

ABHAY KUMAR GUPTA

Backend Engineer | Scalable Systems | Distributed Architecture

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Professional Summary

Backend Engineer with **1+ year of production experience** architecting and scaling distributed systems using **FastAPI, Django, and Node.js**. Designed high-throughput REST APIs, real-time WebSocket pipelines, and async data ingestion workflows serving enterprise-grade workloads with **high availability and low-latency guarantees**. Proven track record of shipping zero-downtime production systems — including **two live mobile apps on Google Play Store** — with deep expertise in PostgreSQL optimization, Redis caching, and cloud infrastructure on **AWS and DigitalOcean**.

Technical Skills

- **Languages:** Python, JavaScript, TypeScript, C++
- **Backend:** FastAPI, Django, Node.js, Express.js, REST APIs, WebSockets, Async Processing
- **Databases:** PostgreSQL (query optimization, indexing), MongoDB, Redis (caching, pub/sub)
- **Cloud & DevOps:** AWS (EC2, S3), DigitalOcean, Docker, CI/CD Pipelines, Nginx, CPanel
- **Engineering Concepts:** Distributed Systems, API Design, Rate Limiting, Background Jobs, System Design, Microservices
- **Core CS:** Data Structures & Algorithms, System Design, Operating Systems (fundamentals)
- **Tools:** Git, Postman, Jest, Cypress, n8n, React Native

Experience

Software Engineer

Sep 2024 – Present

FireCompass

Bengaluru, India

- Architected scalable REST APIs and async data pipelines for real-time threat intelligence ingestion, enabling **sub-second ML model integrations** across distributed microservices — reducing end-to-end pipeline latency by **~40%**.
- Engineered a **Redis-based caching layer** and optimized PostgreSQL query plans on endpoints handling **10k+ requests/day**, improving throughput by **~3x** and cutting P99 response times significantly.
- Designed services with **horizontal scalability** in mind using stateless APIs, distributed caching layers, and asynchronous processing pipelines for high-throughput, fault-tolerant workloads.
- Designed and operated **background job processing systems** handling continuous, high-volume data ingestion from external threat intelligence feeds with retry logic, failure recovery, and **observability for production monitoring**.
- Shipped **10+ production features** with zero downtime in close collaboration with frontend, data engineering, and ML teams across iterative sprint cycles.

Freelance Full-Stack Engineer

Aug 2025 – Present

Independent / Self-Initiated Projects

Remote

- Independently architected, built, and deployed **two production mobile applications** end-to-end — currently live on Google Play Store with real user traffic.
- Architected **end-to-end production systems** including API layer, database schema design, and cloud infrastructure (AWS/DigitalOcean) with CI/CD pipelines for zero-downtime production deployment.
- Delivered a **consultancy management platform** for a client, replacing a manual Excel-based workflow with a full-stack system supporting multi-role access, document tracking, and case management.

Projects

SoulSync — Real-Time Social Dating Platform | *React Native, Django, PostgreSQL, WebSockets, AWS* [Play Store](#) ↗

- Architected a **high-concurrency Django backend** powering a real-time chat system supporting **concurrent users with persistent WebSocket connections**, achieving sub-second message delivery under sustained load.
- Engineered a **Feature Flag microservice** enabling zero-downtime behavioral changes (maintenance overlays, dynamic popups) — eliminating Play Store resubmissions and decoupling deployment from release cycles.
- Optimized real-time communication using **efficient WebSocket connection handling** and **database indexing strategies** for low-latency message delivery and scalable query performance.
- Managed complete DevOps lifecycle: system design → API architecture → SSL-terminated cloud deployment with CI/CD and production database infrastructure.

SpendFlow — Distributed Expense Tracking Platform | *React Native, Django, Node.js, PostgreSQL* [Play Store](#) ↗

- Designed a **scalable multi-user expense system** supporting concurrent group transactions with a **net-balance settlement algorithm** reducing $O(N^2)$ debt pairs to $O(N)$ transactions for large user groups.
- Built secure REST APIs for expense management, group settlements, and automated monthly summaries via **background job processing** — deployed to production on Google Play Store.

Consultancy Management System | *Django, PostgreSQL, React, JWT* [Live Demo](#) ↗

- Engineered a **multi-tenant workflow platform** replacing a manual process with a full-stack system supporting visa tracking, document management, and structured consultant-client communication.
- Implemented JWT authentication with **role-based access control** (admin / consultant / client) and case lifecycle modelled as a **state machine** — deployed to production with end-to-end security.

Engineering & System Design Competencies

- API Design & Versioning
- DB Indexing & Query Optimization
- WebSocket Architecture
- JWT & Role-Based Auth
- Zero-Downtime Deployments
- Redis Caching Strategies
- Async Queues & Background Jobs
- Microservice Communication
- Rate Limiting
- Observability & Monitoring
- Horizontal Scalability
- Stateless Service Design
- Multi-Tenant Systems
- CI/CD Pipelines
- Cloud Infra (AWS / DO)

Education

Bachelor of Technology in Computer Science & Engineering

Lovely Professional University

2020 – 2024

Senior Secondary Education (+2 Science)

Om National Academy

2017 – 2020