

Michael Dougherty

Software Engineer— Portland, OR
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Research-minded software engineer with a focus on peer-to-peer protocols, decentralization, and formal verification.

ENGINEERING EXPERIENCE

Software Engineer

/ Architect

2018 - 2024

Rust p2p

dweb/web3

cryptography

formal verification

Holochain Foundation

Remote / Worldwide

I was one of the main designers and developers for a complete from-scratch rewrite of Holochain in 2020, which is still being actively developed and used.

Co-designed and developed a novel algorithm for long-term syncing of data between peers in a distributed network. I am a co-author on the patent.

Took sole responsibility for several key aspects of the system and collaborated with the founders and colleagues regularly to shape the product's direction.

Advocated for and used formal verification techniques to help uncover subtle bugs.

Software Lead

2017 - 2018

Python React

Microcontrollers

PLANT Group

Portland, OR

Wrote software for ESP8266 microcontrollers used to control smart irrigation systems and monitor soil conditions, and built a web app for monitoring said controllers.

Senior Software Engineer

2016 - 2017

React Django

CrowdStreet, Inc.

Portland, OR

Maintained and built features for the main product, a large Django web app.

Owned and maintained a multi-instance Docker-based DevOps setup.

Software Engineer

2014 - 2015

Python Django

Elasticsearch

Building Energy, Inc.

Portland, OR

Implemented a management system which San Francisco used for some time to manage its building energy benchmarking requirements.

Added a highly-searchable map with many entities, powered by Elasticsearch.

Self-employed

2010 - 2014

Python Elm

Node.js PostgreSQL

PHP HTML+CSS

Sass

Michael Dougherty / Level Eleven

Portland, OR

I ran a full-stack web consulting business. Front-end, back-end, DevOps, and design.

Worked closely with a UNC professor and his research team to design and develop a web application for visualizing and interacting with their geospatial research data on urban deindustrialization.

Single-handedly built an app for a genetics research startup.

Worked as part of a game development team for NBC Universal.

Research Assistant

2005 - 2009

C++ MATLAB

Pennsylvania State University

State College, PA

Designed mathematical models of crowd behavior and programmed simulations in C++ as part of a multi-disciplinary research team.

Used data mining and neural networks to predict strength and reliability of materials based on microphotographic cross-sections.

EDUCATION

- 2007 - 2009 **M.S. Computer Science** Penn State University
Completed entire program *except for thesis*
- 2002 - 2006 **B.S. Electrical Engineering** Penn State University

OTHER EXPERIENCE

- Interviewer** **Karat**
2018 Held technical interviews with candidates applying to various tech companies. Administered programming challenges, discussed past technical projects, and assessed technical competency.
- Mentor** **Thinkful**
2018 Mentored several students through the Thinkful web development bootcamp, meeting regularly for tutoring and advice-giving.
- Course Creator** **Global Knowledge**
2017 I created an in-depth training course called "Top 10 Python Concepts", with dozens of short videos, assignments, and quizzes, to be used in an enterprise training package.
- Editor** **Manning Publications**
2013 Served as a technical editor for the unpublished book *Sass In Depth*.