

Forrest Bourke

>> I like flying things <<

Education

Olin College of Engineering

Expected **2016** Bachelor of Science, Electrical and Computer Engineering

Projects

REVO Senior Electrical Advisor

Fall 2015 - Advise Olin's electric vehicle research team on powertrain and general EE needs for the construction of an SAE Formula Electric car.

Custom Speakers

2014 - Designed and built speakers including 3rd-order phase-corrected active crossovers, class D amplification, custom routed MDF enclosure matched to drivers' TS parameters and frequency response.

Vacuum Tube SR Latch

Fall 2014 - Using documentation from ENIAC, simulated then re-created a basic element of all digital computers from 12AX7 vacuum tubes.

Tunable Gain Amplifier

Fall 2014 - Designed and laid out a SPI-controlled stereo audio amplifier integrated circuit using LTSpice for schematic capture and Magic for VLSI layout.

800mm Hexcopter

Summer 2014 - Built a large hexcopter with custom sensor package and 2kg+ payload to carry a camera gimbal. Filmed Olin from the air. Contacted by Olin Admissions to produce promotional material.

The Confectionery Cannon

Fall 2013 - Designed and built a face-tracking marshmallow launcher with a team of 3 others. Responsible for the entire electrical system, as well as assisting with fabrication and software of the device. In addition to hardware tasks, designed and built a project website featured on Hackaday, Gizmodo, Boston Magazine, Discovery Channel, among others.

Analog Photography

Present - Make a variety of photographs using various analog technology, including hand-processing of medium and large format film.

Experience

Hardware Engineering Intern

🍏 Apple Inc. **Summer 2015**

Engineering and Prototyping Intern

JAWBONE - Advanced Projects Division

Summer 2014 - Designed and engineered systems and boards that integrated sensors, microcontrollers, and wireless communication for next-gen Jawbone products.

Engineering Intern

PARALLAX - Education Department

Summer 2013 - Developed and documented software for educators using Parallax microcontrollers, as well as device drivers for other Parallax products. Rendered the company's flagship product in SolidWorks.

Machinist

2013 - Present - Olin College Machine Shop - Fabricated work-ordered parts, including those requiring welding and lathe or CNC mill operations.

Course Assistant (NINJA)

2014 - Present - Introduced new students to microcontroller programming and system design in Olin's sophomore Principles of Engineering course.

Skills

Electrical

Hand rework of 0201 scale components, LTSpice, Magic VLSI, ModelSim/Verilog, DipTrace, Cadence Concept HDL, SMT line programming & use, Analog and digital circuit design; ARM Cortex M0/M0+, PIC24F, Atmega328 & 2560 architecture experience

Fabrication

Manual and CNC Mill & Lathe, Sandblaster, Laser Cutters, Router and Table, Sheet Metal Shear and Brake, TIG & MIG Welder, Oxy-Acetylene Torch, Plasma Cutter, Additive and Subtractive Rapid Prototyping

Computer

Linux, Adobe Photoshop, LaTeX, Python, Matlab, Adobe Illustrator, Solidworks, GIMP, C/C++, Arduino, Apple Motion, Adobe Premiere, Adobe InDesign