I honed my communication, teamwork, and leadership skills. Through my academic and professional experiences, I've gained a strong background in mechanical design, manufacturing methods, structural systems, and product design. I'm always eager to learn new concepts and skills; thus, I enrolled in technical electives such as Vibrations, Robotics, Mechanical Behavior of Materials, and Finite Element Methods. Ultimately, I hope to deepen my understanding of the world through engineering and contribute to improving it—one innovative product at a time.

EDUCATION

University of California, Riverside

B.S. Mechanical Engineering | GPA: 3.2 | Graduated: Mar. 2025

- Concentration in Design and Manufacturing | GPA: 3.42
- Dean's Honors List: Spring 2022 & Winter 2025

TECHNICAL SKILLS

Software

- **SolidWorks (PDM)**, **MATLAB**, Arduino, **Ansys FEA**, **AutoCAD**, Microsoft Office (Excel, Power BI, Powerpoint), and Adobe Creative Suite (Photoshop, Illustrator, Premiere)

Machinery

- General Work Shop Tools, Welding (TIG & MIG), and **3D Printing**

SOFT SKILLS

- Project Management, Communication, People Leadership, Data Analysis & Reporting, Adaptability, and Strategic Planning

CERTIFICATIONS

- SolidWorks Professional in Mechanical Design (CSWP)
- SolidWorks Associate in Simulation (CSWA-S)
- SolidWorks Associate in Additive Manufacturing (CSWA-AM)
- SolidWorks Associate in Sustainability (CSWA-SD)
- California Board Engineer-in-Training (**EIT**)

LANGUAGES

- Fluent in English & Spanish

EXPERIENCE

Highlander Racing (Formula SAE)

Riverside, CA

Chassis Design Engineer

January 2024 – March 2025

Designed and fabricated a chassis incorporating a multi-bend main hoop and square tube bulkheads for the 2024E vehicle using **SolidWorks**, emphasizing **weldments**.

- Developed a custom **MATLAB** program to determine chassis torsional stiffness using **Ansys FEA** results, surpassing performance goals by 16%.
- Performed **PFMEA** and implemented 8D-methodology to reduce manufacturing lead times by over 50%, compared to previous years model.
- Conducted **design validation** via torsional stiffness RIG under controlled variables, achieving a 88% accuracy compared to theoretical predictions.
- Used **SolidWorks PDM** to manage design data and organize BOMs.
- Decreased torsional stiffness by 13% while reducing chassis weight by 22% from the previous year's model.

Designed a floor panel system prioritizing structural integrity and modularity using **SolidWorks sheet metal** features, while considering **CNC machining standards**.

- Conducted combined loading hand-calculations to identify reaction forces at mounting points and validated via **SolidWorks FEA**, obtaining a 9% variation.
- Performed **Root Cause Analysis** to assess panel structural performance by implementing a fishbone diagram and the 5 Whys.
- Created 2D-engineering drawings applying **ASME Y14.5 GD&T** Standards to ensure component fit and minimize manufacturing defects.
- Referenced CAD models & drawings for **design verification**, using in-house tools.

Developed **design & cost reports** for technical design reviews to justify engineering decisions utilizing **Excel & Power BI**.

TECHNICAL PROJECT

HexHomes Sustainable Transportation Housing System Riverside, CA

September 2024 – March 2025

Designed an optimized pallet to minimize costs and enhance transportation efficiency for modular home transportation using **SolidWorks**, while complying with Department of Transportation (DOT) regulations.

- Performed static & dynamic **FEA** using **SolidWorks Simulation** for assembly & subassembly structural analysis, for design iterations to meet targets goals.
- Conducted rapid prototyping, with components **3D Printed** (ABS) via FDM.
- Optimized **DFM/A** on subassemblies by designing parts with minimal reorientation during assembly and implementing quick-fastening features.
- Improved modular home unloading times by 46% compared to heavy machinery.

Single Family Home HVAC System

Riverside, CA

September - December 2023

Produced an **Excel** sheet to estimate annual energy cost for a single-family home maintained between 70-78 F.

- Calculated volumetric & mass flow rates, using temp. values for system run times.
- Enhanced system performance by 59% using **data-driven** insights to deliver an energy-efficient HVAC solution.