

Fred Durham

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Profile

I'm a full-stack software engineer who loves learning new technologies and understanding how things work at a deeper level. Extensive experience in JavaScript and Ruby, with proficiency in TypeScript and Go.

Experience

Co-Creator & Software Engineer, Umbra - umbra-collab.com  Sep 2023 – Dec 2023

Umbra is an open-source, real time collaborative code execution platform with support for multiple programming languages.

- Engineered and built the backend of Umbra as a three part, service-oriented architecture consisting of:
 - Web/API server (**Node.js, Express, AWS EC2**)
 - Real-time collaboration server (**Cloudflare Workers, Durable Objects, R2 Storage, Edge network**)
 - Standalone, secure code evaluation (**AWS EC2**)
- Designed and built the user-friendly frontend for <https://umbra-collab.com>  (**Typescript, React, ChakraUI**)
- Implemented persistent storage for saving user code snippets (**PostgreSQL, AWS RDS, IAM roles**)
- Enabled real-time, multiplayer code-editing over WebSocket connections that scales based on user demand (**CRDTs w/ Yjs, Codemirror, Cloudflare Workers**)
- Setup user login and authentication to allow users access to their private code library (**AWS Cognito**)
- Built a RESTful API to support the user authentication, code library, and code execution services (**TypeScript, Node.js, Express**)
- Containerized server code into separate images and automated the deployment process for codebase updates (**Docker, GitHub Actions**)
- Authored an in-depth case study, analyzing Umbra's use cases, problem domain, system design, and engineering decisions. (<https://umbra-collab.net> )
- Collaborated with a remote team of four engineers across three time zones, employing agile methodologies and practices such as daily standups, pair programming, and code reviews.

Software Engineer, Open-Source Projects May 2021 – Dec 2023

Developed and built various open-source and personal web applications including:

- ReqBin** - A web app for inspecting and collecting webhooks (**JS, React, Node.js, Express, PostgreSQL, MongoDB**)
- Weather CLI** - Command line program that fetches local weather data (**JavaScript, Bash, Ubuntu Linux**)
- Obsidian Timer Plugin** - A time tracking plugin for the Obsidian note taking app (**JavaScript**)

Federal Express, DoT Certified Courier Mar 2010 – Sep 2021

Managed and executed time-sensitive, secure deliveries as a DOT Certified Courier for FedEx Express, demonstrating strong problem-solving, route optimization, and customer service skills.

Skills

Front End

TypeScript, JavaScript (ES6+), React, ChakraUI, Handlebars, Pug, HTML/CSS

Back End

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

Cloud

AWS, DigitalOcean, CloudFlare, Render, Heroku

Other

Git/Github, Docker, Websockets, HTTP, Yjs, Codemirror, Bash, Nginx, Jest

Education

Launch School May 2021 – Dec 2023

A multi-year, mastery based curriculum that teaches web development and software engineering from first principles.