

Experienced development engineer with a variety of technical skills and a broad background in software, hardware and test engineering. Extensive experience working with customers and design teams.

Education

University of Dayton, Dayton, OH Bachelor of Electrical Engineering
Ohio Professional Engineer license
Extra Class Amateur radio license

Qualifications

- Software, hardware and test engineering
- Industrial, consumer and military electronics experience
- Licensed Professional Engineer
- Electrical Engineering degree

Software Capability C, C++, Python, Zigbee protocol, wx Widgets, Zigbee

Hardware Design RF, analog, microprocessor and component and system level

Test Engineering FCC emissions, RF sensitivity and range measurement, RF immunity, test automation

Applications IAR, Simplicity Studio, PyCharm, CodeLite, Git, JIRA, Unity test, Tiny test, PC-Lint static analysis, Spice circuit analysis

Professional Experience

Embedded Systems Engineer

2017-Present

TechDev LLC, Hamilton, OH

Software development, hardware, RF and test engineering and technical training

- Created software for a Zigbee-based industrial sensor system using Test-Driven Development
- Created a PC GUI application to measure packet loss of a Zigbee-based sensor system
- Performed antenna pattern measurements on Zigbee devices
- Guided a client through FCC certification of their product and wrote special test software
- Trained a client on Bluetooth antenna matching using a network analyzer
- Setup and trained a client on the use of an FCC pre-scan test facility

Senior Systems Engineer

1998–2020

Salus North America and Cincinnati Technologies, Mason, OH

Performed software development, test engineering, product evaluation testing

- Developed software for multiple Zigbee-based Smart Plugs
- Created a PC GUI-based automated test system using TDD techniques
- Created an automated sensitivity test facility and setup a system in China and trained the users
- Developed a radiated immunity test facility

- Created low-cost pulsed battery and relay life test system to resolve troubleshoot battery issues
- Oversaw Zigbee certifications, including pretesting and issue resolution with Chinese designers
- Supported customers in adopting company products, including Zigbee network development
- Performed in-person technical support for sales calls
- Provided liaison between U.S. customers and Chinese engineering teams. Included on-site troubleshooting
- Software project lead for a Linux based Zigbee gateway. Implemented kernel modification
- Concept generation and modeling of a medical network analyzer to detect extravasation during CT scans
- Developed low-cost RF network analyzer that is used to detect gaps in food processing equipment screens
- Wrote RF test software for electric meter production line test station
- Modeled signal transmission through the screens to determine the minimum-size hole that would be detected
- Created TI MSP430 software MAC for low-power wireless radio systems and an MSP430 hardware interface library for an external customer for use on truck fleet data devices
- Developed test rack hardware and GUI software for environmental burn-in of military radios
- Wrote qualification plan for a Nimrod Aircraft military radio

Staff Engineer

1997-1998

Cincinnati Electronics, Mason, OH

RF design engineering

- Developed a 7 GHz transmitter for an Earth-Observing Satellite
- Implemented automated data collection of RF design data for modeling and testing

Staff Engineer

1992-1997

Cincinnati Microwave, Mason, OH

RF and analog design, test engineering, FCC approvals

- Developed RF circuitry for a spread spectrum cordless phone, modeled circuits and radio architectures
- Led FCC certification efforts on spread spectrum cordless phones
- Created an on-site FCC-authorized radiated and conducted emissions facility
- Developed automated test software for engineering lab use and test site verification
- Provided manufacturing support in optimizing yields through design changes

Staff Research Engineer

1991-1992

IAP Research, Dayton, OH

Modeling and analysis of superconductors and rail guns

- Modeled and tested thermal conductivity of insulators for superconducting applications
- Performed failure analysis of a superconducting device
- Oversaw testing of a rail gun concept model

RF Engineer

1987-1991

Xetron Corp, Cincinnati, OH

Developed RF circuitry for signal intelligence and communications radios

- Implemented a 1670-2770 MHz high performance synthesizer, tunable filter design for a UHF signal intelligence receiver and developed a BPSK UHF satellite transmitter
- Designed a high-performance sample and hold for a data acquisition system
- Wrote proposals and white papers for military and government radio hardware