

Michael Turner

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Professional Summary

Senior Electrical Engineer specializing in hardware validation, automated test systems, manufacturing engineering, and mixed-signal embedded electronics. Experienced developing production test equipment, PCBAs, Python automation, and data-driven failure analysis for automotive and advanced sensing systems. Proven record of improving manufacturing efficiency, product reliability, and hardware validation from concept through production.

Selected Achievements

- Reduced PCB programming time to 1:46 by designing and deploying an efficient production flashing station.
- Improved optical sensor signal-to-noise ratio by 70× through mixed-signal electrical redesign.
- Developed a novel machine learning classification algorithm and automated training pipeline that substantially reduced false-positive detections.

Professional Experience

Aptera Motors — Test Engineer (Apr 2026 – Present)

- Designed and deployed a PCB flashing station that reduced programming time to 1:46, improving throughput, repeatability, and manufacturing efficiency.
- Developed data-driven troubleshooting methods that identified intermittent PCB failures previously unresolved through conventional part replacement.
- Accelerated hardware root-cause investigations using AI-assisted codebase analysis to verify firmware behavior and isolate hardware/software interactions.
- Worked cross-functionally with software, systems, and manufacturing technicians to diagnose and resolve issues affecting fleet development vehicles.

Apple — Sensing Systems Engineer (Jul 2023 – Apr 2025)

- DRI for optical measurement systems supporting manufacturing validation.
- Designed robotic characterization equipment used to validate optical sensor modules against production specifications and design models.
- Developed Python and MATLAB data pipelines for large-scale image analysis.

Intelligent Optical Systems — Senior Electrical Engineer (Nov 2019 – Jan 2023)

- Developed a novel machine learning classification algorithm and automated training pipeline in Python and C that reduced false-positive detections.
- Improved sensor signal-to-noise ratio by 70× through mixed-signal electrical redesign, supporting development from concept through production.
- Designed mixed-signal PCBAs incorporating high-speed SiPM sensors, precision analog front ends, RS485, SPI, I²C, and embedded processors using Altium Designer.
- Developed embedded firmware, automated calibration software, and Python-based validation tools supporting manufacturing.

Missouri S&T Formula SAE Electric

- Chief Electrical Engineer responsible for electrical subsystem planning, FMEA, and multidisciplinary project leadership.
- Designed embedded systems, telemetry, active aerodynamics controls, and battery management improvements for an electric race car.
- Mentored junior members while coordinating cross-functional engineering efforts.

Education

B.S. Electrical Engineering, Missouri University of Science and Technology
Graduated Cum Laude

Technical Skills

Electrical Design: Mixed-Signal PCB Design, Schematic Capture, Analog/Digital Electronics, Circuit Debugging, Embedded Systems, Switching Supplies, Thermal Analysis

Programming: Python, Embedded C/C++, MATLAB, Git, Linux, Bash

Validation & Manufacturing: Hardware Validation, Failure Analysis, Reliability Testing, Root Cause Analysis, Production Test Fixtures, Manufacturing Engineering, DFM, Poka-Yoke

Tools: Altium Designer, Oscilloscopes, Logic Analyzers, Multimeters, Power Supplies, Soldering/Rework