

# Matthew Rana

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Call Sign: KM4THW

**OBJECTIVE:** To use my education and prior work experience to grow with a dynamic organization through creative problem solving and varied tasks. Particular area of interest in embedded design.

**EDUCATION:** Bachelors of Science in Electrical Engineering, Clemson University, Clemson, SC Spring 2016

## RELEVANT SKILLS: Proficient in

*HTML/CSS, C, C++, GNURadio, Python languages and UNIX environments* *Power Supply Design*  
*Microcontroller/SoM/FPGA Programming* *OrCAD Capture & PCB Design* *Digital Driver Programming*  
*Oral Communication & Presentation Skills* *Microsoft Office Suite* *Through-Hole & SMT Soldering*

## WORK EXPERIENCE

Contractor, Deepwave Digital, Philadelphia, PA November 2017- April 2018

- Integrated Nvidia, Xilinx and ADI hardware into single-board high-density Mini-ITX footprint
- Wrote Python code to utilize open source Industrial IO drivers to transmit and receive data
- Sourced or fabricated using manufacturer datasheets all footprints for components
- Created and maintained cloud-based repository for OrCAD symbols and files

Co-op, Z-Axis/Bear Power Supplies, Phelps, NY May -August 2017

- Performed failure analysis and revised layouts for commercial and medical-grade products
- Constructed test fixtures & prototypes in-house to guarantee finished product would pass necessary client requirements
- Designed equipment to monitor production floor equipment operating conditions

Chief Engineer, WSBF-FM Clemson 88.1, Clemson, SC Spring 2013-Spring 2016

- Inherited aging FM transmitter and related broadcast equipment. Devised process to design and rebuild legacy infrastructure (RDS, Backup Automation, Show Archiving) to modern specifications as allowed by time and budget.
- Responded to problem areas in default user interface; modified equipment and controls to accommodate DJs with disabilities
- Prepared and presented seminars on technical operations of Station equipment for audiences of over 100 people, drawing from all University majors and backgrounds.

## DESIGN/BUILD PROJECTS

Oscillating Transducer, Z-Axis Inc Summer 2017

- Took charge of unique challenge that had been placed on backburner
- Designed and fabricated control board to oscillate a medical fixture to a specific resonance frequency
- Tuned finished product to range of several kilohertz with step resolution of less than ten hertz

**2016 KEMET Engineering award winner:** Electrical Engineering Senior Design Project Spring 2016

- Designed and constructed custom acoustic guitar auto-tuner incorporated into a guitar case
- Fabricated components via PCB design software and 3D printing
- Designed, printed, and populated circuit board for selecting and individually driving six stepper motors

## AWARDS AND HONORS

Most Valuable Participant, NextFab Accessibility Hackathon April 2018

HackIoT Philadelphia LoRa Hackathon, Second Place December 2017

Ham Radio Operator, Technician Class March 2016

Eagle Scout, Boy Scouts of America Troop 451, Durham, NC Spring 2011