



Gustavo Castrejon

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EDUCATION

University of California, Los Angeles (UCLA)
B.S. in Electrical Engineering

Expected Graduation: 2026
Upper-Division GPA: 3.6 / 4.0

EXPERIENCE

Software Engineer Intern, Bank of America | Dallas, TX

2024 - 2025

- Developed enterprise-grade automation utilities managing access control across **1,000+ SQL Server instances**, reducing manual workloads by **70%**.
- Implemented compliance-grade audit logging and rollback protection for secure database operations.
- Built a full-stack SBOM analysis platform (Python/Flask + React) that identifies vulnerabilities and dependency risks across 200+ internal applications.

Electrical Engineer Intern, California NanoSystems Institute | Los Angeles, CA

2023 - 2024

- Designed **EMI sensor calibration systems** and Python-driven data-acquisition pipelines, improving sensor accuracy and noise stability.
- Performed RF, EMI/EMC, and **signal-conditioning** testing using oscilloscopes, signal generators, spectrum analyzers, and channel emulators aligned with **MIL-STD-461** methodologies.
- Modeled interference coupling using radar-inspired simulation tools, optimizing sensor placement and reducing noise coupling by **25%**.
- Integrated hardware, firmware, and software subsystems to validate embedded sensor communication under varying environmental conditions.

Electrical Engineer Intern, California NanoSystems Institute | Los Angeles, CA

2022 - 2023

- Operated **Surface Mount Technology (SMT)** equipment and **Altium Designer** to fabricate and assemble mixed-signal PCBs.
- Performed circuit bring-up and validation using oscilloscopes, multimeters, and power analyzers to confirm design compliance.
- Created **test scripts (MATLAB/Python)** to automate measurement routines and collect performance data across 20+ prototype boards.
- Supported cleanroom operations, ensuring process stability through regular maintenance and material replenishment.

Engineering Tutor, UCLA | Los Angeles, CA

2023 - 2025

- Tutored upper and lower division Electrical Engineering and Computer Science to undergraduate engineering students at UCLA.
- Designed lesson plans that helped students improve at least one full grade above the class median.

TECHNICAL PROJECTS

Integrated Circuit Research, Department of Electrical and Computer Engineering, UCLA

- Collaborated with engineers and physicians to develop **flexible class III bioelectronic circuits** for physiological sensing and stimulation.
- Performed **calibration, voltage tolerance, and thermal endurance tests** to ensure medical-grade reliability.
- Modeled analog behavior and stress response using **LTspice** and **MATLAB** to ensure stable operation under strain.

Second-Order Active Filter - Analog Circuit Design | UCLA

- Engineered and validated a **10 kHz active notch (band-reject) filter** to suppress SMPS-induced interference across the **10 Hz–50 kHz audio band** while maintaining stable voltage output from a current-source input.
- Achieved **≤2 kHz notch bandwidth** and **≥74 dB stopband attenuation** with a **10 kΩ passband transimpedance** (100 mV output for 10 μA input).
- Derived and applied **closed-form design equations** and selected components under realistic constraints (100 mH inductor with 10 Ω resistance; resistors ≤200 kΩ).

SKILLS

Technical Skills: Circuit Design & Simulation: SPICE, LTspice, MATLAB; Hardware Design: SystemVerilog, VHDL, FPGA, PCB Layout: Altium Designer, KICAD; Programming Languages: C, C++, Python, JavaScript; Version Control: Git, GitHub;

Laboratory Skills: Proficiency operating within micro/nanofabrication cleanroom settings (classes 100/10), Materials Characterization (XRD/SEM/TEM), Oscilloscopes, Multimeters, Soldering & PCB Assembly, Signal & Spectrum Analysis

Language Skills: Fluent in English and Spanish

Certificate in Cybersecurity – Society of Hispanic Professional Engineers (SHPE) / MindEdge Learning