DANIEL SIMON JR.

Electrical Engineer | Systems Engineer | Technical Leader
LinkedIn: linkedin.com/in/danielsimonjr | GitHub: github.com/danielsimonjr

PROFESSIONAL PROFILE

Systems engineer with 25+ years of experience integrating hardware design, software development, and systems-level thinking to deliver test and evaluation solutions for defense and aerospace programs. Specialized in Test Program Set (TPS) development for fighter aircraft avionics (F-16, F-35), covering the full product lifecycle from requirements analysis through production deployment, field sustainment, and obsolescence management. First-generation college graduate and naturalized U.S. citizen with an Army background, bringing hands-on electrical engineering expertise and first-principles thinking to automated test equipment design, avionics validation, and diagnostic system architecture. Languages: English, Haitian Creole, French.

SECURITY CLEARANCE

Department of Defense (DoD) Secret Clearance — Active

CORE COMPETENCIES

- **Systems Engineering & Lifecycle Management:** Requirements definition, architecture design, implementation, integration, verification, validation (IV&V), and sustainment across multi-decade platform lifecycles
- **Test Program Set (TPS) Development:** Complete hardware/software test system design for F-16 and F-35 avionics LRUs: Interface Devices, test software, diagnostic algorithms, and technical data packages
- **Automated Test Equipment (ATE):** Expert-level proficiency with NI TestStand, LabVIEW, LabWindows/CVI (ANSI C); experience with TI IMPACT/TL1/VLCT, Teradyne iFlex/Eagle, and PXI-based architectures
- **Hardware Design & Signal Integrity:** Circuit-level design for data acquisition, instrumentation, control, and power systems; PCB layout with Altium Designer and Mentor Graphics
- **Diagnostic & Fault Isolation Logic:** Architecting test sequences mirroring expert troubleshooting workflows for efficient root cause identification under operational constraints
- **Cross-Functional Technical Leadership:** Coordinating hardware, software, manufacturing, quality assurance, and program management teams through formal configuration management and enterprise engineering processes

TECHNICAL PROFICIENCIES

- **Test & Automation:** NI TestStand, NI LabVIEW, NI LabWindows/CVI (ANSI C), TI IMPACT/TL1/VLCT, Teradyne iFlex/Eagle, Arbin Instruments
- **Design & Layout Tools:** Altium Designer, NI Multisim, Mentor Graphics Expedition PCB, Protel 99SE, PCB Layout, MathCad
- **Instrumentation:** Oscilloscopes, Function Generators, Sourcemeters, Power Supplies, DAQ Systems, PXI Modules, Signal Analyzers, Logic Analyzers
- **Protocols & Interfaces:** GPIB, Ethernet, RS-232, MIL-STD-1553, Digital/Analog/Mixed-Signal IC Testing
- **Software & Development:** Python, TypeScript, ANSI C, PIC Assembler, Visual Basic, WebAssembly, PyTorch, Git, Node.js
- **Standards & Processes:** AEC-Q100, Automotive Q1 Part Series Release, DoD Configuration Management, Enterprise Engineering Processes, ESD Testing (HBM/CDM/MM), Latch-Up Verification
- **Fabrication & Assembly:** SMT and Through-Hole Breadboarding, Level II Soldering, Burn-In Board Design, Test Fixture Construction, Cable Assembly Design

PROFESSIONAL EXPERIENCE

Lockheed Martin Corporation, Grand Prairie, Texas | March 2021 – Present

Senior Test Engineer, TPS System Design, Development, Product Support & Sustainability

- Build complete Test Program Set solutions spanning hardware Interface Devices, test software, and technical documentation, applying systems thinking from initial requirements analysis through production deployment and field sustainment
- Lead cross-functional teams through formal enterprise engineering processes, coordinating hardware design, software development, manufacturing integration, quality assurance, and configuration management to ensure TPS systems meet rigorous defense standards
- Design fault isolation algorithms and diagnostic workflows that help field technicians troubleshoot avionics failures efficiently, cutting mean time to repair
- Engineer for decades-long sustainability by creating modular, upgradeable architectures that accommodate platform evolution, component obsolescence, and emerging test requirements without complete system redesigns
- Manage complete technical data packages including block diagrams, schematics, bills of materials, test procedures, operator instructions, and verification/validation documentation

