

ROB L. DEY

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OVERVIEW

More than 40 years of new product design and professional technical experience with analog and digital electronic equipment (involving audio, video, radio, and data), products, systems, circuits, and theory that includes management, research, design, development, and testing of hardware, software, firmware, and courseware, and requiring more than 30 different programming languages.

EXPERIENCE

Lockheed Martin Corp. (Rotary and Mission Systems) - Moorestown, NJ

Engineering Technician - January 2022 to Present

- Prototype designing, building, setup, testing, and troubleshooting of advanced high-power electronic circuits and sub-systems, including PC board layout, routing, fabrication, and assembly. MIL cable assembly and J-STD soldering. Mechanical work involves CNC machine tools and other power tools. Programming of automated test equipment (ATE). Integration testing of hardware, software, and firmware. Power, environmental, and EMI/EMC testing to military standards, such as MIL-STD-1399-300-1, MIL-STD-810H, and MIL-STD-461G.

Electronic Test Technician - January 2019 to January 2022

- Testing and troubleshooting advanced electronic systems. Working with microwave RF, fiber optics, high-speed digital and analog circuits, and high voltages involved the use of anechoic test chambers and test equipment, such as VNAs, TDRs, DSOs, and fiber inspection tools. Setup, test, and debug also required using hand tools and operating heavy machinery, such as winches and aerial/elevated work platforms (certified in 2019).

Festo Didactic, Inc. (formerly Lab-Volt Systems, Inc. of Farmingdale, NJ) - Eatontown, NJ

Multimedia Curriculum Developer/Design Engineer - May 2010 to June 2018

- Author and subject matter expert (SME) for many technical training products, especially regarding renewable energy and electronics.
- eLearning curriculum development involving storyboard creation with screen text, voice-overs, and graphics. Drawing diagrams and adding images, photos, animations, videos, and performing screen edits while each course is tested with related hardware.
- Conversion of 20+ printed student manuals to computer-based training (CBT) for supporting system hardware that involves HVAC/R, renewable energy, and electrical/electronic fields of study. Designed 30+ custom circuits while creating project-based integrative STEM courses to meet ITEEA, NGSS, CCSS, and NAE educational standards. Updated 300+ hours (26 courses) of electronics training.
- Developed college/HS-level student curriculum and hardware for solar thermal energy (heating and cooling) systems training delivered in both printed and E-learning (CBT) formats, while ensuring NEC/UL/CSA compliance. This educational material for green/clean energy technology supports NABCEP installer certification. Created three student manuals with instructor guides (of 40+ total books authored), and designed a real-time web-based data acquisition system for wind/solar/thermal energy that monitors more than 32 electrical, environmental, and ecological parameters with 16-bit A/D conversion at a 3Hz sample rate.
- Developed similar curriculum (authored, typeset, and created graphics) for 16 books describing theory, operation, and troubleshooting details of large-scale wind turbine nacelle and variable-pitch hub electrical control systems with electro-hydraulic servos, PROFIBUS field bus, and PROFINET industrial Ethernet networking and several different Siemens PLCs with each HMI and distributed I/O SCADA system.

Design Engineer/Technical Writer - May 2009 to May 2010

- Developed the curriculum and hardware for an alternative energy training system that involves the latest solar and wind renewable/sustainable energy technologies and equipment, while ensuring NEC/UL/CSA compliance. This educational product is for college/HS delivery in both printed and E-learning (CBT) formats, and supports ETA and NABCEP installer certifications. Created seven student manuals with instructor guides, and designed two Flash-based 3D-animated computer simulations for utility-interactive electrical wiring and home energy metering, which accepts 160+ component specifications and monitors 390+ system parameters over time.

Conexant Systems, Inc. (acquired by Ikanos Communications, Inc. and later by Qualcomm) - Red Bank, NJ

Senior Test Engineer - June 2008 to April 2009

- Manager and sole 24/7 operator of the company EDVT laboratory involving digital subscriber line (DSL) system hardware, software, and firmware setup and implementation of automated test plans utilizing custom scripts with more than ten workstations (20+ PCs) and five environmental chambers. Technologies tested include VDSL, ADSL, SHDSL, VoIP, Wireless, USB, Ethernet, and ATM, while using a wide assortment of IEEE-488 (GPIB) and serial-interfaced test equipment.
- Created chipset qualification reports, after testing semiconductor devices such as DSPs, AFEs, line drivers, USB PHYs, Ethernet MAC/PHYs, and other devices used in central office (CO) and customer premises (CP) equipment, while analyzing various metrics (rate, reach, loss, errors) to validate performance, reliability, stability, endurance, interoperability, and regression testing.

