Saul H. Serrano

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Education

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

- Dean's Honor List Recipient
- Society of Hispanic Professional Engineers (SHPE)

Certifications

NVIDIA - Building LLM Applications with Prompt Engineering
Splunk - Introduction to Enterprise Security

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

Project Experience

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

- Developed an **AI**-powered email assistant to automate my email inbox and increase productivity.
- Leverage **local** large language models **LLM's** and **LangChain** to create private and modular AI code
- Utilized Prompt Engineering and rule-based logic to identify reply requirements and generate draft responses aligned with personal communication standards and guidelines
- Planned deployment on **NVIDIA Jetson Nano**, enabling on-device inference and **edge computing** for autonomous execution in a local private environment.

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

- Lead a team to build and program a robotic dog using a **Raspberry Pi** to control motors based on sensor input
- Integrated **computer vision** and **AI** to allow for autonomous capabilities based on the world it sees
- Developed modular robotics control software for gait sequencing, servo coordination, and sensor data input
- Planned participation in **autonomous robot dog fight** at the end of 2025

CrowdX - New Age Crowdfunding | *Python, JavaScript, Django, Next.js* **6/25 – Present**

- A **full-stack** crowdfunding application where students and recent grads can showcase their projects, collect funding, and be discovered
- Lead a team of engineers developing a backend **Django** and frontend **Next.js** server in a modular and scalable approach
- Developed features such as custom **API's**, **JWT Authentication**, and Multi-Factor Authentication **MFA** to provide secure and role-based access to resources
- Directed project development using **Agile** workflows and **Git**-based version control, improving team coordination and delivery efficiency.
- Planned deployment in **Cloud hosted** servers which allow for scaling as the project grows

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

- Built a custom operating system in C from the ground up, applying core 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
- Served as team lead, coordinating **version control** in **Git/GitHub** and spearheading kernel-level **debugging** efforts with **GDB**.

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**.

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

- Directed collaborative design of a RC Vehicle utilizing a **STM Microprocessor** to control servo and motors controlled by **embedded** software
- 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 **Oscilloscope** to verify signal timing, connectivity, and motor response.

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
Languages: Spanish (Native), English (Native)

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.