Deepanshu Mishra

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Summary

Software Engineer with 2+ years of experience designing and scaling high-throughput APIs and distributed systems using Python, FastAPI, Kafka, and AWS. Proven track record of reducing latency by up to 96%, processing 100K+ daily events, and building reliable data pipelines and real-time systems. Strong focus on system performance, scalability, and backend architecture.

Education

Birla Institute of Technology and Science, Pilani **Nov 2020 – Jun 2024**
Bachelor of Engineering: Computer Science

Skills

Languages: Python, C++, Javascript, SQL, HTML
Backend & Systems: FastAPI, Spring Boot, Kafka, Redis, Elasticsearch
Cloud & DevOps: AWS (EC2, ECS, S3, SQS), Docker
Databases: PostgreSQL, MongoDB, MySQL
Core Concepts: Distributed Systems, API Design, System Design, Caching, Data Structures and Algorithms

Work Experience

TATA 1MG **Jul 2024 – Present**
Software Development Engineer I *Gurugram, Haryana*

- Designed a scalable payout calculation system for 3000+ riders across India, improving earnings transparency and reducing rider attrition through automated onboarding and payout workflows.
- Re-architected order status service to support batch processing (60 orders/request), reducing API latency by **96%** (48s → 2s) using bulk DB operations and async task queues.
- Built real-time analytics pipeline using **Kafka + Elasticsearch**, processing **100K+ daily events** to power operational dashboards and decision-making.
- Designed Redis-based caching layer for high-frequency notification APIs, reducing latency by **68%** while maintaining data consistency via cache invalidation strategies.
- Contributed to backend service design decisions including API contract design, data modeling, and asynchronous processing strategies for high-throughput systems.
- Collaborated in system design and code reviews, contributing to scalable service architecture and improving reliability of backend systems.

HERE Technologies **Jan 2024 – Jun 2024**
Software Engineer Intern *Mumbai, Maharashtra*

- Researched point cloud processing techniques and assessed 3D labeling tools, delivering a comprehensive report.
- Adapted Meta's **Segment Anything Model** for 3D image processing, extending its capabilities beyond 2D analysis.
- Developed and deployed REST APIs with **Flask** on **AWS EC2** to leverage cloud infrastructure.
- **Tech Stack**: Python, Pytorch, Segment Anything Model, Flask, Amazon EC2, ECS.

MEL System and Services **May 2022 – July 2022**
Software Engineer Intern *Chennai, Tamil Nadu*

- Architected a scalable web application using **Python/Django** with **MongoDB** as the distributed database.
- Improved response time by **35%** by optimizing query patterns and reducing I/O overhead in critical endpoints.
- Developed interactive dashboards for real-time monitoring, enabling visibility into over **8+ performance metrics**.
- **Tech Stack**: Python, Django, MongoDB, JavaScript, HTML, CSS.

Projects

Parallel Knight's Tour Solver | *Operating Systems, C/C++* **Sep 2022 - Oct 2022**

- Designed a **parallel backtracking solver** using **process-level (fork)** and **thread-level (pthreads)** concurrency to explore the Knight's Tour state space efficiently.
- Implemented **inter-process communication (pipes/shared memory)** and synchronization primitives to coordinate distributed workers and aggregate results.
- Used **semaphores and mutexes** to enforce thread safety, preventing race conditions in shared state traversal.
- Engineered a **turnstile-based synchronization mechanism** to control execution ordering and avoid deadlocks.
- Optimized parallel execution strategy to reduce redundant computations and improve exploration efficiency under high branching factor.