Josh Booth

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Relevant Work Experience

Technical Product Marketer | Microchip Technology   May 2022 - Present
- Launched 4 product families (40+ CPNs/family) in the PIC16 and PIC18 product lines
- Developed strong understanding of the low-end microcontroller market (≤256KB of flash)
- Worked closely with PE team lead and PE team (architecture, design, test, marketing) to keep product on schedule and focused on the target market
  - Provided technical guidance for new products and features (e.g. Configurable Logic Block functionality in the PIC16F13145)
- Built reference designs for PIC16 and PIC18 microcontrollers (code, schematics, PCBs, documentation)
- Created technical, easy-to-follow documentation (videos, application notes, webpages) to educate customers
  - Sales teams used my presentations as the preferred technical resources when presenting to customers
- Subject matter expert on numerous digital peripherals (CLB, CLC, PWM, DMA, DMX, CWG) to help provide design guidance to customers and sales engineers

ML Researcher | U.S. Naval Research Lab - Space Technology Division   June 2017 - Jan 2022
- Published new algorithmic techniques to improve image classification in remote environments in collaboration with leading industry experts
- Primary author on paper titled "Using Machine Learning in Radio Frequency Communications" and co-author for an infographic on identifying protein promoter sequences using machine learning
- Created supervised learning models for object detection using image classification
- Conducted data cleaning, preprocessing, and feature engineering on image and text datasets to ensure high-quality data for model training

Robotics Systems Engineer | Booth Oil and Gas LLC   Sept 2016 - Jun 2022
- Full-stack prototype engineer to create custom solutions when commercial products weren't viable
  - Projects include a custom oil refinement pipeline, AI-driven mesh security system, crop auto-planter
- Created novel solution for cooling stepper motors within a heated enclosure using Peltier elements enabling a low-cost BOM
- Mechanical development included running thermal and airflow simulations, conducting stress tests and kinematic calculations, and designing parts in CAD
- Followed an iterative engineering process to refine prototypes
  - Built firmware and schematics, assembled hardware, tested each new iteration, then implemented possible improvements

Sample Engineering Designs

This section serves as a collection of my engineering and technical marketing abilities.
- 🔗 **PEEK 3D Printer**
- 🔗 **DMX Audio Visualizer**
- 🔗 **AI-Driven Security System**
- 🔗 **Remote-controlled Telescope Mount**
- 🔗 **The Cold Plate**

Education

B.S. in Computer Engineering; Mathematics minor
3.98 GPA; Summa Cum Laude; CMPE 322/120 Supplemental Instructor
Shippensburg University of Pennsylvania

Competencies

- **Software:** C, Python, Linux, Marlin, Bash, Embedded Development, Fusion 360, KiCAD, Eagle, MPLAB X, XC8
- **Hardware:** Circuit Design, Programmable Logic, PIC and AVR Microcontrollers, Hardware interfaces, EDA tools
- **Other:** Current security clearance, CompTIA A+ certified, Eagle Scout