

# Michael Cousins

Brooklyn, NY | [mike@cousins.io](mailto:mike@cousins.io) | [mike.cousins.io](http://mike.cousins.io) | [github.com/mcous](https://github.com/mcous)

Detail-oriented software engineer and architect with 10 years of engineering experience. Passionate about shipping high-quality products, leading technical teams to solve complex problems with thoughtful solutions, and improving my craft and the craft of those around me.

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## Work Experience

### Opentrons Labworks

5 years | Open-source liquid handling robots for biologists | [opentrons.com](http://opentrons.com)

Software Engineer IV — Mar. 2019 to present

Software Engineer III — Mar. 2018 to Mar. 2019

Frontend Software Engineer — Aug. 2017 to Mar. 2018

- Architecting a backend, to be built by a third-party, for sharing scientific protocols and helping biologists address experiment reproducibility problems
- Teaching engineers on my team testing best practices, increasing overall velocity by decreasing unexpected bugs and time spent in QA
- Designing and managing the implementation of a new execution and control layer of the OT-2's software, unlocking functionality and reliability across the stack, while keeping users' already functioning workflows intact
- Led the Robot Services engineering team as we resolved some of our device's thorniest issues, including networking and timekeeping bugs
- Configured and maintained CI and deployment systems for multiple products across multiple languages, operating systems, and CI providers
- Architected, developed, and maintained the Opentrons App for the release of the OT-2, built using Electron and React

### Keen Home

2 <sup>3</sup>/<sub>4</sub> years | Smart, connected HVAC products | [keenhome.io](http://keenhome.io)

Senior Product Engineer — Jul. 2015 to Jul. 2017

Mechatronics Engineer — Nov. 2014 to Jul. 2015

- Rebuilt the Keen Home API's authentication and authorization systems, adding an OAuth frontend and backend for Amazon Alexa integration
- Designed and implemented software for assembly-line QC fixtures, and worked closely with our Shenzhen manufacturer to install and operate the fixtures
- Created and managed Node.js-based production scheduling systems, administrative tools, and automated acceptance tests
- Shipped production Smart Vent firmware on the SiLabs ZigBee stack

### Wiley Cousins

1 year | Contract software & hardware engineering services

Co-Founder and Hardware Engineer — Oct. 2013 to Oct. 2014

- Designed electronics and firmware for hand-crafted home products
- Taught a 12-week "Introduction to Circuits" class designed to take students from no experience to digital logic

## Open-Source Projects

### [tracespace/trace-space](https://github.com/trace-space/trace-space)

TypeScript, JavaScript

Jul. 2014 to present

Printed circuit board (Gerber) viewer web-app and libraries. Renders CAD fabrication output as SVG. Used by various PCB manufacturers.

### [mcous/decou](https://github.com/mcous/decou)

Python

Nov. 2020 to present

Mocking library that enforces opinionated best practices and guides architecture with TDD. Used at Opentrons to test core logic.

### [wileycousins/clockblock](https://github.com/wiley-cousins/clockblock)

Embedded C++, KiCad, SolidWorks

Sep. 2013 to Sep. 2014

LED clock embedded in a solid block of wood. Limited run art piece made with H. Cole Wiley and James Goedert.

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## Ask Me About

### Languages

TypeScript and JavaScript

Python

Scala

### Testing

Test-driven development

Automated acceptance testing

CI setup and management

### Frontend

React and state management

Constraint-based style systems

Web and Service Workers

### Backend

HTTP API design

Reliable concurrency

Event-driven architecture

### Spicy Takes

Promises are better than async/await

Mocks are great, but never used correctly

Test-after might be worse than no tests

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## Education

B.Sc. in Mechanical Engineering

Northwestern University, class of 2012

Concentration in intelligent mech. systems

One-year co-op with Newell Rubbermaid