

# Zachary Martin

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## ABOUT:

Electronics engineer with experience in electronic hardware and firmware design as well as leadership experience in engineering organizations and team projects. Familiar with analog & digital circuit design, RF & wireless communication, signal integrity, embedded C, and FPGAs. Amateur radio enthusiast.

## JOB HISTORY:

### **RLC Electronic Systems, Reading, PA. 2018-Present:**

- **Director of Engineering** **April 2024 - Present**

A mix of management and engineering: Overseeing project requirements and timelines, designing new products, engaging with customers to align expectations, guiding engineering team resources, and supporting talent acquisition efforts.

- **Electronic Design Engineer** **May 2023-April 2024**

Electronic hardware and firmware design for various embedded devices. Customers based in medical, industrial, and consumer goods.

- **Electronic Engineering Assistant** **May 2020-May 2023**

Assistant in electronic circuit and firmware design. This included prototyping, test, documentation, and manufacturing follow up. Responsible for custom designs that sold several thousand units.

- **Electronic Technician** **Sept 2018-May 2020**

Production, test, troubleshoot and repair of electronics. Used oscilloscopes, DMM, Vector Network Analyzers, etc.

### **Nelson Martin Painting, Newmanstown, PA. 2015-2018**

## EDUCATION:

**Master of Science in Electrical Engineering, Penn State Harrisburg. 2024 - Present** **4.00 GPA**

Part-time graduate studies in electronics, electromagnetics, and optics.

**Bachelor of Science in Electrical Engineering, Penn State Harrisburg. 2019-2023** **3.90 GPA**

Electrical Faculty **Outstanding Senior Award**, Dean's list, President's Freshman award.

## SELECT PROJECTS & RESEARCH (see [zachmart.in/projects](http://zachmart.in/projects) for more)

- **Radio Telescope: (Winner of IEEE Outstanding Capstone Award) (2024 ASEE Conference Presentation)** Control system for 3-meter radio telescope project. This project was my BSEE Senior project and contributed to the IEEE and astronomy club's group project, which I led. <https://www.psu.edu/news/harrisburg/story/harrisburg-students-win-professional-society-award-radio-telescope-project/>
- **Medical Exam Chair + Stand:** Hardware/firmware development for a suite of medical exam chairs & stands. Wired & 2.4GHz wireless link. Used PIC32, PIC24, touchscreen interface, motor control, battery management.
- **Dielectric Characterization of Materials Using Free Space Measurement Technique:** nondestructive measurement of the dielectric properties of an unknown material. Completed for Penn State Center for Signal Integrity.
- **Snake Game:** Game on Arduino using 8x8 matrix of serial addressable LEDs. [github.com/drkontz/snake](https://github.com/drkontz/snake)
- **QAM Demapper:** 16-QAM decoder with Verilog FPGA module + testbench: [https://github.com/drkontz/QAM\\_demapper](https://github.com/drkontz/QAM_demapper)

## SKILLS & COURSEWORK:

**Electronic Design:** Power electronics, motor control, electronic communications, serial interfaces (UART, I2C, SPI).

**Design Software:** PSPICE, ADS, Allegro, Multisim, Quartus, Kicad, Solidworks, Git, SVN, Mathematica, Office.

**Lab Tools:** VNA, TDR, Spectrum Analyzer, Oscilloscope, Multimeter, Bench PSU, Function Generators.

**Programming:** C, Python, Verilog, Matlab, LabView, Linux.

**Processors:** 8 bit, 16 bit, 32 bit PIC (PIC16, PIC24, PIC32). Arduino, Raspberry Pi.

## LEADERSHIP & INTERESTS

- **Penn State Harrisburg Amateur Radio Station President:** Worked with the IEEE club and industry sponsors to source over \$20,000 in funding and donated equipment, as well as demonstrations and workshops for student activities. Helped students (and faculty) obtain licensing. Purchased new equipment and characterized existing cables and antennas.
- **Penn State Harrisburg IEEE Technical Lead:** Organized several workshops and projects surrounding electronic design. Worked with companies to sponsor projects and workshops on Software Defined Radio, Radio Direction Finding, PCB Layout, and Soldering.
- **Amateur Radio Extra Class Licensee.** ARRL member. Active daily + participate at field day exercises.
- **Irish Musician:** Performed Irish music part-time for a number of years as a fiddle player.