Saul H. Serrano

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Education

California State University Sacramento **Expected Graduation: Fall 2025**
B.S in Computer Engineering *Sacramento, CA*

Relevant Coursework

- Embedded Systems
- Robotics
- Computer Organization
- Advanced Logic Design
- CMOS & VLSI
- Circuit Analysis
- Electronics
- Signals and Systems
- Probability & Random Signals
- Operating System Pragmatics
- Data Structures & Algorithms
- UNIX
- Computer Networks
- Discrete Structures
- Object Oriented Programming
- Calculus II

Work Experience

Costco Wholesale **July 2020 – Present**
Backup Supervisor, Sales Representative *Sacramento, CA*

- Led a team of 10+ associates in high-volume retail operations, using analytics to optimize product placement and streamline workflow.
- Built trust with customers simplifying advanced technology features into clear, actionable benefits, improving customer confidence and purchase decisions.
- Adapted rapidly to shifting priorities during high-traffic sales events, optimizing task delegation and schedule adjustments to improve team coordination and member experience
- Trained and mentored new team members, creating peer on-boarding guide that reduced training time by 20% and increased role readiness

ACR Glass and Doors **June 2019 – August 2019**
Design & Project Manager Intern *Oakland, CA*

- Designed 2D schematics based on project specifications and city regulations to ensure compliance and accuracy.
- Collaborated with multiple teams to procure necessary materials by using effective written and verbal communication
- Enhanced professional skills in email correspondence and document management to improve organizational efficiency.

Project Experience

Autonomous Robot Dog | *Python, Raspberry Pi, Servo Motors, Computer Vision, Robotics* **8/25 – Present**

- Built and programmed a four-legged robotic system using **Raspberry Pi**, servo motors, and distance sensors to perform autonomous navigation and interactive behaviors.
- Implemented **computer vision** for face tracking and **obstacle detection**, enabling responsive movement and adaptive decision-making.
- Developed modular robotics control software for gait sequencing, servo coordination, and peripheral components including RGB LED indicators and ear/head movements.
- Explored integration of **AI-driven prompt engineering** and real-time sensor data processing to extend robotic intelligence and enhance human-robot interaction.

Mobile-Operated RC Vehicle | *Embedded C, STM32, UART, PWM, Bluetooth* **8/24 – 11/24**

- Engineered an RC vehicle controlled via Bluetooth by programming servo and DC motor control logic in embedded C on an STM32 microcontroller.
- Implemented UART-based serial communication to receive wireless commands and modulate PWM signals for real-time motor actuation.
- Troubleshot hardware-software integration using a UNIX terminal and Analog Discovery Oscilloscope to verify signal timing, connectivity, and motor response.

CrowdX - Student Project Crowdfunding Platform | *Python, JavaScript, Solidity, Django, Next.js* **6/25 – Present**

- A full-stack crowdfunding application enabling students to publish projects, manage fundraising campaigns, and accept payments via credit, debit, and cryptocurrency
- Engineered secure REST APIs with **Django Ninja** framework, implementing **JWT authentication**, **multi-factor authentication (MFA)**, and role-based access controls to protect sensitive user data.
- Designed and optimized **responsive user interfaces** in Next.js, improving project discovery, filtering, and interactive funding dashboards for enhanced user experience.

- Implemented modular, scalable architecture with Git-based version control and CI/CD workflows to support collaborative software development and long-term maintainability.

AI Email Agent | *Python, LangChain, LLMs, Automation, Edge AI* **7/25 – Present**

- Developed an AI-powered email assistant that leverages **LangChain** and local**large language models (LLMs)** to automate triage, summarization, and reply generation.
- Implemented structured pipelines for **email classification**, prioritization, and context extraction, reducing manual processing time and improving workplace efficiency.
- Utilized Prompt Engineering and rule-based logic to identify reply requirements and generate draft responses aligned with business communication standards.
- Planned deployment on **NVIDIA Jetson Nano**, enabling on-device inference and **edge computing** for autonomous execution in a local environment.

Simple Operating System Development | *C, CSUS SPEDE* **2/25 - 5/25**

- Built a custom operating system in C from the ground up, applying core OS concepts such as process creation, context switching, memory management, and user I/O handling.
- Transformed theoretical knowledge into practice through phased development on a virtualized Linux environment, debugging system behavior across milestones.
- Collaborated in a team-based setting using Git, GitHub, and GDB to manage version control, track issues, and troubleshoot kernel-level bugs efficiently.

Arithmetic Logic Unit (ALU) | *Cadence Virtuoso, CMOS Circuit Design* **2/24 – 5/24**

- Designed an 8-bit Arithmetic Logic Unit using 45nm CMOS technology, building custom schematics and layouts for core components including logic gates, adders, subtractors, and multipliers.
- Verified circuit validity and design integrity by successfully passing Design Rule Check (DRC) and Layout Versus Schematic (LVS) reports in Cadence Virtuoso.
- Demonstrated understanding of digital logic and physical layout constraints while optimizing for performance.

Technical Skills

Programming Languages: Python, C, Java, HTML/CSS, Javascript, VHDL, Verilog
Tools & Platforms: VSCode, Git, GitHub, Docker, Linux/UNIX, Wireshark, Cadence Virtuoso
Frameworks & Technologies: Django, Next.js, LangChain, PostgreSQL
Certifications: NVIDIA – Building LLM Applications with Prompt Engineering
Languages: Spanish (Native), English (Native)