

DESIGN WITH SOFTWARE AND ELECTRONICS

Andy Sigler

About

I'm a designer who uses software and electronics. I use emerging technologies to design novel devices and interactions. I hope to use these tools to bring some magic and playfulness to everyday objects. These days, I'm most interested in finding new forms of interaction at the intersection of machine-learning, hardware, and connected devices.

In addition to my [selected works](#), you can also check out [blog posts](#), and my NYU course [Homemade Hardware](#).

Work

SOFTWARE / ELECTRONICS / SYSTEMS ENGINEER

2014-'15 & 2016-

@ [OPENTRONS LABWORKS](#)

'19

- First employee at startup, writing entire software stack for Kickstarter release
- Designed and developed the [Opentrons Python API](#) on a small team, released winter 2016
- Lead design and systems engineering of the [OT2 liquid-handling machine](#) and [pipettes](#)
- Wrote OT2 and Module device firmware, motion control software, and production line testing software
- Sole electronics designer for the OT2, pipettes, temperature module, and magnetic module
- Lead early product ideation, R&D, testing, and design for all hardware products, focusing on electronics and systems design
- Helped grow factory and production process in Opentrons' Shenzhen factory, growing from two employees in 2016 to greater than fifty in 2019

ADJUNCT PROFESSOR

2015-Present

@ [ITP-NYU](#)

- Teaching a course of my own design, entitled [Homemade Hardware](#)
- Graduate students from all types of backgrounds learn to design and fabricate DIY circuit boards

ELECTRONICS DESIGN ENGINEER

2015-'16

@ [TOMORROW
LAB](#)

- Designed and tested production-ready prototypes and beta runs of wireless devices
- Designed electronics and firmware for devices utilizing wireless protocols, including Bluetooth LE, WiFi, LoRa, and ANT

RESEARCH RESIDENT

2014-'15

@ [ITP-NYU](#)

- Research focusing on internet-of-things design tools, as well as circuit board fabrication techniques
- Mentored graduate students with their projects, as well as held office hours to teach relevant engineering skills
- Created the ITP "Hard-Lab", which is a section of the facility dedicated to circuit board fabrication, using pick-and-place machine, micro-milling machines, reflow ovens, parts management, and diagnostic equipment

Tools

- Python
- Javascript (ES2019, NodeJS, HTML5/CSS)
- Firmware, Embedded C/C++, Arduino
- Tensorflow 2.0, Keras, TensorflowJS
- PCB Design, DFM, Eagle CAD
- MaxMSP/Jitter

Techniques

- Product Development
- Wired/Wireless/Embedded Systems Design
- Interaction Design
- Solder, multimeter, tweezers
- Duct tape, Gaffer tape

Education

MASTER'S DEGREE **2012-'14**

@ [ITP-NYU](#)

- Self-lead master's degree, focused on interaction design through emerging hardware and internet technologies
- Presented a master's thesis, [Patchbay](#), a wireless framework for designing wirelessly interoperable toys and musical instruments

BACHELOR'S DEGREE **2006-'10**

@ [HAMILTON COLLEGE](#)

- Political science major, and music minor
- Varsity lacrosse player, three years starting at defensive midfield and close defense
- Member of Alpha Delta Phi fraternity