LORANS HIRMEZ

ELECTRICAL AND HARDWARE ENGINEER | SYSTEMS INTEGRATION, VALIDATION AND TEST

San Diego, CA | 619-621-0533 | loranshirmez@gmail.com | linkedin.com/in/loranshirmez | personal-site.loranshirmez.workers.dev | U.S. Citizen

PROFESSIONAL SUMMARY

Electrical engineer with 5+ years of combined R&D hardware and regulated manufacturing experience supporting embedded electronic products from prototype through production. Hands-on background in PCB bring-up, hardware and system validation, RF and electrical measurements, imaging and sensor integration, MATLAB test workflows, failure isolation, reliability testing, manufacturing support, and cross-functional root-cause resolution.

CORE QUALIFICATIONS

Embedded hardware validation | Systems integration and test | PCB bring-up and troubleshooting | Test plans, procedures and reports | RF, analog, digital and power measurements | MATLAB characterization workflows | Imaging, optics and sensors | Reliability and environmental testing | Root-cause analysis | Regulated manufacturing | Prototype-to-production support

PROFESSIONAL EXPERIENCE

E-SEEK, Inc. | R&D Hardware Engineer | San Diego, CA Apr 2022 - Present

- Led ISO 10373 certification of the M600 scanner by redesigning its RF module so the product could pass Cetecom BSI certification testing.
- Develop and execute electrical, functional, regression, reliability, environmental, and design-verification tests for embedded scanner systems, PCB assemblies, power circuitry, CMOS imaging, LED illumination, firmware, software, and communications interfaces.
- Bring up, characterize, troubleshoot, and rework PCBAs using schematics, oscilloscopes, logic analyzers, spectrum analyzers, VNAs, signal generators, power supplies, DMMs, soldering tools, logs, and controlled experiments.
- Build MATLAB workflows for automated characterization, instrument data capture, analysis, regression comparison, visualization, and repeatable engineering reporting.
- Create test plans, procedures, acceptance criteria, fixtures, setup records, defect documentation, and technical reports; communicate findings, risks, and corrective-action recommendations.
- Investigate failures involving analog, digital, RF, power, signal integrity, sensors, imaging, optics, firmware, software, and hardware-software interactions.
- Collaborate with electrical, firmware, software, mechanical, quality, and manufacturing teams to verify design improvements and support product maturity from prototype through production and field support.

Cue Health | Production Lead | San Diego, CA Nov 2020 - Apr 2022

- Led daily production activities for regulated diagnostic products and PCB assemblies while reinforcing controlled procedures, traceability, inspection requirements, safety, and quality expectations.
- Supported automated-equipment troubleshooting, defect review, escalation, corrective action, and production continuity in a high-volume manufacturing environment.

SELECTED ENGINEERING PROJECTS

- **Dual Power Generation, Senior Design (team of 11, SDSU):** Wind and solar hybrid generator. Led the software group on the Raspberry Pi maximum power tracker; designed the DC-DC and DC-AC converters; built the solar sun-tracking system.
- **Ultra-Fast EV Charging Systems (M.S., EE 584):** Simulink/MATLAB model of a 350 kW DC fast charger (grid, active-front-end rectifier, buck-boost converter, 100 kWh battery with thermal model) with a CC-CP-CV charging controller; compared liquid, refrigerant, and phase-change-material cooling and analyzed economic feasibility.
- **CMOS Logic Family Comparison (COMPE 572):** Laid out DRC/LVS-clean 2-input XOR gates in standard CMOS, pseudo-NMOS, and pass-transistor logic (TSMC 0.3 µm, Cadence); extracted area, power, and delay (pass-transistor smallest at 176 µm² and 0.005 mW; pseudo-NMOS fastest at 4.48 ns). Repeated for a 4-bit parity checker.
- **Static CMOS Design and MOSFET Characterization (COMPE 572):** Sized and laid out NAND and NOR gates and measured propagation delay across 0/27/65 °C and 90/100/110% VDD; extracted MOSFET threshold voltage and body-bias effects and sized an inverter for a VDD/2 switching threshold. Team earned extra credit for fastest propagation delay.
- **FPGA Logic Design and Verification (Northrop Grumman training):** Completed eight weeks of Xilinx Vivado, VHDL, and Verilog training; implemented digital functions and verification testbenches.

TECHNICAL SKILLS

MATLAB, Simulink, Python, C and C++ familiarity, LabVIEW familiarity, Xilinx Vivado, VHDL, Verilog, Jira, Git, Linux familiarity, Cadence, Altium Designer, OrCAD, PADS, KiCad, LTspice, PSpice; SPI, I2C, CAN, USB, UART, TCP/IP; oscilloscopes, logic analyzers, spectrum analyzers, VNAs, signal generators, DMMs, power supplies; PCB assembly, soldering, and rework

EDUCATION

San Diego State University Global Campus | M.S. Electrical Engineering (in progress, GPA 3.82) Expected May 2028

Completed: Power Electronics, Machine Learning for Engineers, VLSI Testing, Wireless Sensor Networks. In progress: High Speed Networks.

San Diego State University | B.S. Electrical Engineering May 2020

Analog and power: Engineering Electronics and Circuit Design (with labs), Electrical Energy Conversion. RF: Electromagnetic Waves, Antenna Theory and Design, Microwave Devices and Systems. Digital and embedded: Digital Systems, Computer Organization, Embedded Systems Programming, VLSI Circuit Design. Signals: Signals and Systems, DSP, Feedback Control, Communication Systems.