

## WORK EXPERIENCE

### Applications/Marketing Engineer | Microchip Technology

CURRENT, FROM JUN 2022 (FT)

- Developed various demos on PIC and AVR microcontrollers.
- Wrote production-quality embedded C code for customers to use as reference.
- Developed microcontroller libraries for abstracted use.
- Created PCBs and structural enclosures for the demos.
- Led an analytics initiative that produced to better data-driven decisions about our marketing campaign strategies.

### Electrical Engineer | United States Naval Research Laboratory

JUN 2017 - JAN 2022 (FT/PT)

- Used python for various machine learning and data analytic projects such as:
- Detecting and classifying objects in satellite imagery.
- Recovering RF communications lost to noise (BRNN w/ GRU cells.)
- Identifying promotor sequences in DNA to speed-up genome sequence identification (BRNN w/ LSTM cells.)

### Prototype Engineer | Booth Oil and Gas LLC.

SEP 2016, JUN 2022 (FT/PT)

- Designed and manufactured prototypes for novel business problems (see 3D PEEK Printer, AI-Driven Security System).
- Offered technical expertise for project planning, cost estimation, and feasibility studies.
- Communicated with the client to manage their expectations and incorporate or remove features as their needs changed.

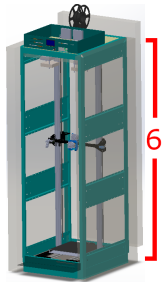
## EMBEDDED DEVELOPMENT PROJECTS

### DMX Light Show %

(EMBEDDED C, ANALOG & POWER DESIGN)

A real-time audio processing light show integrating audio filtering, DMX, DMA, PoE, and a hardware-encoded WS2812 driver.

Written C drivers for this project include UART, DMA, DMX, PWM, SPI, CLC, OP-AMP, and ADC configurations.



### 3D PEEK Printer %

(EMBEDDED C, ANALOG & POWER DESIGN)

Designed and built a large-scale 3D printer capable of printing PEEK for biofuel refinement.

Involved in the development was designing the kinematic system, thermal dynamics, and software to safely control its operation while dealing with hazardous temperatures and voltages.



### AI-Driven Security System %

(PYTHON, BASH, MACHINE LEARNING)

AI-driven solar-powered security system that gives real-time alerts with a classified video anytime a human, vehicle, or large animal is spotted on the property.

Custom python and bash programs handled data extraction and movement into and out of the neural network.



### The Cold Plate %

(EMBEDDED C, ANALOG & POWER DESIGN)

A reference design showing the most efficient way to perform common microcontroller tasks on a PIC16; It is Microchip's most copied code repository.



## PUBLICATIONS

- 2023 App. Note 4889: Using Core Independent Peripherals (CIPs) to Implement a Peltier Cooled Metal Plate %
- 2023 Embedded.com - Reducing BOM cost in embedded systems using advanced MCU peripherals %
- 2018 Machine Learning in Radio Frequency Communications %
- 2017 Prediction of Bacterial Promoter Sequences using Machine Learning %

## EDUCATION

- 2018-2022 **Computer Engineering; Mathematics minor**  
SUMMA CUM LAUDE; 3.98 GPA; COMP ORG SI  
Bachelors of Science  
Shippensburg University of Pennsylvania

## CERTIFICATIONS/AWARDS

- 2020 Secret Security Clearance (inactive Mar 2022)
- 2018 Eagle Scout
- 2017 CompTia A+ Certified