Jesus Hernandez
Oakland, CA
jesus.m.hernandez01@sjsu.edu | (925) 499-3142
| https://www.linkedin.com/in/jesus-hernandez-computer-engineering/

Education

San Jose State University   **San Jose, CA**
Bachelor of Science in Computer Engineering,   **Expected December 2026**

Technical Skills

C, C++, Python, Java, Verilog, x86 Assembly, Linux, PCB Design

Projects

Custom Instruction Set Computer Simulator (C, x86 Assembly)

I developed a custom instruction set simulator in a Linux environment to model low-level program execution, including instruction decoding, ALU operations, and register state updates. The main challenge was debugging silent logic errors where programs ran but produced incorrect results. I used GDB to trace execution step by step, diagnose control-flow and data-path issues, and validate state transitions as I extended the simulator with additional instructions.

Digital Logic & Verification (Verilog)

I designed and verified finite state machines and arithmetic logic using Verilog, focusing on correctness under clocked operation. Many issues were behavioral rather than syntactic, such as incorrect state transitions or timing mismatches. I built RTL testbenches and used waveform analysis to trace failures back to logic errors, developing a strong understanding of verification and time-dependent debugging.

Polynomial Class Library (C++)

I implemented a C++ polynomial library supporting arithmetic operations and evaluation using dynamic memory. The primary difficulty was managing object lifecycles correctly, particularly during copying, assignment, and destruction. I resolved memory corruption and ownership bugs by redesigning constructors, destructors, and operator overloads to enforce safe object-oriented behavior.

PCB Design - LM386 Audio Amplifier

I designed, assembled, and tested a PCB-based LM386 audio amplifier, taking the project from schematic capture through layout, soldering, and hardware bring-up. After fabrication, I diagnosed connectivity and signal issues that were not visible in the schematic, requiring physical inspection and iterative testing. This project gave me end-to-end experience with real hardware constraints.

Research Experience

NASA L'SPACE Proposal Writing & Evaluation Experience Academy   *NASA, Arizona State University*
Mission Concept Team Member   *September 2020 - November 2020*

I served as the electrical engineer on a mission concept team designing a lunar airlock system to mitigate abrasive regolith contamination on astronaut suits. My role involved contributing to electrical subsystem design, evaluating power and system trade-offs, and justifying design decisions within NASA-style mission constraints. I supported the development of a formal technical proposal and gained experience working within a multidisciplinary systems engineering process.

NASA L'SPACE Mission Concept Academy   *NASA, Arizona State University*
Mission Concept Team Member   *January 2021 - May 2021*

I served as the electrical engineer for a Venus atmospheric probe mission concept, contributing to subsystem design, material selection, and system integration for operation in extreme environments. I evaluated trade-offs between reliability, performance, and environmental survivability while coordinating with mechanical and systems team members. This experience strengthened my ability to make defensible engineering decisions at the system level.

Technical Literature Review & Systems Analysis   *San José State University*

I conducted structured reviews of robotics and aerospace engineering research, focusing on how complex systems are modeled and validated. I analyzed multi-flexible body dynamics models by comparing simulations against experimental data and evaluating modeling assumptions and limitations. I synthesized findings into engineering requirements and data-driven design recommendations.