

Summary

Skilled Hardware and Software Engineer specializing in full stack product development. Success in taking electronic projects from conception to mass production in a variety of fields including consumer electronics, IoT, and education. Experienced in producing designs capable of manufacture at high scale and low-cost. Agile in researching the necessary technologies to complete a project, pragmatically integrating new platforms and programming methodologies. Strong leadership skills and excellent time management in hectic startup environments.

Skills

- 8+ Years experience designing mixed-signal PCBA in Cadsoft Eagle, 3+ in KiCad, familiarity with Altium
 - Including 4+ years of EE supply-chain management and manufacturing process development
 - Low-volume prototype assembly reflow soldering and hot-air rework, PCB inspection and debugging
 - Some experience with RF (2.4GHz) and high speed digital logic
- 10+ Years experience developing embedded C/C++ on a wide variety of 8bit-32bit MCU architectures
 - Cores: efm8(8051), pic10, stm8, attiny, atmega, r178, atsamd, kl2x, nRF, stm32, PSoC4, xtensa
 - 3+ Years experience with RTOS (freeRTOS, zephyr) and developing for an embedded linux kernel
 - Deep familiarity of BLE and USB stacks, Strong familiarity with Wifi and Zigbee communications
- 10+ years programming in Python, Intermediate knowledge of C/C++, Java, Javascript, Typescript, bash
 - Data Analysis using numpy/scipy/pandas to quantify sensor performance and create basic models
 - Experience with linux servers, virtualization, and cloud tools such as Amazon AWS, Docker, Chef

Selected Projects

- **littleBits Droid Inventor Kit:** kit R&D + design of w32-controlHub module, a BLE control + audio playback bit
- **littleBits Pro Library:** cost-down, test documentation, product improvements to all 65 electrical designs in the kit
- **Pulsewear DreamOn:** EE+FW design, DFM, and manufacturing support
- **Grow Duo:** Firmware development - initial project, BLE protocol, custom storage subsystem

Work Experience

- **Kinetic, NYC - Senior Electrical Engineer** **June 2020-present**
 - Provided new test guidelines and supply-chain support for rapid ramp-up at new overseas CM
 - Implementation of PLM and DFMEA processes to ensure enterprise-grade quality standards are met
 - Managed connectivity solutions for fleet of >10k IoT devices and >800 cellular routers
- **Freelance Electrical and Firmware Engineer** **May 2013-present**
 - Design of small mixed-signal PCBA for various consumer products and manufacturing assistance therein
 - FW development on various platforms (ATMEGA, ATSAMD, nRF51, nRF52, PSoC4, RPi)
 - Focus on high-efficiency BLE designs (nRFx) including OTA updates, testing, and build tooling (python)
 - Development of production documentation, preliminary supply-chain development, coordination with CM
- **littleBits(Sphero), NYC - Director of Electrical Engineering** **July 2019-Apr 2019**
 - Created product development and next-gen R&D timelines + budgets with executive team.
 - Managed small team of engineers with a focus on expanding ownership and individual responsibility
 - Designed and executed plan to merge designs and process with new parent company.
- **littleBits, NYC - Senior Electrical Engineer** **July 2015-June 2019**
 - EE+FW design for several flagship products, from R&D with product team through manufacturing support
 - Implemented cost-down and process improvements across huge product portfolio (>80 PCBA)
 - Worked closely with CM in Asia to develop tests, source components, resolve process issues
 - Created internal communication and test libraries (python) and build automation (jenkins)
 - FW development of next-gen digital platform on low-cost MCU (masterless, arbitrarily connected, OTA FW)

- Assisted SW teams with FW update, comms (webUSB/BT/Android/iOS), Coding (Blockly/MakeCode)
- **Sum, NYC - Research and Development Engineer** **June 2013-May 2015**
 - Designed and fabricated prototypes to test new sensor concepts and evaluate existing sensor performance
 - Coordinated with external hardware teams to specify design and to debug delivered prototypes
 - Designed clinical research trials, trained technicians, modified firmware, wrote tooling and documentation
 - Developed motion artifact rejection and peak-detection algorithms in both Python and firmware C code
 - Implemented third-party activity recognition library, flash storage, bluetooth low energy in firmware
- **BugLabs, NYC – Lead Engineer** **July 2012-May 2013**
 - Managed and prioritized engineering resources towards new M2M platform development
 - Developed platform libraries in Embedded C, Python, Java, Javascript
 - Created frontend/backend framework for generating real-time hardware web dashboards
 - Designed and prototyped new hardware for the OpenXC platform in conjunction with Ford
- **BugLabs, NYC – Applications Engineer** **Feb 2011-June 2012**
 - Principle engineer on NSF grant for a new high school physics datalogger device
 - Designed an internet-enabled teddy bear for hospital patient comfort, produced 8 prototypes
 - Developed facebook application frontend/backend code and hardware for a social vending machine
 - Created custom hardware, lesson plans, and sample code projects for an internship program
 - Helped to restructure low-level linux driver code and wrote python libraries for the bug

Education

- ❖ Rensselaer Polytechnic Institute (RPI), Troy, NY **Graduated-Aug, 2010**
 - B.S in Electrical Engineering, Minor in Architectural Acoustics

Activities

- **RPI Players - 2008-2009 Season President** **April 2008-April 2009**
 - Leader of 60+ member organization: resolving conflicts, coordinating personnel, planning events, and managing inter-club relations

Interests

Theater sound and lighting design, hardware hacking, open-source hardware, audio engineering