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.net* 🔗   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	**Back End**	**Cloud**	**Other**
TypeScript, JavaScript, React, ChakraUI, Handlebars, Pug, HTML/CSS	Node.js, Express, Ruby, Sinatra, Go, PostgreSQL, MongoDB, REST APIs	AWS, DigitalOcean, CloudFlare, Render, Heroku	Git/Github, Docker, Websockets, HTTP, Yjs, Codemirror, Bash, OOP, Nginx, Jest

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🎓 Education

Launch School   May 2021 – Dec 2023

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