Princeton Microwave Technology, Inc. - Mercerville, NJ

Director of Engineering/Design Engineer - February 2008 to June 2008

- Designed and developed advanced mixed-signal hardware (modules/PCBs), firmware (assembly/C), and software (VB) for RF/wireless products operating up to 50GHz, including a PIC-based, 4-channel, 2-watt, L/S-band T/R module with RS-485 telemetry interface for a phased-array antenna in the aerospace industry, and a PIC-based, 10-watt, Ka/L-band up/down converter with GPS receiver and RS-232 interface for outdoor use in India.
- Designed and developed power supplies and active bias circuits for multiple MMIC RF amplifiers, featuring sequencing, constant-current control, and temperature compensation.
- Managed all company projects and R&D team of five engineers and support staff, and all aspects of outsourced production and pre-testing, internal final testing, and shipping of 1,500 units per month.
- Developed automated pre-test stations (for DC levels & small-signal RF), managed final test stations (for small & large-signal RF).
- Implemented ESD control program, and performed quality control inspection and testing at vendor/supplier sites for machining, extrusions, and assemblies.
- Managed all aspects of day-to-day business in absence of owner (3-4 weeks total), and performed in-house receiving, QC inspecting and testing, packing and shipping, and purchasing tasks as needed.
- Technically supported internal departments, outside contract manufacturers, and customers from government and commercial industries.

Conexant Systems, Inc. (formerly GlobespanVirata, Inc., GlobeSpan, Inc.) - Red Bank, NJ

System Hardware Design Engineer - October 2001 to May 2007

- Planned, designed, developed, prototyped, tested, and documented central office (CO) and customer premises (CP) equipment for digital subscriber line (DSL) broadband access communication with all present and emerging telecom standards in ADSL, SHDSL, and VDSL. Products were developed from

conception to production phases (from specifying requirements to releasing final schematics, BOMs, PC board layouts, and assemblies) with cost-reduction and power-density targeted for the Asian market. Equipment was for chipset evaluation and rebadging by 400+ major brand name customers worldwide.

- Engaged in 60+ reference designs and development boards for line cards, modems, routers, and other gateway products, while integrating processors (DSP/NWP), memory, programmable logic, mixed-signal stages, and standard interfaces: xDSL/POTS/ISDN, IEEE 802.11a/b/g Wi-Fi, UTOPIA L2, POS-PHY, 10/100/1000Base-T Ethernet, xMII, SERDES, PCI/CompactPCI/Mini-PCI, CardBus/PCMCIA, USB 1.x/2.0, OC-3/12, VoIP, JTAG, SPI, I²C, SMBus, RS-232, etc. Production quantities were in millions for each design. Also, authored application notes/white papers regarding power sequencing and filtering solutions.
- Specialized in advanced power management and power supply design, while ensuring UL/CSA, USB, and EMI compliance (FCC/CISPR), and designed a 2.5GHz wireless repeater (IEEE 802.11b).
- Technically supported internal departments, global business units, and outside customers, functioning as company PAE for all VDSL/VDSL2 CPEs.

ADSL CO Product Application Engineer - August 2001 to January 2002

- Technically supported direct clients daily, by debugging software, driver, firmware, and hardware issues for each customer, including review of schematics and PC board layouts.
- Established solid working relationships with client management and key technical people at top customer sites.

ADSL Firmware DSP Integration Test Engineer - November 2000 to December 2001

- Tested CO and CPE embedded DSP firmware with custom software automation tools and custom test scripts.
- Supported intermediate, pre-production, and production release code builds.
- Checked product features, functionality, interoperability, and performance.

Lab-Volt Systems, Inc. (formerly Buck Engineering Co., Inc.) - Farmingdale, NJ

Research and Development Manager/Design Engineer - December 1997 to September 2000

- Managed R&D team of 14 engineers and support staff, and technically supported internal and external customers.
- Performed hands-on research, design, and development of new hardware and software products for teaching CNC machine tools and robotics automation, fiber optics, telecommunications, and many other advanced technologies.
- Improved communication, increased productivity, re-established pre-production run policy, developed awards program, improved space and workflow efficiency, created interdepartmental support policy with problem tracking, implemented documentation archival procedures to digitize and centralize 30,000+ hand-drawn documents, promoted positive attitudes and developed team spirit, despite a company layoff of more than half the total employees.

