DAVID TRAN

STAFF ELECTRICAL ENGINEER

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U.S. Citizen | Eligible to obtain and maintain U.S. Secret Security Clearance

PROFESSIONAL SUMMARY

Staff Electrical Engineer with 15+ years of experience architecting, designing, integrating, and validating electrical systems for autonomous aircraft, embedded systems, and commercial products. Own electrical development from system architecture, power budgeting, interface definition, and ICD/FDD documentation through connector and harness design, PCB development, integration, verification, and design review. Designed and released 25+ PCB assemblies with complete fabrication and assembly documentation, including designs up to 12 layers and systems operating up to 61 V and 200 A. Hands-on technical leader experienced collaborating across electrical, mechanical, software/firmware, manufacturing, and flight-test teams to deliver prototype and fielded hardware.

TECHNICAL EXPERTISE

Electrical Systems: System Architecture • Block Diagrams • Power Budgets • Interface Control Documents (ICDs) • Functional Design Documents (FDDs) • Power Distribution • Interface Definition • Connector Selection • Wiring Harness Design • Avionics Integration • System Integration • Verification & Validation

Hardware / PCB: Analog & Digital Circuit Design • Power Electronics • Battery Management • Altium Designer • Schematic Capture • PCB Layout • Up to 12 Layers • DFM/DFA • Full Fabrication Packages • Assembly Drawings • Hardware Bring-Up

Embedded / Interfaces: STM32 • PIC • AVR • CAN • Gigabit Ethernet • USB • SPI • I^2C • UART • RS-422 • PWM • ADC • DAC • Basic Camera Interfaces

Engineering / Test: Root Cause Analysis • Schematic & PCB Design Reviews • Oscilloscopes • Function Generators • Load Banks • Logic Analyzers • Git • Jira • SolidWorks • Visio • IAR • MPLAB X • STM32CubeIDE

PROFESSIONAL EXPERIENCE

Ondas Sentinel (formerly DZYNE Technologies, LLC) — Sep 2020 – Present

Irvine, CA

Staff Electrical Engineer Nov 2024 – Present

Electrical Engineer Mar 2021 – Nov 2024

Contract Electrical Engineer Sep 2020 – Mar 2021

- Architect electrical systems for autonomous aircraft and payloads, developing system block diagrams, power budgets, interface definitions, and interconnect architectures; document system requirements and design intent through Interface Control Documents (ICDs) and Functional Design Documents (FDDs) from concept through integration and flight testing.
- Designed and released 25+ PCB assemblies with complete fabrication and assembly documentation, personally performing schematic capture and PCB layout for designs up to 12 layers.
- Own complete electrical subsystem development, routinely progressing designs from initial architecture through working integrated prototypes within 2–3 months; have completed PCB design-to-built-hardware cycles in less than 15 days.
- Architected and developed a battery management system for a high-power battery platform, owning the complete electrical design including BMS implementation, protection circuitry, load switching, and a multipath power architecture using parallel MOSFETs.
- Develop power electronics and distribution systems operating at up to 61 V and supporting loads up to 200 A, including high-current switching, protection, and power-path circuitry.
- Developed a cost-effective vehicle umbilical architecture consolidating Ethernet, RS-422, CAN, and GPIO connectivity between the vehicle and host system.
- Improved LRIP production readiness by replacing labor-intensive hand-built harness assemblies with PCB-based solutions, enabling more automated and repeatable manufacturing and allowing a common test fixture to support multiple assemblies.
- Design aircraft wiring harnesses and interconnect systems, including connector and component selection, interface definition, documentation, fabrication coordination, hands-on prototyping, integration, and validation; coordinate with vendors for connectors, components, and custom PCB fabrication/assembly.
- Collaborate with mechanical, software/firmware, systems, manufacturing, and flight-test teams during system integration and validation; develop and maintain ICDs, FDDs, block diagrams, power budgets, schematics, fabrication packages, and assembly drawings supporting design reviews, test, and production.
- Lead schematic and PCB layout design reviews, identifying electrical and integration issues, including wiring errors, before fabrication and hardware integration.
- Mentor 4+ engineers in circuit design, schematic capture, PCB layout, debugging, and system integration, providing ongoing technical guidance and design review support.
- Led end-to-end electrical development and integration for the Long Grasshopper demonstrator, owning system architecture, power budgeting, interconnects, harnessing, custom electronics, PCB development, verification, and aircraft integration; delivered flight-ready hardware that operated successfully and supported a nearly five-hour flight.
- Effectors: supported electrical integration of ESADs, Prox Fuze, and related payloads into airframe.

Bird Rides — Culver City, CA — Feb 2020 – Apr 2020

Electrical Engineer

- Identified a critical circuit design flaw with the potential to damage approximately 1,000 fleet vehicles through circuit analysis and hardware investigation.
- Designed prototype PCBs, diagnostic harnesses, and engineering fixtures, including a fixture that reduced setup time by up to 80%.
- Performed hardware root-cause analysis, supported DFMEA and design reviews, and developed an STM32 JTAG breakout solution.

AEM Performance Electronics Inc. — Hawthorne, CA **Dec 2011 – Jan 2020**

Embedded Systems Engineer Jul 2018 – Jan 2020

- Led an embedded electronics product from concept through design, validation, production release, and product support.
- Designed 10+ PCBs and detailed schematics, including multilayer embedded designs; reduced PCB design errors by up to 90% by incorporating mechanical CAD models into electrical design verification.
- Developed and validated embedded C firmware for PIC and AVR/AVR32 microcontrollers; performed prototype assembly, bring-up, programming, debugging, and validation.

Electrical Engineer Apr 2014 – Jul 2018

- Resolved a 12-year-old product design issue through legacy schematic analysis and root-cause investigation.
- Designed embedded electronics, analog/digital circuitry, power electronics, custom PCBs, and automated production test equipment; developed five automated test suites for National Instruments PXI systems.
- Developed embedded C firmware and C# companion software; led a three-person team and supported manufacturing and suppliers at the factory level.

Electrical Test Engineer Dec 2011 – Apr 2014

- Saved approximately $100K by troubleshooting and repairing faulty electronic products rather than replacing them.
- Reduced ECU programming and test cycle time from approximately 10 minutes to less than 3 minutes through automated test and programming software.
- Designed and built four custom PCBA bed-of-nails fixtures; developed verification plans and performed first-article, thermal, and hardware validation testing.
- Designed PCBs for in-house test equipment, generated manufacturing data, and performed hardware bring-up, troubleshooting, and design reviews.

EDUCATION

California State University, Long Beach

Master of Science, Computer Engineering, 2015 • Bachelor of Science, Computer Engineering, 2012