

Derek C. Welty

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Summary

Senior Hardware Engineer with 10 years of experience in consumer electronics industries working in all phases of the product development life cycle. Possesses a Master's degree in Electrical Engineering and a broad set of skills and experiences ranging from early prototyping to PCB design to system validation. Highly self-motivated and solution-oriented team player with a growth mindset and passion for technical problem solving.

Experience

Senior Design Verification Engineer

Redmond, WA

MICROSOFT CORPORATION

Sept 2019 – Present

- Owned targeted verification of XBOX systems and subsystems including SoC power management firmware
- Designed, integrated, and maintained automated test systems (Python, PowerShell, C++)
- Performed hardware prototype bring-up, debugging, failure analysis, and telemetry forensics
- Formulated statistical techniques to analyze large data sets and design experiments
- Triaged and diagnosed countless high priority issues leading to increased customer experience and factory yield

Senior Design Engineer

Olathe, KS

GARMIN INTERNATIONAL

Mar 2017 – Sept 2019

- Conceptualized and materialized automotive mass production consumer infotainment electronics
- Designed schematics and developed complex printed circuit boards with analog, digital, high-speed, audio, display, camera, wireless, DC-DC power, capacitive touch and RF circuitry
- Project Engineer leading system design and coordinating interdisciplinary collaboration across teams
- Researched components for ideal part selection and BOM management while balancing performance and cost
- Directed and collaborated with factory team in Taiwan to design for testing and manufacturability
- Tested and debugged field hardware/software issues for technical root cause and corrective actions

Electrical Engineer I/II/III

Kansas City, MO

DOE NATIONAL SECURITY CAMPUS, MANAGED BY HONEYWELL

Jan 2013 – Mar 2017

- Lead test engineer architecting/implementing hardware/software solutions for scalable test infrastructure
- Defined test plans and electrical verification methodologies for board level and top level systems
- Integrated FPGA and CPLD designs into motherboard designs for embedded control and testing
- Interfaced with government customers and supported earned value management project planning

Network Engineer Intern

Overland Park, KS

SPRINT NEXTEL CORPORATION

May 2012 – Aug 2012

- Designed and implemented a VoIP Android IMS client using Java
- Debugged client/server communications by analyzing network packets and protocols
- Utilized network and streaming protocols such as UDP, SIP, and RTP

Production Management Engineer Co-op

Eddyville, IA

CARGILL CORN MILLING INC

May 2011 – Dec 2011

- Served as a project engineer/manager for various factory installations
- Focused on power, automation, and maintenance projects
- Hired and led a team of contractors to carry out construction projects

UI/UX Developer

St. Louis, MO

LUMATE, LLC

Oct 2010 – Mar 2015

- Created in-house and customer specific graphics for mobile applications (Android, iOS)
- Supported back-end web development (Python, jQuery, HTML)
- Interfaced directly with customers creating logos, flyers, posters, apparel designs, and brochures

Education

MS in Electrical Engineering

GPA: 4.00/4.00

MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY

Aug 2013 – May 2018

Digital Network Design, Wireless Networks, Resilient Networks, Network Performance Analysis and Modeling, Stochastic Signal Analysis, Power Electronics, Advanced Electromagnetics, Microwave Engineering, Analog CMOS Design

BS in Electrical Engineering, Minor in Mathematics

GPA: 3.93/4.00

MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY

Aug 2008 – Dec 2012

IEEE, Eta Kappa Nu, Missouri Miner Photo Editor, Student Union Board Promotions Director

Skills

Protocols Ethernet, USB, WiFi, BT, I2C, SPI, HDMI, MIPI, GPS, UART, PCIe

Programming Python, PowerShell, VB.NET, Java, MATLAB, Arduino, Git, Subversion, TestStand, ADB, VISA

Lab Equipment Oscilloscopes, multimeters, network analyzers, logic analyzers, power supplies, Raspberry Pi, Arduino, PXI

Software Tools Schematic capture, PCB layout, Mentor Graphics, CADSTAR, OrCad, SPICE, Solidworks

Extra Training Advanced GNSS/GPS, Radar Systems Certificate, MIL-STD 1553, Six Sigma Green Belt

Graphic Design Adobe Photoshop, Adobe Illustrator, L^AT_EX, HTML, CSS, Bootstrap

Miscellaneous MS Office, Android, Linux, Windows, Atlassian suite, Azure DevOps

Awards

2016 **Outstanding Engineer Award**, Honeywell Aerospace

Patents

2019 **US10447297B1**, Electronic Device and Method for Compressing Sampled Data