Design Engineer - March 1993 to December 1997

- Planned, designed, developed, prototyped, tested, and documented advanced technical training systems and test equipment for schools, colleges, military, and industry, such as power supplies, multimeters, signal generators, and trainers for electronics technologies (computers, communication, lasers), television repair, floppy-drive alignment, alternative energy (solar and wind), small-scale wind tunnel (40 mph) including a digital lift and drag measurement system, and structural stress analyzer including automated digital force and deflection measurement, while technically supporting other departments and customers.
- Projects (50+) included AC/DC power, motion control, optoelectronics and transducers, microcontrollers and processors, test and measurement equipment, and many other analog and digital systems and circuits for audio, video, radio, and data.
- Performed engineering and management on concurrent hardware/firmware projects, including UL/CSA safety agency certification. Drawings included schematics, BOMs, PCBs (layout & fab), assemblies, wiring, machining, artwork, packaging, and all procedures.
- Created interactive computer-based training (CBT) storyboards and authored student textbooks, workbooks, other technical curriculum (training courseware), and equipment documentation (user/service manuals, datasheets, and advertising).

Engineering Assistant, Engineering Technician - May 1985 to March 1993

- Supported all engineering research, design, development, and testing for the R&D department, including PC maintenance.
- Managed all engineering changes to existing parts or products.
- Released all production software, writing installation programs and archiving masters.

Electronics Technician - August 1981 to May 1985

- Performed quality control incoming parts inspection, production final test and calibration, and customer service repair of all company products, including other brands of oscilloscopes and test equipment.
- Designed and constructed custom test equipment and fixtures.

SKILLS

- Computer Programming: Basic, VisualBasic/VBA, VBScript/ASP/IIS, Assembly/C, CASL, HTML/WML/JavaScript/CSS/SSI, DB/SQL/XML, CNC G & M code, PLC ladder logic, CPLD/FPGA VHDL, and many scripting languages.
- CAE/CAD Experience: AutoCAD, OrCAD/Allegro (Capture/Layout/PSpice/Logic/CIS), Eagle, P-CAD, MathCAD, Innoveda/Mentor Graphics PADS-PowerPCB, ExpressPCB, MathWorks MatLab, NI LabVIEW, HP/Agilent AppCAD, EWB/CircuitMaker/CM2000/CirCAD, and others including various simulation and 3D CAM packages.
- Familiar with JIT/MRP manufacturing and ERP database management servers and systems (IBM AS/400 Mapics, Agile PDM).
- All Microsoft Office tools (Word/Excel/Access/Outlook), including PowerPoint, Project, Visio, and FoxPro. Adobe Acrobat.
- Numerous tools and most types of test equipment including soldering, meters, oscilloscopes, generators, analyzers, simulators, etc.

CERTIFICATIONS, LICENSES, AND PROFESSIONAL MEMBERSHIPS

- Master CET - Electronics Technicians Association (ETA) International, CETma #US73.
- A+ Certification - CompTIA (Test scores: 100% on DOS/Windows, 93% on core), Verif. #ACADTT2512, Cand. #1A348B.
- FCC-licensed Radio Amateur, Extra Class, June 1978, KA2BEO (>20wpm Morse code proficiency).
- Institute of Electrical and Electronics Engineers (IEEE), Member #40213387 (inactive).
- CPR/AED/First Aid Certified 2000-2010, 2022-2024 (Member of company's Emergency Response Team).
- Electrostatic Discharge (ESD) Program training per standards ANSI/ESD S20.20-2007 and MIL-STD-1686A (2008, 2019-2023).
- EMI Guru - Kimmel Gerke Associates, also IPC J-STD-001H Class 3 (2022-2023), and Fiber Optics NASA-STD-8739-5A, MIL-STD-2042 (2020-2021).

EDUCATION

- Advanced Technical Courses 1999-2006 (>192 hours) and Management Courses 1998-2001 (64 hours) post college.
- A.A.S., Electronic Engineering Technology, May 1992, GPA 3.45/4.00 (71 semester hours) at Ocean County College, Toms River, NJ.