

## Competencies:

### ● ELECTRICAL:

**Skills:** ESD Protection Practices, SMD Soldering, Circuit Simulation and Analysis, Prototyping, PCB Design, Embedded Linux, BOM

**Tools:** Oscilloscope, Spectrum Analyzer, Hot Air Reflow Station, Solder Station, Multi-meter

**Software:** Eagle, Matlab, ELECTRA, NI Multisim, LTSpice

**Microcontrollers:** Atmel (C), PIC (C, ASSEMBLY)

**Development Platforms:** Arduino, Raspberry Pi, BeagleBone Black

### ● MECHANICAL:

**Skills:** 2D and 3D CAD Design, COTS Integration, Measurements, Rapid Prototyping

**Tools:** 3D Thermoplastic Extrusion Printers, Calipers, Rotary Hand-Tools

**Software:** LibreCAD, QCAD, DesignSpark Mechanical, OpenSCAD, SketchUp, Blender

### ● INFORMATION SYSTEMS:

**Skills:** Security Auditing, Automation Scripting, Network Design, Network Security, Virtual Machine Management, Linux Management, Windows Management

**Tools:** Ophcrack, PuTTY, VMWare, Xen, VirtualBox, CentOS, Debian, Ubuntu, Apache, MySQL, MS SQL

**Languages:** Shell Scripting, Python, Batch, HTML, C, Assembly

### ● GRAPHIC DESIGN:

**Skills:** Image manipulation, 3D Model Development, Vector Design, Programmatic Visuals

**Software:** GIMP, Blender, Processing, InkScape

### ● SOFT SKILLS:

**Skills:** Presentation, Leadership, Writing, Documentation, Verbal Communication

**Software:** MS Office Suite (PowerPoint, Word, Excel), Google Drive Office Suite (Docs, Sheets, Slides, Forms)

## Education:

### Bachelor of Science in Electrical Engineering Technology | 2013

**Senior Thesis:** Designed/constructed an electromyogram array biomedical device with time domain and frequency domain outputs.

**Relevant Coursework:** Microcontrollers and Interface Technology, Control Systems Design, Analog and Digital Communications, Circuit Theory and Electronics, Programmable Logic Controllers

## Recent Product Development:

### Example 1 - Data Classification Toolset

I prototyped, deployed, and tested a file classification toolset which collects file metadata, used visual analytics and supervised machine learning to generate classification criteria, and acted on classifications. I lead a development team and deployment team in a >\$1M project to create a commercial-grade version of the tool and use it in a customer environment to reclaim storage space by deleting junk data.

### Example 2 - I/O Expander with I2C Communication

I designed a PCB with a 40 bit I/O Port Expander which communicated over an I2C Channel. My design featured high frequency noise filtering, solder-selected device ID configuration from 64 slave addresses, and optional pull-up resistor control which could be selected by socket selection. Multiple boards set in chain could offer 2,560 I/O controlled by one microcontroller.

### Example 3 - Protective Synthesizer Case

I used measurements of a commercial synthesizer piano to create an accurate 3d model of the device as to design a protective case. The constraints of the design were that all manufacturing and assembly could be performed exclusively with a laser cutter, 3.2mm thick wood, and adhesive (No hand tools). The case features a hinged lid, protective body, and protective port panel which opens with the lid.

### Example 4 - Custom Wireless Power TX/RX Coils

I was tasked with designing the housing and coil for a wireless power charging system for a handgun discharge logging system. I collaborated with the client and his team to create 3D designs of the final product to determine appropriate dimensions, seating, maximum power transfer rate, and frequency of the system. I created 3D printed prototypes of the housing to verify manufacturing capability with our on-site and Shenzhen manufacturing team. The final design featured a transmit and receive coils, each with custom housing, tolerances, and assembly instructions.

## Relevant Professional Experience

### Chief Development Architect | Ernst & Young, LLP

Nov 2014 to Present

- Product development and project management on key projects for a Fortune 500 customer.
- Lead three client-facing team members and directed an outsourced international software engineering consulting firm to deliver on product development for clients.
- Performed over \$3M in services in the past 18 months.

### Product Engineer | Streeper Industries

May 2016 to Present

- Collaborated with Game Designer for Electrical and Mechanical escape room puzzles to create sensible design requirements for new attractions
- Used requirements to develop sustainable, reliable, and extensible puzzles for new attractions.
- Consulted with business owner to create an optimal product lifecycle strategy

### Field Application Engineer | Inter-Technical Group, Inc

May 2014 - Nov 2014

- Development of product datasheets for inductor product lines
- Design of 3D and 2D drawings for new custom parts
- R&D for microcontroller actuated inductors and component attributes for ferrite-based products
- Client work included HP, Dell, TI and Linear

### IT Systems Engineer | Casey Industrial, Inc

Aug 2013 - April 2014

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- Research and development of in-house solutions for rapid development of new technologies.
  - Developed and implemented mobile virtual server platforms.

Electrical Engineering Intern | Advanced Energy Industries

May 2011 - Aug 2011

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- Assisted in circuit troubleshooting.
- Designed and implemented automated testing software
- Assembled circuit boards with surface mounted components