

David Dickinson

Software Engineer

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I'm a full-stack software engineer with a passion for problem-solving, human-computer interaction. I love learning new things and enjoy knowledge-sharing in a collaborative environment. I have worked most extensively in JavaScript, Ruby and Python; I am also proficient in TypeScript and Golang.

TECHNICAL EXPERIENCE

Creator, Software Engineer, *Umbra* [↗](#)

Umbra is an open-source, browser-based code editor designed to facilitate real-time collaboration and code execution.

- Developed a service-oriented architecture for the backend, comprising a web/API server, real-time collaboration service, and standalone, secure code evaluation (Node.js, Express, AWS EC2, Cloudflare Workers, Durable Objects, R2 Storage)
- Enabled real-time, multiplayer code-editing functionality by leveraging CRDT data structures to allow for conflict resolution and consistent state across users (CRDTs w/ Yjs, Codemirror, Cloudflare Workers)
- Crafted a user-centric frontend for [umbra-collab.com](#) [↗](#), prominently featuring a central code editor and a streamlined navigation system (Typescript, React, ChakraUI)
- Designed and implemented a RESTful API for Umbra, providing a solid foundation for user authentication, code snippet management, and real-time code execution (TypeScript, Node.js, Express, REST)
- Containerized and automated the deployment process reduced deployment time by 40% (Docker, GitHub Actions)
- Co-authored a technical case study [↗](#) and presented a tech talk [↗](#) about Umbra's problem domain, system design, and tradeoffs made when building Umbra
- Incorporated an Agile approach with a remote team of four engineers across three time zones, including daily stand-ups, pair programming, and code reviews

Software Engineer, *Self-Employed*

2021 – 2023

Developed freelance and open-source applications including:

- *ReqBin* - a real-time tool for receiving and monitoring webhooks (DigitalOcean Droplet, Express, Material UI, MongoDB, Nginx, Node.js, PM2, PostgreSQL, React)
- *Capstone Condenser* - A Python tool that summarizes and categorizes presentations (YouTube Data API, OpenAI API, NLTK, Matplotlib, PyLDAvis, Streamlit)
- *CommuniTalk* - a collaborative forum application (Ruby, Sinatra, and PostgreSQL)

SKILLS

Back End

Node.js, Express, Ruby, Go, Python, PostgreSQL, MongoDB, REST APIs

Cloud

Digital Ocean, AWS (EC2, RDS, IAM, CloudFormation, S3), Heroku, Fly.io, Cloudflare Workers

Front End

JavaScript, TypeScript, React/Redux, Handlebars, Material UI, TailwindCSS, HTML/CSS

Other

Git, Docker, Linux, Bash, Prompt Engineering, WebSockets, Yjs, Jest, Object Oriented Programming, Nginx,

EDUCATION

Massachusetts Institute of Technology

1998 – 2003

B.S., Electrical Engineering and Computer Science

Launch School

2021 – 2023

Multi-year, mastery-based software engineering curriculum. Read more at [launchschool.com/employers](#) [↗](#)

CERTIFICATES

AWS Certified Solutions Architect [↗](#)