

Christian Villanueva

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Summary

Computer engineering student with extensive experience in hardware troubleshooting, test fixture development, and electromechanical system integration. Demonstrated ability to isolate faults, optimize test workflows, and manage virtualized and physical infrastructure for reliable system performance.

Education

San Jose State University

Bachelor of Science in Computer Engineering

Relevant coursework: Data Structures & Algorithms (C++), Digital Design I & II (Verilog), Assembly Language Programming, Operating Systems (C), Advanced Algorithm Design, Circuit Analysis, Electronics for Computing Systems, Microprocessor Design.

San Jose, CA

Expected Fall 2026

Mission College

A.S. Mathematics | A.A. Liberal Arts

Honors: Magna Cum Laude, Dean's List

Santa Clara, CA

Graduated 2024

Experience

Hardware Test Engineering Technician (Reliability & Test Fixtures)

QxQ Inc.

Fremont, CA

May 2025 - Present

- Built and integrated custom electrical test fixtures used to validate PCB-level subassemblies for automotive, server, and embedded hardware systems.
- Assembled and wired scalable test stations supporting functional testing and firmware flashing via automated test scripts.
- Performed electrical bring-up and fault isolation using schematics, continuity testing, probing, and signal verification.
- Collaborated with electrical and test engineers to iterate fixture designs, implement hardware changes, and improve test reliability and repeatability.

Information Systems Technical Assistant

West Valley Mission Community College District

Santa Clara, CA

Jul 2022 - Aug 2024

- Supported campus-wide IT infrastructure through hands-on hardware, cabling, and system troubleshooting across academic and administrative facilities.
- Performed structured patching, endpoint connectivity validation, and fault resolution across networked systems.
- Assisted with server setup, OS deployment, peripheral validation, and system-level troubleshooting.
- Handled basic user account maintenance and access support while documenting issues and resolutions for engineering and IT teams.

Additional Technical Experience

- *Green E-Waste* — Hardware Technician

Performed computer hardware diagnostics, OS installation, firmware updates, and component-level troubleshooting.

- *Fry's Electronics* — Computer Department Supervisor

Provided technical support, hardware consultation, and inventory coordination for computer systems and components.

Technical Projects

Proxmox Virtualization Lab

Jul 2025 - Present

- Built and maintained a custom Proxmox server with Xeon CPU, ECC memory, and ZFS-based storage hosting multiple virtual machines and Linux containers.
- Designed VLAN-separated virtual networks to isolate NAS services, internal workloads, and outward-facing services in a DMZ.
- Configured static IP assignment, firewall permissions, and inter-VLAN routing to control access between services.
- Performed system bring-up and troubleshooting for issues including ZFS memory constraints, blocked service access across VLANs, DNS resolution failures, and firewall rule conflicts.
- Used IPMI for remote hardware management and monitoring; performed regular system maintenance and storage health checks.
- Currently migrating select services from virtualized environments to bare-metal hardware to improve performance and reliability.

Home Network Engineering Lab

Jul 2025 - Present

- Designed, built, and currently manage a fully segmented home network supporting routers, managed and unmanaged switches, wireless access points, IoT devices, a Proxmox server, virtual machines, and Linux containers.
- Implemented VLANs to separate personal systems, home office, IoT devices, guest access, and a DMZ; assigned static IPs via MAC reservations to ensure predictable connectivity.
- Developed firewall rules to isolate untrusted and internet-facing devices, preventing compromise of internal systems.
- Diagnosed and recovered from misconfigurations that caused loss of network access, requiring multi-hop access and manual reconfiguration of routing, VLANs, and firewall rules.
- Monitored network performance, bandwidth usage, and device behavior; throttled non-critical traffic to prioritize infrastructure and compute workloads.

Technical Skills

Hardware & Test Engineering

Electrical test fixture assembly, schematic-driven wiring, continuity testing, probing and signal verification, electrical bring-up, fault isolation, root cause analysis, soldering, BIOS and firmware flashing.

Electromechanical & Digital Systems

Digital logic design, FPGA development (Vivado), circuit analysis, oscilloscope probing, waveform capture, test bench validation.

Systems & Infrastructure

Linux system administration, virtualization (Proxmox), ZFS storage management, IPMI/BMC remote management, managed switching, VLAN tagging and segmentation, subnetting, static IP assignment, DHCP, firewall configuration, system monitoring, network troubleshooting.

Programming & Tools

C++, Verilog, Assembly, Git, Linux CLI, Vivado, oscilloscopes, function generators.