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 throughly 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 commerical 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 PIC16F17146'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
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- 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; CLASS OF 2022
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