BAE Systems Inc., Dallas, Texas | July 2016 – March 2021

Senior Test Program Set Engineer

- Developed advanced TPS solutions for F-16 and F-35 Line Replaceable Units (LRUs), creating Integrated Test Adapters (ITAs) for both portable flight-line testers and rack-based automatic test stations (LMSTAR)
- Designed and documented TPS hardware and software for F-16/F-35 Units Under Test, ensuring compatibility with semi-automatic flight-line testers and sophisticated backshop automatic test stations
- Collaborated directly with customers to define technical requirements, provide engineering inputs for formal reviews, and deliver technical presentations on test methodologies and system capabilities
- Engineered test software using NI TestStand and LabWindows/CVI, implementing complex measurement sequences and real-time control algorithms for avionics verification
- Developed test procedures balancing thoroughness with operational efficiency, enabling technicians to perform accurate diagnostics under time-constrained field conditions

Texas Instruments Inc. (Contract), Dallas, Texas | February 2016 – July 2017

Battery ChemID Engineering Technician III

- Architected custom test fixtures and experimental setups for battery cell electrical characterization, supporting Chemistry Electronic Identification (ChemID) algorithm development
- Applied mathematical modeling and data analysis using MathCad to identify electronic twins in battery populations, accelerating time-from-design-to-production
- Managed Arbin Instruments battery test systems, verifying data integrity and troubleshooting automated measurement sequences

Raytheon Inc. (Contract), Dallas, Texas | March 2015 – January 2016

Senior Software Engineer II

- Documented architecture and design for Automated Test Set software, creating technical specifications serving as blueprints for implementation and maintenance
- Implemented and integrated test control methods in NI LabWindows/CVI and TestStand for military subcontractor avionics modules
- Completed Systems Engineering training covering requirements development, functional analysis, architecture design, IV&V, and technical risk management

Texas Instruments Inc., Dallas, Texas | December 2003 – March 2015
Senior Engineering Technician III - Interim Test/Product Engineer

- Built NI TestStand and LabVIEW PXI-based test systems from scratch for characterizing and qualifying mixed-signal power and control ICs, enabling data-driven release-to-production decisions
- Developed Product Characterization and Qualification Plans aligned with AEC-Q100 automotive standards and Automotive Q1 part series release requirements, managing package qualification, process qualification, burn-in, and reliability verification
- Operated and programmed multiple ATE platforms (TI IMPACT, TL1, VLCT, Teradyne iFlex/Eagle), troubleshooting complex failures to component level using signal analyzers and bench instrumentation

National Instruments Corporation, Austin, Texas | 2002 – 2003
R&D Technician I

Asyst Technologies Inc., Austin, Texas | 2000 – 2002
Manufacturing/System Integration Technician II

MILITARY SERVICE

Electronics Technician, Specialist E4
Texas Army National Guard, Austin, Texas | 2000 – 2001

- Performed fault isolation and repair on RF, IF, Microwave, and Satellite communication systems to component level, including encrypted coding systems

Utilities Equipment Repairer, Specialist E4
United States Army, Fort Hood, Texas | August 1997 – May 2000

- Diagnosed malfunctions in HVAC and electrical systems using multimeters, schematics, and technical manuals; maintained generators and environmental control equipment
- Received Army Commendation Medal (ARCOM) for proficiency in electrical equipment maintenance; Honorable Discharge

INDEPENDENT RESEARCH & DEVELOPMENT

Active contributor to open-source projects demonstrating continued technical growth in modern software engineering, AI/ML, and computational physics:

- Math MCP Server: WASM-accelerated mathematical computation server achieving 14.3x average speedup; published on npm with 2,621 tests passing (TypeScript, WebAssembly, Node.js)
- PITS-MRAS: Physics-Informed Time-Series Model-Reference Adaptive Systems framework merging deep learning with control theory for real-time adaptive control at 100 Hz (Python, PyTorch)
- Universal Physics Tensor Framework: Computational framework implementing 20+ bridge equations connecting quantum, classical, and cosmological physics regimes (TypeScript, Tensor Calculus)

EDUCATION

Bachelor of Science in Electrical Engineering
University of Texas at Dallas, 2012

Associate of Science in Mathematics
Richland College, 2008

Associate of Applied Science in Electronic Engineering Technology
ITT Technical Institute, Austin

PROFESSIONAL CERTIFICATIONS & LICENSES

- NI TestStand I & II
- NI LabWindows/CVI I & II
- NI LabVIEW I & II
- ISCET Electronics Technician Certification
- Universal CFC/HCFC License (U.S. Government)
- Utilities Equipment Repairer Course Certificate (U.S. Army, Aberdeen Proving Ground, MD)