Gerardo Chavez-Simon | U.S. Citizen

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Education

Bachelor of Science, Electrical Engineering; 3.292/4.0 GPA — December 2023

California State University, Long Beach — Lancaster, CA

- **Awards and Honors:** Tau Beta Pi Member – Engineering Honor Society (Spring 2023), President's Honor List (Fall 2022)
- **Relevant Coursework:** Communication Systems I/II, Digital Control, Digital Signal Processing for Multimedia Communications

Relevant Experience

Electrical Engineering Design Lead (Senior Design Project) — Lancaster, CA

AFRL Smart Instrumentation Enclosure — March 2023 – Present | 7 Hours/Week

- Collaborated with an AFRL program manager and a multidisciplinary student team to engineer an electronics enclosure resilient to the intense vibrations and heat from adjacent rocket engine testing in the Mojave Desert
- Crafted a complete electrical system with components and schematics for a 20A circuit on a $500 budget, overseeing its safe assembly by an electrical engineering teammate
- Engineered back-end software, programming an ESP32 in C++ for cooler management, sensor data collection, power regulation, and emergency email-to-SMS alerts, intended to facilitate timely rocket testing
- Developed a front-end web interface using HTML, CSS, and JavaScript to display real-time sensor data via HTTP GET requests, achieving a $200 saving by self-hosting on the ESP32

iPhone Repair Technician — Palmdale, CA

Freelance iPhone Repair — March 2022 – Present | 5 Hours/Week

- Initiated, operated, and managed a successful repairing and reselling business venture, handling end-to-end operations with 100% customer satisfaction and achieving a 30–50% profit margin per phone
- Enhanced productivity by 20% using diode mode and ammeters to quickly pinpoint irreparable motherboard issues
- Performed battery, screen, and other repairs using soldering irons, heat guns, and screwdrivers, with 95% success

Projects

Audio Signal Modulator – KiCad, Multisim — September 2023 – November 2023

- Conceived and executed a guitar signal modulator by performing transient analysis in Multisim, utilizing 2N2222 BJTs, capacitors, and resistors to achieve a square wave output commonly found in distortion guitar effects pedals
- Calibrated component values through auditory testing to refine the sound quality and constructed the final PCB design in KiCad

Arduino Temperature Cooling System – C++, KiCad — August 2022 – September 2022

- Implemented an Arduino-based thermostat that interfaces with a DHT11 temperature sensor, 7-segment display, potentiometer, buttons, and a 74HC595 shift register, achieving a 40% reduction in required Arduino pins
- Designed and tested a 12V relay-controlled cooler circuit using KiCad, followed by fabricating a PCB with customization options for user-specific cooling systems

Transformers Equivalent Circuit – MATLAB, Simulink — November 2021 – December 2021

- Utilized MATLAB to program an application that calculates the equivalent circuit components of a transformer based on ratings and test data, improving efficiency in calculating and troubleshooting transformer circuits
- Automated circuit model generation in Simulink for circuits viewed from low-voltage and high-voltage sides

Skills

Programming Languages: Assembly, C, C++, CSS, HTML, MATLAB, JavaScript, TI-BASIC, VHDL

Software Tools: µkeil, Excel, KiCad, LabVIEW, Multisim, Simulink, Xilinx Vivado

Hardware: Digital Multimeter, FPGA, Function Generator, Microcontroller (Arduino, ESP32, STM32), Oscilloscope, Power Supply

Technical Proficiencies: Electronics Repair, PCB Layout, Schematic Capture, Soldering