

# Zach Cross

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## EDUCATION

### **Penn State Erie, The Behrend College**

Electrical and Computer Engineering Technology, Bachelor of Science

Spring 2015

- Electric Machines and Control & Analog and Digital Electronics Certificates

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## WORK EXPERIENCE

### **Engineer (Specialty Lighting R&D)** – Birket Engineering, Inc.

**August 2018 – Present**

- “Jack of all trades” engineer with complete responsibility for projects supporting the themed entertainment industry. Majority of work is specialty lighting centric, ranging from integration of off the shelf components to design and fabrication of custom LED luminaries, drivers, and controls. Projects to date have also included significant industrial control panel and embedded system design, with a strong focus on long-term product life and serviceability.

Personally manages projects’ customer relationships as well as day to day engineering project team operations.

### **Field Applications Engineer** – Lutron Services Co., Inc.

**June 2015 – July 2018**

- Supported all aspects of the startup and maintenance of lighting control systems ranging from single space to campus wide solutions. Knowledgeable on both the technical background behind how each part of a system works, as well as how to effectively communicate relevant information to all of a project’s stakeholders.

### **Senior Residence Hall Network Technician** – Penn State Erie, The Behrend College

**January 2012 – May 2015**

- Independently handled issues escalated by a staff of six network technicians as well as oversaw daily operations.

### **Resident Assistant** – Penn State Erie, The Behrend College

**Fall 2013 – May 2015**

- Continually worked to develop and maintain a positive living and learning community for 40 freshman residents.

### **RF Systems Engineering Intern** – Orbit/FR, Inc.

**May 2014 – August 2014**

- Built software tool and wrote associated test procedure to qualify quiet zone performance in anechoic chambers.

### **S.T.E.M. Programs Director, Program Commissioner,**

**June 2009 – August 2013**

**and High Adventure Director** – Resica Falls Scout Reservation, Cradle of Liberty Council B.S.A.

- Lead a team of over one hundred staff members in developing and executing a S.T.E.M. based camp program.

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## TECHNICAL EXPERIENCE

### **Introductory Soldering Kit**

- Designed a kit and associated curriculum to teach Electronics Merit Badge; more than 1,200 units produced to date.

### **SMS Based Emergency Notification System**

- Created and implemented an SMS based mass messaging system for Resica Falls Scout Reservation. The SMS Service has succeeded in giving camp administration a quick and convenient way to disseminate critical information.

### **“Treeduino”** - [treeduino.com/faq.htm](http://treeduino.com/faq.htm)

- “*Fueled by sugarplum fairies and the Internet,*” the Treeduino gives visitors of treeduino.com live control of the Cross family Christmas tree each holiday season. Twice featured on the front page blog of SparkFun Electronics.

### **RFID Based Home Door Lock** - [zachcross.com/RFID\\_Lock](http://zachcross.com/RFID_Lock)

- Created and installed an RFID door lock in which the reader, strike, and visual indicator are completely concealed.

### **60' by 20' Projection System** – [zachcross.com/TheBigPicture](http://zachcross.com/TheBigPicture)

- Built a custom projection system to support the playback of a short film intended to be viewed in an IMAX style environment.

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## TECHNICAL SKILLS

**Operating Systems:** GNU / Linux & FreeBSD (Embedded & PC applications), Windows, OSX

**Software, Development Tools, & Microcontrollers:** EagleCAD, DipTrace, AutoCAD, Node-RED, IIS, MSSQL, LAMP/LEMP, Wireshark, MATLAB, AVR, STM32, PIC, Synapse SNAP

**Languages / Markup:** C/C++, Bash, PHP, Python, HTML/CSS, XML/JSON, YAML

**Communication Protocols:** RS-485 (building automation networks & DMX), BACnet, DALI, sACN, MQTT, HTTP  
**FCC Licensed Amateur Radio Operator** – General Class

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## AWARDS AND RECOGNITION

**Boy Scouts of America:** Eagle Scout, recipient of the Vigil Honor & Thomas J. Richards Outstanding Service Award

**Penn State Erie, The Behrend College:** Arloween Zurn Todd & Council of Fellows Leadership Scholarship Awards