

Aditya Torgal

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Summary

Backend Developer and **Cloud Computing enthusiast** with strong foundations in data structures, algorithms, and distributed backend systems. Experienced in building scalable services, real-time applications, and cloud-native architectures using Go, Node.js, and FastAPI. Active competitive programmer and CTF competitor (9th rank at BITSCTF).

Experience

Open Source Contributor — OneBusAway (Maglev API Server) 2026

- Contributed to **Maglev**, a high-performance Go-based REST API server for transit data (GTFS & GTFS-Realtime).
- Improved API and DB performance by replacing scan-based lookups with precomputed indexes and batch-fetch strategies.
- Added query-level observability using Prometheus metrics (count, latency, status) for database operations.
- Enhanced API correctness, OpenAPI compliance, and test coverage.
- **Key Contributions:** latency profiling (#648), DB metrics fixes (#676), realtime indexing (#761, #762), DB observability (#718), API/schema fixes (#639), safe batching (#517)
- **Performance & Batching:** eliminated N+1 queries (#539), and related improvements (#467, #522, #528)
- **Additional Work:** API parity/correctness (#627, #655, #682, #700, #704), security/maintenance (#684)
- **Tech:** Go, REST APIs, SQLite, Prometheus, Performance Optimization

Projects

Quizzler – Real-Time Quiz Platform (2025) quizzler.adityatorgal.me

- Built a scalable FastAPI backend supporting 100+ concurrent users using WebSockets.
- Implemented JWT authentication, real-time leaderboards, rate limiting, and session cleanup.
- Integrated **Google Gemini API** to build an AI-powered quiz creation bot that generates quizzes from a single prompt.
- **Tech:** FastAPI, Python, PostgreSQL, SQLAlchemy, Docker, Gemini API

JustChat – Realtime Chat Application (2025) justchat.adityatorgal.me

- Designed and implemented a scalable real-time chat system using WebSockets and JWT authentication.
- Ensured privacy-first architecture by avoiding persistent message storage.
- Built stateless backend services with Redis for ephemeral session handling.
- **Tech:** Node.js, Express, Socket.IO, Redis, Docker, Cloudflare R2

Go Microservices Architecture (2025)

- Developed a production-grade microservices system with API Gateway and service orchestration.
- Implemented synchronous (gRPC) and asynchronous communication using Kafka and RabbitMQ.
- Designed authentication, logging, and event-driven services with containerized deployments.
- **Tech:** Go, gRPC, Kafka, RabbitMQ, PostgreSQL, MongoDB, Docker

CryptLock – Password Manager (2025)

- Built a secure password manager using client-side encryption and zero-knowledge architecture.
- Implemented TOTP-based 2FA, encrypted backups, and secure vault import/export.
- **Tech:** Next.js, Express, Supabase Auth, PostgreSQL, Docker

Technical Skills

Languages: Go, JavaScript/TypeScript, Python, C, C++, SQL

Backend & APIs: FastAPI, Express.js, Fiber, REST, GraphQL, gRPC, Microservices

Databases & Messaging: SQLite, PostgreSQL, MySQL, Redis, MongoDB, Kafka, RabbitMQ

Auth & Security: JWT, OAuth2, Auth0, RBAC, TOTP (2FA)

DevOps & Cloud: Docker, Kubernetes, CI/CD (GitHub Actions), n8n, AWS, Azure, Cloudflare, Supabase

Tools: Git, GitHub, Postman, Insomnia, Burp Suite, Ghidra, Nmap, Wireshark

Education

B.Tech in Computer Science — IIIT Kottayam

2023–Present

CGPA: 8.8 (*upto 5th sem*)

Achievements & Leadership

- **BITSCTF 2025:** Ranked 9th globally in BITSCTF 2025 hosted by BITS Pilani.
- **Organizer** — **ApoorvCTF 2025 & 2026:** Core organizing team member for ApoorvCTF, ranked among the **top 10 CTFs in India (CTFtime)**, with a weight of 34.38/36; designed and deployed original CTF challenges.
- **Cybersecurity Sublead** — **BetaLabs:** Mentored juniors in secure system design and practical security concepts.