# 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 development life cycle. Possesses a Master's degree in Electrical Engineering and a broad set of skills and experiences ranging from prototyping to PCB design to system validation. Highly self-motivated and solution-oriented technical contributor with a growth mindset and passion for problem solving.

## Experience

**Microsoft Corporation** — *Redmond, WA*
SENIOR DESIGN VERIFICATION ENGINEER — *Sept 2019 – Present*
- Owns targeted verification of XBOX systems and subsystems including SoC power management firmware
- Designed, integrated, and maintained automated test systems (Python, PowerShell, C++)
- Hardware prototype bring-up, debugging, and failure analysis
- Use of statistical techniques to analyze large data sets and design experiments

**Garmin International** — *Olathe, KS*
SENIOR DESIGN ENGINEER — *Mar 2017 – Sept 2019*
- Conceptualized and materialized automotive mass production consumer infotainment electronics
- Designed and developed complex PCBs with analog, digital, high-speed, audio, display, camera, wireless, capacitive touch and RF circuitry
- Project Engineer leading system design and coordinating interdisciplinary collaboration
- Directed and collaborated with factory team in Taiwan to design for testing and manufacturability
- Tested and debugged hardware/software issues for technical root cause and corrective actions

**DOE National Security Campus, Managed by Honeywell** — *Kansas City, MO*
ELECTRICAL ENGINEER I/II/III — *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
- Interfaced with government customers and supported earned value management project planning
- US Government Security Clearance

**Sprint Nextel Corporation** — *Overland Park, KS*
NETWORK ENGINEER INTERN — *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

**Cargill Corn Milling Inc** — *Eddyville, IA*
PRODUCTION MANAGEMENT ENGINEER CO-OP — *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

**Lumate, LLC** — *St. Louis, MO*
UI/UX DEVELOPER — *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

**Missouri University of Science & Technology** — *Rolla, MO*
MS IN ELECTRICAL ENGINEERING — *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
GPA: 4.00/4.00

**Missouri University of Science & Technology** — *Rolla, MO*
BS IN ELECTRICAL ENGINEERING, MINOR IN MATHEMATICS — *Aug 2008 – Dec 2012*
GPA: 3.93/4.00

# Skills

**Technologies:**   Ethernet, USB, WiFi, BT, I2C, SPI, MIPI, GPS, UART, PCIe
**Programming:**   VB.NET, Python, Java, MATLAB, Arduino, Github, Subversion, TestStand, ADB, VISA, PowerShell
**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
**Special Training:** Advanced GNSS/GPS, Radar Systems Certificate, MIL-STD 1553
**Graphic Design:**   Adobe Photoshop, Adobe Illustrator, LaTeX, HTML, Bootstrap
**Miscellaneous:**   MS Office, Android, Linux, Windows, Atlassian suite, Azure Dev Ops

# Awards

2016    **Outstanding Engineer Award**, Honeywell Aerospace

# Patents

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