Carlos D. Martinez

Software / Systems Engineer

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PROFESSIONAL SUMMARY

Computer Science graduate with hands-on experience supporting, testing, and validating software systems in hardware-aware environments. Strong foundation in Python scripting, Linux-based systems, and structured test and documentation workflows. Educational background in Electrical Engineering and Electronics with practical experience debugging sensor-driven systems and maintaining reliable, repeatable technical setups. Comfortable working cross-functionally to execute test procedures, document results, and support system-level troubleshooting.

EDUCATION

San Diego State University, San Diego, CA
B.S. in Computer Science | May 2025
Relevant Coursework: Artificial Intelligence, Robotics, Operating Systems, Systems Administration, Database Theory & Implementation, Software Engineering

Universidad Autonoma de Baja California (UABC), Mexicali, Mexico
Electrical Engineering (5 semesters completed) | 2018-2020
Relevant Coursework: Circuits I & II, Electricity & Magnetism, Multivariable Calculus, Dynamics & Statics, Thermodynamics, Acoustics, Modern Physics

CBTIS 21, Mexicali, Mexico
Associate's Degree in Electronics | May 2016
Relevant Coursework: Microcontroller Applications for Smart Buildings, PLC Programming, Digital Design, Analog Circuits, Radiofrequency

WORK EXPERIENCE

Case Manager
Self-Determined Futures LLC, San Diego, CA | May 2025 - Present

- Maintained precise, audit-ready documentation across multiple concurrent cases.
- Reviewed data for accuracy, consistency, and readiness prior to reporting.
- Prioritized tasks based on urgency, constraints, and risk, ensuring timely delivery.
- Communicated status updates clearly to stakeholders.

System Administration Intern
San Diego State University, San Diego, CA | Feb 2025 - May 2025

- Installed, configured, and supported Linux-based systems including DNS, web, mail, and authentication services.
- Troubleshot Linux operating system and networking issues (IP configuration, DNS resolution, service availability).
- Deployed and validated redundant services using Kubernetes.
- Automated configuration and deployment tasks using Ansible and Python-based scripts.
- Documented system configurations, procedures, and validation results.

STEM Instructor

Nexplore, San Diego, CA | Sep 2024 - Aug 2025

- Explained technical concepts related to programming, robotics, and electronics to diverse audiences.
- Supported hands-on builds and troubleshooting activities.
- Created reusable instructional and technical documentation.

PROJECTS

Autonomous Mobile Robot - Sensor & Control System

- Developed software to control a mobile robot using multiple sensors (distance, proximity, motion).
- Built and validated hardware-software interfaces through iterative testing.
- Debugged system behavior by analyzing sensor data and control logic.
- Documented configurations, test procedures, and results to ensure repeatability.

Smart Home Automation System - Microcontroller-Based Control

- Built an automated home control system using a PIC microcontroller and multiple custom circuits.
- Integrated sensors (presence, temperature, and day/night detection) to control lighting and climate behavior.
- Designed and tested circuit modules including a smart key entry system and automated sink control.
- Validated system behavior through iterative testing and documented wiring and configuration details.

Radio Transmitter & Receiver - Breadboard Prototype

- Designed and assembled a radio transmitter/receiver prototype using analog components on a breadboard.
- Tested signal behavior and adjusted component values (capacitors, inductors, potentiometers) to improve performance.
- Used multimeters and oscilloscopes to measure signals, verify outputs, and support troubleshooting.
- Documented build steps and results to ensure repeatability and debugging efficiency.

Azure ML - Model Evaluation Project

- Implemented and evaluated multiple machine learning models using structured testing and comparison.
- Analyzed outputs to validate expected behavior and performance.
- Documented findings and corrective adjustments.

Technical Skills Demand Forecasting

- Designed and queried structured datasets using SQL-style relational logic.
- Validated data completeness and consistency prior to analysis.
- Generated summary tables and trend analyses for reporting.

TECHNICAL SKILLS

- Programming: Python, SQL, C++
- Operating Systems: Linux installation and troubleshooting
- Systems & Networking: DNS, IP configuration, service validation
- Hardware & Embedded: Sensors, microcontrollers, PLCs, electronics fundamentals
- Tools: Git, Ansible, Kubernetes, Microsoft Excel
- Practices: Test execution, validation, documentation, root-cause analysis