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, a service-oriented architecture 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, Edge network)**
- Designed and implemented a feature for persistent storage of user 'code snippets', enabling users to save their work in an individualized 'Code Library'. This involved creating an effective schema and data layer, and utilizing a relational database hosted on its own server **(Postgres, SQL, AWS RDS, IAM roles)**
- 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, Websockets)**
- Crafted a user-centric frontend for **https://umbra-collab.com** 🔗 , prominently featuring a central code editor and a streamlined navigation system **(Typescript, React, ChakraUI)**
- Established user login and authentication systems to allow users secure access to their private code libraries **(AWS Cognito)**
- Built a RESTful API to support the user authentication, code library, and code execution services **(TypeScript, Node.js, Express, REST)**
- Containerized server code and automated the deployment process for codebase updates which reduced a ~20 step process to a single push command **(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 (ES6+), 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, 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.