

Goutham A R

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SKILLS

Languages: C++, Golang, C, Java, TypeScript, Python, C#, Zig

Frameworks/Libraries: React, Gin, Spring, Express, Qt, FastAPI, NestJs, ASP.Net

Databases: MySQL, PostgreSQL, MongoDB

Others: Kafka, Druid, Azure, Docker, Kubernetes, SignalR, Grafana, ECharts

WORK EXPERIENCE

ZERO PIXELS | SOFTWARE DEVELOPER

Ernakulam, Kerala | Sep 2023 – present

- Designed and deployed a scalable Azure Function app to cleanse invoice line items using AI, processing 200K+ Kafka-ingested messages/day, and storing results in PostgreSQL for efficient querying and analytics.
- Built a Kafka-to-Azure Queue pipeline with custom offset management, ensuring exactly-once processing, robust error handling, and horizontal scalability.
- Diagnosed and eliminated critical performance bottlenecks in reporting workflows, which were previously tied to synchronous HTTP execution of complex queries; proposed, designed, and rolled out an asynchronous architecture using background workers, resulting in sub-second API response times for user requests and improved scalability for report generation.
- Integrated SignalR for real-time communication between backend services and the frontend UI, enabling live job progress updates; combined this with automated uploads to Azure Blob Storage and secure presigned URL generation, ensuring seamless end-to-end delivery of large reports.
- Developed a Node.js backend proxy for Druid queries with authentication, authorization, and caching of high-cost requests; optimized queries for lower latency and reduced load.
- Enhanced observability across the system by introducing structured logging, distributed tracing, and Grafana-based alerting, while enforcing fine-grained report access controls using Open Policy Agent (OPA).

ZERO PIXELS | SOFTWARE DEVELOPER INTERN

Ernakulam, Kerala | May 2023 – Sep 2023

- Built a scalable backend for a dating app using Node.js, Express, and MongoDB (Mongoose), enabling real-time messaging via WebSockets and optimizing queries with custom indexes (40% faster).
- Integrated and maintained Agenda for background processing, including patching a private fork due to upstream inactivity.
- Led frontend development of a B2B dashboard in React with React Query, ECharts, and CSS-in-JS, delivering interactive data visualizations and efficient API integrations (REST & GraphQL).
- Collaborated with mobile developers to align APIs and resolved critical production bugs, ensuring seamless user experience across platforms.

PERSONAL PROJECTS

- Programming Language (C++/Rust) – Designed and implemented a custom compiler and VM, later rewritten in Rust to explore memory safety and concurrency.
- Game Engine (C++, OpenGL) – Built a lightweight 3D engine with rendering, input handling, and physics modules, focusing on performance and modularity.
- Distributed Key-Value Store (Go) - Implemented RAFT consensus for leader election and log replication, gained hands-on experience with fault tolerance and distributed coordination.

EDUCATION

B-Tech in Computer Science

MUTHOOT INSTITUTE OF TECHNOLOGY AND SCIENCE

Ernakulam, Kerala | 2019-23