

Michael Johnson

Software Engineer

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PROFILE

I'm a software engineer who is passionate about programming, people, and teams. I find it rewarding to be a part of what great teams are able to accomplish. I am experienced with Go, Typescript, Javascript and Ruby.

PROFESSIONAL EXPERIENCE

Software Engineer -- Umbra

2023 – present

Umbra (umbra-collab.net) is a browser-based code editor with real-time collaboration and code execution.

- Led the design and implementation of the Umbra backend as a scalable, service-oriented architecture, including five discrete services utilizing various hosting solutions to allow for ease of horizontal scalability. (Node.js, Express.js, AWS EC2, Cloudflare Workers, Durable Objects, R2)
- Engineered multiplayer code-editing functionality by leveraging CRDT data structures to allow for conflict resolution and consistent state across users. (Yjs, WebSockets, CRDT)
- Implemented persistence of user 'code snippets' allowing users to save their work to an individualized 'Code Library' by designing an appropriate schema and data layer, and backing Umbra with a relational database running on its own server. (Postgres, SQL, AWS RDS, AWS IAM)
- Created a solution for customer identity and access management that allowed for user account authentication/authorization functionality. (AWS Cognito)
- Automated the deployment process saving many hours of manual-deployment overhead and reducing a 19 step process to a single push command. (GitHub Actions, Docker)
- Designed and implemented service interfaces and a RESTful API for Umbra, supporting user authentication, code snippet management, and real-time code execution.
- Authored a comprehensive case study (umbra-collab.net), analyzing Umbra's problem domain, system design, technical challenges and choices, and engineering decisions.
- Collaborated with a remote team of four engineers across three time zones, employing agile methodologies and practices such as daily standups and mob/pair programming.

Software Engineer -- Open Source Projects

2021 – present

Developed open-source applications including:

- urlac - WebRTC audio SFU w/ 'rooms' support (Go, WebRTC, Pion, ICE, RTC, SDP, NAT, STUN/TURN)
- mvfs - Lightweight full-text search service (Go, Ngrams, Tokenization, Redis, Reverse Indexing)
- ReqBucket - Tool for collecting and debugging webhooks. (Typescript, Nginx, MongoDB, Node.js, Express, React)
- miniConf - Multi-room video-calling WebRTC SFU and client (Go, JS, React, Pion, P2P, Network Protocols)
- vChat - Open-source internet chatroom toolkit. (Go, Golang, React)

Team Lead | Sales Manager -- Davey Tree Expert Co.

2017 – 2021

- Set company sales record for first-year sales arborist and won Davey Sales Award.
- Managed 31 employees and engaged in daily meetings with crews and crew leaders to delegate jobs.
- Led crews of arborists in planning and executing logistically complex and potentially hazardous tree-work jobs.

SKILLS

Backend

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

Frontend

JavaScript, TypeScript,
React/Redux,
Handlebars, HTML/CSS

Cloud

VPS, AWS EC2, IAM, RDS,
Cloudflare Workers,
Durable Objects, R2

Other

Docker, Linux, HTTP, Git,
GitHub, WebSockets,
WebRTC, Nginx

EDUCATION

Launch School -- Software Engineering

2021 – 2023

Georgia State University -- M.A. (ABT), Philosophy

2010 – 2012

University of Colorado, Boulder -- Graduate Coursework, Linguistics

2011

Mount Vernon Nazarene University -- B.A. Philosophy

2005 – 2009