Brian Benchoff | Prototype Engineer

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Experience

Vocational

Span.io **San Francisco**
Prototype Engineer *2022-Present*
Developed novel data acquisition unit for isolated thermocouple measurement using RP2040 microcontroller, C, Modbus, and Ethernet interfaces. Created comprehensive data acquisition system with Flask/React web interface and Python backend supporting multiple hardware interfaces (NIDAQ, ADAM, LabJack). Designed and fabricated specialized test rigs and prototypes using KiCad PCB design and 3D printing. Built test fixtures and cable harnesses for UL AFCI/GFCI compliance testing. Implemented V2G (Vehicle-to-Grid) home backup power solution prototype utilizing Nissan Leaf with CHAdeMO interface.

Self-Employed **San Francisco**
Embedded Engineer, Product Designer *2016-2022*
Designed, built, and sold consumer electronics. This included 3D CAD Fusion360, AutoCAD, PCB design Eagle, KiCAD, Design for Manufacturability and Design for Assembly. Closely integrated with PCB assembly, up to and including running pick and place machines. Fabrication of 3D printed and injection molded parts in plastic and silicone. Designed, marketed, and sold several successful products.

Supplyframe **Pasadena, CA**
Content Specialist *2018-Present*
Produced electronic design and engineering content, engaged with engineers regarding new products. Responsible for hardware projects, PCB & firmware design. 3D modeling, injection molded and 3D printed plastic and silicone.

Hackaday **Pasadena, CA**
Editor *2011-2018*
Wrote, edited, produced content for weblog Hackaday. Designed hardware products and projects.

Skills

Languages: C, C++, Python, LaTeX, SQL **Graphic**: Adobe Photoshop, Illustrator, Premiere

Mechanical CAD: Fusion360, AutoCAD, OpenSCAD

Electronic CAD: Altium, Eagle, KiCAD

Embedded: I2C, SPI, Serial, Parallel interfaces, USB, USB-C, HDMI, PCIe, eMMC

Embedded Linux: Buildroot, Yocto

Platforms: x86, 8085, AVR, ARM Cortex-M (M0 & M4), RP2040/2350 PIO, Linux SoCs (Microchip, Allwinner)

Misc: Microsoft Office, 3D Printing, Rapid Prototyping, Industrial Design

PCB: BGA, Down to 2/2mil trace/space, 010005 components

Mechanical: Injection molding in plastic and silicone, machining