Diego Cardenas-Wallenfelt

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EDUCATION

California Polytechnic University,   **Pomona, CA**
Sophomore, B.S. Mechanical Engineering   GPA: 3.50
                                                                                          Expected Graduation Year: 2028

Point Loma High School   **San Diego, CA**
                                                                                                                 GPA: 4.45

RELEVANT COURSEWORK

Dynamics • Statics • Mechanics of Materials • Engineering Graphics/CAD • Calculus 1-3 • Differential Equations • Computer Aided Computations (Matlab) • Electromagnetism & Circuit Analysis

PROJECTS

- **Formula SAE – Cal Poly Pomona *Clutch & Shifter Captain* | 2024 – Present:** Lead engineer for the clutch and shifter subsystems in the design cycle of Cal Poly Pomona's 2025 Formula Society of Automotive Engineers vehicle, responsible for concept development, CAD modeling, structural analysis, manufacturing, and system integration ahead of FSAE Michigan Competition.
    - Lead end-to-end design and analysis of the clutch and shifter subsystems using SolidWorks, and FEA to validate structural performance, packaging, and manufacturability.
    - Developing an electronic clutch system with programmable actuation profiles, enabling adjustable bite-point control and improved launch consistency for competition events.
    - Engineered a pneumatic shifting system, calculating cylinder sizing, valve selection, pressure calculations, and response-time to achieve fast and repeatable gear changes.
    - Coordinating subsystem interfaces with powertrain, chassis, and electrical teams to ensure seamless mechanical integration, sensor placement, and control system compatibility.
- **Liquid Rocket Club (Turbine Design) 2024:** Designed and simulated a converging-diverging rocket nozzle for RP1 and Liquid Oxygen using NASA's CEA tool to optimize expansion and performance. Modeled and tested the nozzle in SolidWorks flow simulations. Led turbine design for a liquid rocket engine, calculating nitrogen flow properties, pressure ratios, and efficiency metrics. Used NsDs charts and flow trajectory analysis to optimize a radial inflow turbine for ethanol pump operation.
- **3D Printing:** Designed and fabricated custom tools, fixtures, and functional models using FDM 3D printing and CAD (Onshape, SolidWorks, Fusion, Blender).
- **Arduino/PCB Design Simon Says:** Built an Arduino-based Simon Says game with a custom KiCad PCB, C++ firmware for LEDs/buttons/LCD, and a 3D-printed enclosure, gaining hands-on experience in PCB design and electronic integration.

WORK EXPERIENCE

Geppetto's Toy Store   **Old Town, San Diego, CA**
Store Clerk   June 2023 - July 2025
- Promoted to key holder; independently managed store operations including sales, inventory, and customer service.

SKILLS & INTERESTS

- **Technical Skills:** SolidWorks, Onshape, 3D printing, Arduino, C++, KiCad, PCB design, basic electronics.
- **Interests:** Running (state-level 4×800 finalist), Music, Making.