

Manan Bhardwaj

Electrical engineer covering hardware, firmware, and application software, with production work across data centers, medical devices, radar, and vehicles

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Experience

Green Revolution Cooling

Control Engineer

Austin, Tx
November 2025 - Present

- Integrated, wired, brought up, and debugged electrical/control systems across Nano, NX Rack, and Atto liquid-cooling platforms
- Developed OpenPLC logic and Linux UI/services for temperature control, alarms, interlocks, monitoring, and system operation
- Designed LED and stepper interface PCBs from schematic through layout and bring-up; performed soldering, rework, and 3D CAD integration
- Developed stepper motor firmware and integrated drivers, sensors, and RS-485, CAN, I²C, and USB communications
- Designed cable/harness integrity test systems and supported harness design, fabrication, assembly, and manufacturing
- Coordinated NEMKO validation, including test preparation, troubleshooting, engineering changes, procedures, manuals, and documentation
- Worked with vendors to evaluate components and subsystems, identify improvements, assess tradeoffs, and reduce cost

Tools & Skills: OpenPLC, Linux, Embedded C/C++, PCB Design, Stepper Control, RS-485, CAN, I²C, USB, Industrial Controls, Hardware Bring-Up, 3D CAD, NEMKO Validation

Applied Concepts Inc

Electrical Engineer

Richardson, TX
January 2025 - July 2025

- Designed and implemented a solar-powered battery heater system using a PID control loop on STM32 (Nucleo board) to maintain LiFePO4 battery temperature in sub -30°C conditions
- Developed and tested custom DC-DC buck control logic, MPPT tracking, and battery charging algorithms for cold-weather optimization
- Programmed firmware using STM32CubeIDE and deployed to embedded hardware in a commercial radar product
- Conducted GPS and 4G validation using tools like VisualGPS; optimized antenna performance for radar-GPS synchronization
- Led solar chamber testing by building an artificial freeze environment to simulate low-light, low-temp conditions
- Worked cross-functionally across design, firmware, testing, and in-house manufacturing to iterate on PCB layouts (Siemens PADS, KiCAD) and improve DFM (Design for Manufacturing) readiness
- Created technical documentation for internal manufacturing and external production partners; supported regression testing and post-market monitoring for deployed units

Tools & Skills: STM32CubeIDE, Siemens PADS, KiCAD, MPPT, PID Control, DC-DC Buck Converters, Embedded C, GPS Validation, VisualGPS, Solar Simulation, Cold Weather Electronics, DFM, Nucleo Boards

Inogen

Electrical Engineer Contractor

Plano, TX
January 2024 - December 2024

- Designed and prototyped full IoT devices, including AQI monitoring and battery management systems using TI BQ ICs
- Developed embedded firmware in C++ for STM-based systems and integrated with custom hardware for end-to-end validation
- Built a cross-platform desktop app for data acquisition and visualization using Python (Tkinter, PyQt5, MCCULW)
- Created automated test routines using Python scripts and Tera Term macros, improving validation throughput
- Designed a 4-layer RF board for LTE communication using Altium Designer; managed hardware bring-up and debugging
- Authored regulatory documentation for medical device compliance; leveraged local ML models to streamline workflow and testing
- Conducted full-system validation using oscilloscopes, DMMs, power supplies, and automated test fixtures

Tools & Skills: Altium Designer, Embedded C++, Python, STM32, RF Design, IoT, Firmware Debugging, Automated Testing, Medical Compliance (ISO), PyQt5, Tkinter, MCCULW, Tera Term

Canoo

Vehicle Software Test Engineer

Torrance, CA
June 2023 - September 2023

- Designed a Hardware-in-the-Loop (HIL) test system using NI DAQ, relays, and CANoe to automate thermal subsystem validation
- Built flexible test benches capable of simulating complex ECU scenarios with automated switching logic
- Authored standardized documentation for HIL system setup and debugging to ensure repeatability and maintainability
- Collaborated with firmware and thermal systems teams to expand testing coverage and reduce regression test time
- Utilized ECU Test and NI Lab equipment to validate embedded software performance in real-world simulations

Tools & Skills: HIL, CANoe, ECU Test, NI DAQ, Relay Logic, Thermal Systems Testing, Test Automation, Embedded Systems Validation, Technical Documentation

Denso-Ten America

Validation Test Engineer

Dallas, TX
July 2021 - December 2021

- Performed vehicle and bench testing for automotive infotainment systems; logged bugs using Jira and conducted root-cause analysis
- Flashed experimental firmware to main and sub microcontrollers for feature verification and debug
- Logged and analyzed system data using CANoe, serial interfaces, and Putty for both software and hardware validation
- Retrofitted and integrated next-gen infotainment components into test vehicles for field evaluation
- Wrote Python scripts to automate ticket tracking and reporting; coordinated Jira workflows across QA and engineering teams
- Disassembled/reassembled complex electronics for diagnostics and soldered components during rework phases

Tools & Skills: CANoe, Jira, Python, Serial Debugging, Vehicle Systems Testing, Firmware Flashing, Infotainment Integration, Bug Tracking, Electronics Rework, Putty

Education

University of Texas at Dallas

BS - Electrical Engineering

Graduated May 2025

- Relevant Coursework: Signals & Systems, Digital Circuits, Electronic Devices, Advanced Engineering Math, RF Circuits, Embedded Systems
- Tools & Platforms: MATLAB, PSpice, ORCAD Cadence, CSS, Microsoft Office
- Lab Experience: 3 years of hands-on work with oscilloscopes, wave generators, DC power supplies
- Capstone Projects: Smart Garden, Smart Beehive, Calorie tracking weight measuring AI classification based Smart Spoon
- Personal Projects: RF Energy Harvesting Rectenna, BLDC Motor controller, BMW E39 Tuning and engine modifications, Configurable guitar pedal