

Sandip Bera

Backend Application Developer

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Profile summary

Backend engineer with 4+ years of experience building and shipping REST APIs, event-driven services and distributed systems using Golang and Node.js. Skilled in Go concurrency (goroutines, channels, WaitGroup), PostgreSQL/MySQL schema design, Redis caching, and messaging systems such as RabbitMQ and Kafka. Delivered 16+ backend services including a Netflix-like OTT backend, asynchronous video processing, real-time chat and authentication services. Experienced with OAuth2/JWT (RS256), Docker, MinIO and integrating AI tools (OpenAI API, RAG). Focused on secure, scalable systems and cross-functional collaboration.

Skills: Golang, Node.js, Postgresql, Redis, Rabbitmq, Kafka, Docker, FFmpeg, MinIO, OpenAI API, RAG, JWT, OAuth2, Distributed Architecture, Event Driven Architecture

Certifications

- Building Modern Web Applications with Go (Golang)
- SQL (Intermediate)
- Guided Pentest: Infrastructure

Work experience

Backend Application Developer — DigiAir Technology and Analytics Pvt. Ltd. Aug 2022 - Present

- Delivered 16+ backend services and internal tools in Golang and Node.js including REST APIs, microservices, database design, and Redis caching.
- Built backend modules for a Netflix-like OTT platform (Go, Iris, GORM, PostgreSQL, RabbitMQ, MinIO) covering catalog, channel, media, admin APIs and access-control logic.
- Implemented OAuth2 with **RS256 JWT tokens** using RSA keys and RBAC-based authorization to secure APIs.
- Reduced multi-resolution video transcoding time by up to **~4x** via an asynchronous Go service using goroutines, WaitGroup and a 6-way semaphore around FFmpeg.
- Developed a real-time chat backend (Node.js, Express, Socket.IO, Redis) with private/group chat, file streaming and RabbitMQ delivery.
- Decoupled Meet and Calendar microservices using RabbitMQ for event-driven integration ensuring at-least-once delivery.
- Built internal AI projects integrating OpenAI API: a RAG PDF Q&A pipeline and a content-moderation microservice for sensitive uploads.

Projects

OTT Platform Backend (Go, Iris, PostgreSQL/GORM, RabbitMQ, MinIO) 202 Days

- Developed backend modules for a Netflix-like OTT platform handling title catalog, channels, media resolutions, comments, reactions, notifications and admin workflows.
- Integrated OAuth2 and RS256 JWT authentication with access grants, expiry windows and permission checks by ownership, purchase status and channel role.
- **Reduced security-related incidents by 30%** through reinforced access-control policies.

Video Processing Service (Go) 92 Days

- Implemented an asynchronous Go service that transcodes videos into multiple resolutions in parallel using FFmpeg and concurrent goroutines.
- Used WaitGroup for synchronization and a 6-way semaphore to cap concurrency, achieving up to **4x** reduction in processing time versus sequential transcodes.

- Published results via RabbitMQ and stored outputs in MinIO for efficient retrieval.

Real-Time Chat Backend (Node.js, Express, Socket.IO, Redis, PostgreSQL)

334 Days

- Built a chat backend supporting private and group chat, file upload/streaming, bookmarks, search and message forwarding.
- Implemented Socket.IO real-time delivery with socket-to-queue messaging via RabbitMQ, Redis caching and JWT-based profile checks.

Meet—Calendar Event Sync (Go, RabbitMQ)

91 Days

- Engineered a decoupled event-driven integration between Meet and Calendar microservices.
- Utilized RabbitMQ to publish events asynchronously ensuring at-least-once delivery and improved system scalability.

RAG backend (OpenAI API, Go, pgvector, LangChainGo)

30 Days

- Developed a Retrieval-Augmented Generation pipeline to ingest large PDFs and answer queries using OpenAI API, pgvector and LangChainGo.
- Improved high-precision ingestion and retrieval to support internal PDF Q&A functionality.

Content moderation microservice (OpenAI API, LangChainGo)

31 Days

- Built a microservice to filter sensitive images and documents using OpenAI API and LangChainGo; implemented pgvector to assist image search and moderation.

JWT User Authentication Service

92 Days

- Developed a JWT-based authentication service implementing RSA private key signing with RS256 and HttpOnly cookie storage to enhance security.
- Designed token generation and verification flows to secure client login and API interactions.

Drive Backend Service

334 Days

- Created a cloud-drive backend similar to Google Drive using Go, Iris, GORM and MinIO.
- Increased file retrieval speed by 30% through optimized storage and management design.

Blog Backend Service Using Java Spring Boot

31 Days

- Developed a proof-of-concept blog application with Spring Boot, Spring Data JPA and MySQL; integrated MinIO for object storage and collaborated with a Go-based JWT auth service.

RAG-MCP Bridge (Go, mark3labs/mcp-go) — in progress

49 Days

- Developing a lightweight MCP server in Go to expose the internal PDF Q&A/RAG tool as a callable MCP tool for AI clients.
- Collaborating across teams to ensure integration, testing and reliability.

Intrusion Detection System Using Machine Learning

242 Days

- Implemented machine learning algorithms on the KDDCUP99 dataset to detect and predict various security attacks using feature-based models.

Education

MCA | Computers

2022

Netaji Subhas Engineering College, Kolkata
Grade - 9.64/10

B.C.A. | Computer Applications (General)

2020

Vidyasagar University

Extra-curricular activities

Project Leadership (Academic)

Led an academic intrusion detection project applying machine learning on the KDDCUP99 dataset to detect and predict network security attacks; coordinated a team of three and managed project delivery.

Achievements

Notable Delivery

Delivered 16+ backend services and internal tools across the full lifecycle, including production-ready microservices, authentication systems and AI integrations.

Additional information

Languages: English, Bengali, Hindi