

ZACHARY M. O'TOOLE

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EDUCATION

The Ohio State University

B.S. Electrical and Computer Engineering
Focus: Computer Engineering

August 2015 - May 2019

Overall GPA: 3.7/4

WORK EXPERIENCE

Cyber Security Research Assistant

The Ohio State University, Columbus, OH

May 2018 - Present

- Designed and constructed a power grid network emulation by utilizing C programming and APIs which allowed the university to study cyber security of the power grid.
- Launched various cyber attacks (DoS, MITM, FDI) and analyzed their effects for data-driven results.
- Worked with a team of 3 to accomplish goals according to a timeline.

Electrical Engineering Lab Monitor

The Ohio State University, Columbus, OH

January 2018 - Present

- Required to have extensive knowledge with equipment including an oscilloscope, power supply, multimeter, waveform/function generator, and soldering iron.
- Troubleshoot and solved problems encountered by students in lab, explained relevant concepts and assisted with circuit design strategies.

PROJECTS

MSP430 Microcontroller

September 2018 - November 2018

- Programmed LEDs, LCD, ADC, temperature feedback control, and RC voltage control using pulse width modulation, serial communications, timers, interrupts, and embedded C programming.

Elevator Simulation using VHDL

January 2018 - May 2018

- Deployed the elevator (SCAN) scheduling algorithm in Xilinx using VHDL.
- Worked with a partner to devise a design, implementation, and performance evaluation for the project.

DE2 Electronic Keyboard

January 2017 - May 2017

- Worked with small team to create an electronic keyboard using an Altera DE2 development board.
- Implemented the logic, such as synthesizer, adders, multiplexers, using Quartus.

Advanced Energy Vehicle

January 2016 - May 2016

- Project manager, data analyst. Organized and conducted team meetings. Synthesized data visually using Excel and MATLAB to reduce energy expenditure.

SKILLS

Programming

Java (advanced), C (advanced), MATLAB (advanced), Python (proficient), C++ (proficient), Assembly (proficient), Javascript/HTML/CSS (novice), VHDL (novice).

Software

Simulink, LabView, Quartus, TopSpice/LTSpice, SolidWorks, Eclipse.

Hardware

Soldering, breadboard assembly, circuit analysis/simulation, microcontrollers.

Misc.

Linux OS, Windows OS, virtual machines, protocols (IEC 61850, DNP3).