Monu Kumar

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EDUCATION

University of Illinois — Chicago, IL
Master of Science, Computer Science (GPA: 3.86/4) — *Aug. 2024 – May 2026 (Expected)*

National Institute of Technology — Raipur, India
Bachelor of Technology, Information Technology (GPA: 8.63/10) — *Aug. 2017 – May 2021*

EXPERIENCE

Senior Software Engineer — Apr 2022 – Jul 2024
Info Edge (Jeevansathi) — *Noida, IN*

- Architected scalable distributed microservices powering a multi-platform subscription system for **5M+ users**, driving a **35% revenue growth** and **42% throughput improvement**.
- Designed fault-tolerant recurring billing integrations with Apple and BillDesk using **JWT-based** authentication and asymmetric key exchange, driving **2× growth** in premium subscriptions within a quarter.
- Built low-latency personalization and ranking services using Collaborative Filtering and XGBoost, processing **2M+ prospects daily**, increasing premium conversions by **8%** and sales efficiency by **15%**.
- Established production observability and alerting **(Prometheus, Grafana)**, reducing **MTTR by 60%** and sustaining **99.99% uptime** while supporting on-call incident response for high-priority issues.
- Mentored 3 junior engineers and led backend microservices, implementing **Test-Driven Development (TDD)** with **unit/integration tests** and documentation to ensure high system reliability.

Software Engineer — Jun 2021 – Mar 2022
Info Edge (Jeevansathi) — *Noida, IN*

- Migrated from **Solr to Elasticsearch**, enabling near-real-time indexing at **6M+ reads/day (1000+ TPS)**.
- Reduced **P99 search latency from 6000+ ms to 600 ms** via shard reconfiguration and query optimization.
- Built an event-driven notification service (Kafka, APNS, FCM) for real-time and scheduled alerts with Azkaban.
- Designed **RESTful APIs** and a React-based full-stack CRM platform serving **200K+ DAUs**, enabling scalable subscription lifecycle and payment management workflows.
- Re-architected order workflow from PHP monolith to Spring Boot microservices using RabbitMQ and Redis.

Graduate Teaching Assistant — Jun 2025 – Present
University of Illinois — *Chicago, IL*

- Designed hands-on labs in PySpark and Apache Airflow, enabling distributed, fault-tolerant ETL data pipelines.
- Led applied engineering projects integrating AWS RDS, Python web scraping, and LLM-based ingestion workflows processing **10K+ records per batch**.

PROJECTS

AI over SMS – Distributed AI Gateway [GitHub] — Aug 2025 – Jan 2026

- Designed an event-driven system enabling offline AI access via SMS using Spring Boot, Kafka, Redis, and Twilio.
- Implemented **stateful conversation handling** with Redis-backed caching and asynchronous Kafka pipelines, enabling scalable cross-language (Java/Python) AI processing and reducing redundant LLM calls.

TacoDB – Relational Database Engine [GitHub] — Jan 2025 – April 2025

- Engineered a relational database engine implementing **B-Tree indexing**, clock-based buffer pool management, and modular storage architecture for efficient disk I/O.
- Implemented query operators including Merge Join, Index Loop Join, Aggregation, and External Sort using modular **object-oriented design**, validating multi-million tuple workloads with GoogleTest and gdb.

LLM Inference Platform – Hybrid Model Orchestration [GitHub] [YT] — Aug 2024 – Dec 2024

- Built a hybrid LLM orchestration layer integrating local (Ollama) and managed (AWS Bedrock) models via **gRPC APIs** with persistent multi-turn conversation storage.
- Containerized with Docker and deployed on EC2 (ECR, S3, Lambda), benchmarking latency and cost tradeoffs.

TECHNICAL SKILLS

Languages: C++, Java, Python, Scala, Go, SQL, JavaScript
Frameworks & APIs: Spring Boot, Akka, React, RESTful APIs, gRPC, Kafka, RabbitMQ
Data & Search: MySQL, PostgreSQL, MongoDB, Cassandra, Aerospike, Redis, Elasticsearch, Solr
Cloud & Infra: AWS (EC2, S3, RDS, Lambda, API Gateway), Docker, Kubernetes, Linux, Spark, Hadoop, Airflow
Observability & SDLC: Prometheus, Grafana, CI/CD, Git, Agile (Scrum), TDD, Jira, JUnit, Mockito, GoogleTest
Computer Science Fundamentals: Data Structures, Algorithms, DBMS, Operating Systems, Distributed Systems