

Kshitiz Agrawal

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EXPERIENCE

FinBox Backend Engineer

Jan'24 - Present (Full Time), Oct '23 - Dec '23 (Intern) / Bengaluru, IN

Octopus & OctoDash | *Internal HTTP Proxy with DSL & Management Dashboard*

- Architected a comprehensive internal HTTP proxy system featuring a custom domain-specific language (DSL) that enables declarative configuration of encryption protocols, authentication flows, webhooks, and routing logic.
- Developed **OctoDash**, a full-stack management dashboard from the ground up, streamlining service onboarding and providing intuitive controls for proxy configuration and monitoring.
- Pioneered an adaptive vendor selection system that dynamically routes requests to optimal service providers based on real-time performance metrics aggregation, with intelligent failover mechanisms and performance scoring algorithms to automatically identify the best-performing vendors.
- Implemented secure custom code execution capabilities using Go's plugin system, enabling isolated business logic execution without container overhead.

DataDancer | *In-Memory Workflow Engine & JSON Transformer*

- Developed a Go library implementing the Serverless Workflow Specification for short-running workflows with in-memory execution, eliminating external dependencies and orchestration overhead from tools like Temporal.
- Built a config-driven JSON transformation engine with custom function activities, now powering ETL pipelines and data transformations across 4+ microservices at FinBox.
- Designed extensible architecture allowing microservices to inject custom activities, loggers, and OpenTelemetry instrumentation while maintaining zero external dependencies.

Pickle | *Multi-Tenant Configuration Management Service*

- Extracted configuration management from legacy monolith into a scalable microservice built with Go and gRPC, enabling version control, scheduled activation, and multi-tenant isolation; deployed using Terraform and Helm with OpenTelemetry for observability.
- Designed hierarchical RBAC with tenant-scoped permissions, role inheritance across namespaces, and audit logging for compliance tracking.
- Built React frontend for configuration versioning, scheduling, and namespace management with intuitive UX.

Firefly | *Scalable Webhook Delivery System*

- Built a multi-tenant webhook delivery platform centralizing event processing across services with configurable retry strategies, OAuth authentication, and dead letter queue handling; deployed with Terraform and Helm with OpenTelemetry for full observability.
- Implemented pluggable queue architecture using SQS and EventBridge Scheduler, designed for easy replacement with alternative queue implementations.

Workflow Orchestration Platform | *Temporal-Based Business Process Engine*

- Built a sophisticated orchestrator that parses Serverless Workflow specifications and executes durable, fault-tolerant business workflows using Temporal, enabling non-developers to construct complex business logic through config-driven definitions.
- Maintain the Serverless Workflow Editor at FinBox and actively contribute to the Serverless Workflow Go SDK open source project.

PROJECTS

Online Code Playground with Realtime Collaboration

May - Jun '22

- Created a full-stack application which allows users to **write and run code directly in their browsers**
- Allows seamless **collaboration** with peers in **real-time** across 4 languages (**NodeJS, Python, C++, Java**)
- Uses the **Docker Engine API** to build **containers on-demand** to allow code compilation in an **isolated** environment
- Supports conflict free editing using **CRDT** algorithm with auto-completion using **language server protocols (LSP)**
- **Tech Stack:** Typescript, Nodejs, MySQL, Docker, Reactjs, WebSocket, Redis, Monaco, YJS

Links: LIVE: ide.kshitizagrwal.in REPOSITORY: github.com/Kshitiz1403/Collaborative-IDE

TECHNICAL SKILLS AND INTERESTS

Languages: Go, TypeScript, JavaScript, Java, Python

Tools & Platforms: Kubernetes, Docker, Terraform, Helm, Temporal, Kafka, PostgreSQL, MySQL, MongoDB, Redis

Cloud & Frameworks: AWS, Azure, React.js, GraphQL, OpenTelemetry

Interests: Distributed Systems, Database Internals

EDUCATION

Vellore Institute of Technology, Bhopal

Bhopal, India

B.Tech in Computer Science Engineering & Specialisation in AI & ML; CGPA: 8.5

Aug '20 - Jul '24

ACHIEVEMENTS

Guest Speaker at College Fest

Feb '23

Delivered an impactful web-dev roadmap talk to 400+ attendees in a flagship event

GDSC Club

May '22

Judged HackDSC web projects, assessing 100+ participants