Luis Martinez
Electrical Engineer
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PROFESSIONAL EXPERIENCE

SPACE INFORMATION LABORATORIES
Senior Electrical Engineer **2026-Present**
Electrical Engineer II **2025-2026**

- Designed electrical test fixtures and DVT procedures for PCBAs, streamlining hardware validation workflows.
- Developed system test equipment PCBAs to enable repeatable, efficient board-level testing.
- Helped structure and mature a Python SCPI wrapper framework enabling integration of bench instruments into test flows, reducing DVT setup overhead across programs.
- Authored firmware for the Xilinx Zynq-7000 SoC as part of an Autonomous Flight Termination platform.
- Executed GNSS receiver characterization tests covering PVT accuracy and signal reacquisition performance utilizing Skydel GNSS simulation software and python API automation.
- Contributed to proposal efforts by leading trade studies and generating Interface Control Documents (ICDs).
- Took ownership of electrical sections for customer-facing technical interchange meetings (TIMs) on a recurring basis.
- Performed worst-case circuit analysis (WCCA) on BMS circuits to verify compliance with PMAP Rev B and RCC-319.
- Produced FMECA reports for Autonomous Flight Termination Unit and BMS systems, identifying failure modes and mitigations.

RAYTHEON INTELLIGENCE AND SPACE
Electrical Engineer II **2024-2025**
Electrical Engineer I **2022-2024**

- Designed two customer-driven PCBs from requirements through CDR, owning schematics, layout, PWB/PWA drawings, analysis, and parts lists.
- Applied HyperLynx SI/PI analysis to validate signal and power integrity on fully routed boards.
- Executed worst-case circuit analysis (WCCA) across multiple power electronics circuits to confirm design margin compliance. This includes Monte Carlo simulations, phase/gain margin analysis, and IR drop analysis.
- Developed and debugged RTL in VHDL for Intel SoC platforms using Quartus Pro, SignalTap, and Qsys.
- Leveraged MATLAB/Simulink for system-level modeling, development, and algorithm prototyping for electronic warfare radar self-protect-systems applications.
- Led system-level environmental qualification tests including vibration and thermal chamber runs.
- Operated signal generators, oscilloscopes, spectrum analyzers, and DC power supplies in support of hardware bring-up, troubleshooting, and characterization.
- Supported sustainment programs by diagnosing returned units, identifying root causes, issuing technician work orders, and re-testing per established ATPs prior to return to service.

BOSTON SCIENTIFIC
Electrical Engineering Intern **2021**

- Designed a custom PCB to model spinal behavior under electrical stimuli, from schematic through fabrication.
- Wrote embedded C firmware for an onboard ARM Cortex M4 microcontroller to process and respond to input signal data from real clinical trials.
- Applied DSP concepts including digital/analog filtering and DAC interfacing to implement real-time signal conditioning.

PERSONAL PROJECTS

Guitar Headphone Amplifier

- Designed a 2-layer PCB which amplifies an electric guitar signal for use with a pair of in-ear headphones. Leverages the NE5532 op amp for active filtering and amplification.

GNSS and IMU PCBA with STM32 and RF Transceiver

- Designed a 6-layer PCB centered around the NEO-M9N GNSS receiver, STM32F411 MCU, and BNO086 9DOF IMU. Includes an nRF24L01 2.4GHz RF transceiver with external PA/LNA circuitry. The board is USB-C powered and contains circuitry to charge and run off of a LiPo battery pouch.

SKILLS

- **PCB Design:** Mentor Xpedition, Altium, KiCad, stack-up design, impedance control
- **Programming:** C/C++, Verilog, MATLAB/Simulink, Python, Vivado, Quartus Prime, Xilinx SoC, STM32, SCPI
- **Analysis:** LTSpice, Hyperlynx SI/PI, WCCA, FMECA, reliability analysis, qualification gap analysis, trade study
- **Testing:** Test procedures, test requirements, test fixtures, environmental chambers, GNSS testing

EDUCATION

CORNELL UNIVERSITY **Ithaca, NY**
Bachelor of Science in Electrical and Computer Engineering **2018-2022**

- Coursework centered around Embedded Systems, Digital Signal Processing, and FPGA development.
- Electrical lead for Cornell Nexus which created a robot that filters microplastics from beaches. Worked closely with motors and motor controllers, motor encoders, Raspberry Pi's, and batteries.