Diego Davalos

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Education

California State University, Long Beach **GPA: 3.31**

Computer Engineering, B.S. & Physics, B.A. | Expected Graduation: Spring 2026

Awards: CSULB Honor: Dean's List 2021 - 2024 | HMSA Dean's List, 2021 | 1st Place Pre-MESA Day, 2019

Coursework / Skills

Programming Languages: C, C++, C#, Python (LJM), Verilog HDL, Linux, JavaScript, CSS, HTML, SQL, MIPS Assembly, Data Structures & Algorithms, OOP & UML
Simulation/Design: AutoCAD Electrical, LTSPICE, XILINX Vivado, Altium PCB, Keil uVision5, Arduino IDE, XR Unity, GitHub, MATLAB, Excel, LabVIEW

Work Experience

Customer Engineer Intern **May - August 2024**

Cummins, Integrated Gas Business & Power Generation

- Designed and realized customer-specific Generator Set Enclosures in AutoCAD Electrical by creating 2D and 3D drawings to fit Power Generation needs.
- Trained in the Power Generation Market including: Genset installation and applications, transfer switches, switchgears, sales process, diesel & natural gas engines, and fuel cell & hydrogen renewable power generation technologies (taught from Mechanical & Electrical Engineering, and Sales perspectives).
- Prepared in assessing a wide range of customer power needs from emergency back-up power to Data Centers, whilst conforming to ISO ratings & contracts.

Building Manager **March - September 2023**

CSULB University Student Union

- Managed CSULB's main campus building, dedicated to providing students with a secure recreational space to relax, study, eat, and work.
- Trained to set up AV equipment and to use the mixer to manage audio levels for constant live events held in the building and communicated with other building managers via radio to solve customer requests throughout the different club hosted dinners, networking, and outreach events.

Information Technology & Customer Service Intern **May - August 2022**

Marvin Engineering Company

- Delivered IT support at a private aerospace firm in Inglewood, California, specializing in manufacturing carriages, release solutions, and auxiliary equipment for fighter jets, by resolving hundreds of employee support tickets, employee inquiries on network connectivity, and new hire hardware setups.
- Set-up a new MFA security measure using YubiKey, protecting sensitive data for 500+ employees, working alongside the cybersecurity team.

Projects

8-bit RISC Processor on FPGA

- Developed a digital calculator using an 8-bit RISC architecture, employing a structural Verilog approach in Xilinx Vivado for the Nexys A7-100T FPGA board
- Enabled user interaction through on-board slide switches for binary integer inputs and push buttons for arithmetic/memory operations, with results displayed on 7-segment displays via a binary-to-decimal conversion module.
- Engineered core processor modules, including an ALU featuring an 8-bit Ripple Carry Adder/Subtractor and an Array Multiplier/Divider, alongside a 16-bit register for memory operations.
- Collaborated on implementing a time multiplexing scheme for the 7-segment display and developing exhaustive self-checking test benches for module verification.

Bluetooth-Controlled Dual-Mode Car - TM4C123

- Built a wireless dual-mode car system using UART Bluetooth control, GPIO motor logic, PWM speed control, and interrupt-driven mode switching.

Space Invaders - TM4C123

- Designed a playable game on LCD via SSI/SPI, with potentiometer controls, sound via R2R DAC, and real-time animation using SysTick and interrupts.
- Implemented full schematics, flowcharts, and interfaced ADC, DAC, and LCD on breadboarded TM4C system.

Augmented/Virtual Reality Kitchen Simulator, Project Lead

- Developed AR recipe UI overlaying digital ingredients and tools onto a real kitchen via an AR headset, simulating a safe way to teach cooking basics.
- Led my team to create C# scripts for OpenXR Unity for kinematics, 3D mesh generation, and an AR recipe guide to display step-by-step tutorial videos.

OOP Banking System in C++

- Developed an interactive banking website with console interface for checking, savings, and credit accounts, providing full user functionality.
- Demonstrated C/C++ skills through dynamic memory allocation with pointers, UML class diagrams, vectors, and queues.

XR Drone, Project Lead

- Led a team of six to construct a 6-inch drone through CAD modeling and 3D-printing the chassis, soldering FC/ESC and BLDC motors via workshops, all with the goal of developing a 3-DOF telexistence drone controlled by a head mounted display via a Quest 3 application.

Extracurricular Activities/Leadership

Avionics Lead, *Beach Launch Team* **2025 – Present**

- Collaborated with CSULB's liquid rocketry student organization, specializing in the design, fabrication, and testing of liquid fuel rockets, to enhance the legacy relay control and data acquisition system by engineering an alternative wireless solution utilizing the LabJack T7 Pro and its LJM Python Library.
- Engineered and executed comprehensive data acquisition during the successful Theseus rocket static fire, capturing pressure readings from transducers, thrust force via load cells, and temperature metrics using a LabJack DAQ, ESP32 (Access Point), and NI-DAQ.

President & Founder, *XR Engineering Club* **2023 - Present**

- Founded CSULB's first student-led academic COE club for developing VR/AR software and hardware in robotics, supported by Professor Emel Demircan.
- Created "The Hub" virtual reality environment, featuring a VR Planet Simulator, Hole-in-the-Wall VR experience with full-body collision tracking, and AR Kitchen Simulator, developed collaboratively using Unity and GitHub.
- Equipment sponsored by CSULB's ISPACE through 3D printing/scanning, VR labs, Quest 3 headsets, and labs to host meetings/workshops.
- Demonstrated "The Hub" at CSULB's COE Senior Design Expo alongside the HPRL/MetaCenter booth. Held VR workshop at CSULB's BeachHacks 8.0

MetaCenter Student Lead, *CSULB Human Performance and Robotics Lab* **2023 - Present**

- Mentored by Dr. Emel Demircan, who advanced the MetaCenter mission through research, such as integrating VR environments with haptic feedback for the psychological rehabilitation of soccer athletes.
- MetaCenter focuses on expanding education using VR/AR; HPRL focuses on research in rehabilitation robotics and deep learning in sports biomechanics.