

# Forrest Bourke

>> I like flying things <<

## Education

### Olin College of Engineering

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

### La Cañada High School

**2012** Graduate with Honors

## Projects

### Custom Speakers

**Fall 2014** - Designed and built speakers including 3rd order 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.

### SAE BAJA

**Fall 2012 - Present** - Designed and built an optical encoder system for measuring CVT performance. Fundraising co-manager for 2013, in charge of the finances for Olin College's largest extra-curricular project team.

## Experience

### 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** - Olin College Machine Shop - Fabricated work-ordered parts, including those requiring welding and lathe or CNC mill operations. Designed and constructed mechanism for welding ventilation system.

### Course Assistant (NINJA)

**2014** - Introduced new students to their first circuits during Olin's Introduction to Sensors and Measurement course, including holding office hours and tutorial sessions. Additionally, provided help for Olin's sophomore Principles of engineering course.

## Skills

### Electrical

Hand rework of 0201 scale components, LTSpice, Magic VLSI, ModelSim/Verilog, DipTrace, Eagle, Use of manual pick and place, Reflow oven programming and use, Analog and digital circuit design, ARM Cortex M0/M0+ 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

### Computer

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