

# Josh Booth

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## PROFESSIONAL SUMMARY

I am a multidisciplinary engineer who enjoys solving technical problems that need custom solutions. I excel at rapid prototyping, clear communication, and fast learning. My career started as a prototype engineer, building one-off solutions for clients. I pivoted to a technical marketer to improve my business acumen. I am looking to join a fast-paced engineering team of driven professionals, aiming to contribute to the success of an innovative business.

## RELEVANT WORK EXPERIENCE

### 8-bit MCU Technical Marketing Engineer | Microchip Technology CURRENT, FROM JUN 2022 (FT)

- Created reference designs and demos for embedded customers in the automotive, industrial, lighting, and power system industries
  - Wrote bare-metal C, created schematics, PCBs, and structural enclosures for product demonstrations
  - Documented the designs thoroughly through comments, block diagrams, app notes, and video content
- Planned and executed new product launches for the PIC and AVR microcontroller portfolio
  - Researched market niche, competitor's strategy and unique value add for each new product
  - Developed use cases, app notes, and trainings to educate customers about the product's value add

### Systems R&D Engineer | Mark Oil and Gas LLC. SEP 2016, JUN 2022 (FT/PT)

- Designed and manufactured prototypes for unique business problems
  - Ex. A completely insulated 5' tall PEEK capable 3D-printer for ONLY printing 5"x3" static mixers for biofuel refinement
  - Ex. AI-driven, low-power security system for real-time alerts to monitor humans/vehicles on remote commercial private property
- Provided technical expertise for project planning, cost estimation, and feasibility studies
  - Ex. A feasibility study on using a drone + paintball gun + seed-filled biodegradable paintballs to autonomously plant crops.
- Manage client expectations and work closely with them to devise a technically capable business plan

### Machine Learning Engineer | US Naval Research Lab - Space Technology Division JUN 2017 - JAN 2022 (FT/PT)

- Created supervised learning model with an RNN for object detection through image classification
- Preprocessed large image databases (aggregated, clean, feature extraction/engineering) to optimize model training
- Designed pipeline to rapidly tune newly trained machine learning models on a custom data set based on changed parameters

## SAMPLE ENGINEERING PROJECTS

Unless otherwise noted, all projects were created by myself as a personal project, or for a business. I have created github repos for each project to help give some background info on each.

- 3D PEEK Printer\* - 6' tall PEEK-capable 3D printer
- DMX Audio Visualizer - A passive-PoE, DMX-based light show displaying an audio frequency peak on each tube
- The Cold Plate\*\* - A promotional demo of the PIC16F1714's CIPs which handle the UI, thermal management, and cooling control
- AI-Driven Security System - Solar-powered, wireless mesh camera system with real-time object inferencing (human, car, animal classes)
- Remote-controlled Telescope Mount
- Least significant bit stenography -
- Ultra-low-power counter - Personal project to create the lowest-power counter I could using a PIC microcontroller and familiar with AutoDesk Eagle & Fusion 360
- Developed multiple full-stack websites (College)
- Robotics, embedded development, power electronics, AI inferencing, Data scientist
- Lead Engineer in a team of 3
- \*\* Assistant Engineer

## 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

**B.S. in Computer Engineering; Mathematics minor**  
SUMMA CUM LAUDE; 3.98 GPA; CMPE 322/120 SI  
Shippensburg University of Pennsylvania

## CORE COMPETANCIES

- Technical:** C, Python, Linux, Marlin, Bash, Robotics, Embedded C Development, Digital Circuit Design, CAD Design
- Software:** Git, Fusion 360, KiCAD, Eagle, MPLAB X, XC8

