Diego Cardenas-Wallenfelt

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EDUCATION

California Polytechnic University, **Pomona, CA**
Sophomore, B.S. Mechanical Engineering GPA: 3.53

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

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, demonstrating accountability and multitasking.

PROJECTS

- **Formula SAE – Cal Poly Pomona *Clutch & Shifter Captain* | 2024 – Present:** Lead for clutch and shifter subsystems in yearly design cycle of Cal Poly Pomona's Formula SAE car. Role involving concept development, full CAD design, manufacturing, and integration into the vehicle, preparing for the Formula SAE Michigan Competition 2025, where the car will be evaluated on performance, design, and endurance.
    - Currently leading R&D of an electronic clutch system with programmable actuation positions and timing control, improving launch consistency and drivability.
    - Researching aftermarket clutch kits to evaluate benefits for engagement, durability, and performance. Collaborate with team members across powertrain, electronics, and driver controls to ensure subsystem integration and reliability under competition conditions.
- **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:** Self-funded and acquired a 3D printer, independently learning CAD and slicer programs to design and produce a diverse array of custom tools, games, and models, demonstrating initiative and proficiency in hardware and software for innovative, practical applications.
- **Arduino/PCB Design Simon Says:** In a project driven by a desire to deepen my understanding of electronics and programming, I designed a custom PCB using KiCad to integrate with an Arduino for a Simon Says game. I wrote the C++ code to manage game functions, including LED controls, button inputs, and interactions with an LCD screen. After designing the PCB to accommodate all components, I encased the entire assembly in a 3D-printed housing, resulting in a fully functional and durable game device. This project was not only about creating a game but also provided comprehensive insights into PCB design and the intricacies of electronic integration.

SKILLS & INTERESTS

- **Making:** Driven by independent learning, my making skills include self-taught proficiency in CAD (Onshape, SolidWorks), 3D printing, simple electronics, PCB design, Arduino programming, Python, and C++.
- **Running:** Competed at the varsity level in Cross Country and Track and Field, achieving a state-level appearance in the 4x800 relay.