

Abhinav Tyagi

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PROFESSIONAL SUMMARY

Backend and Search Engineer with 5+ years of experience building **scalable distributed systems, search platforms**, and high-performance backend services across e-commerce, hospitality, and fintech domains. Specialized in **Elasticsearch relevance engineering, semantic search, query understanding, microservices**, and backend optimization. Hands-on experience in **Learning-to-Rank (LTR), Vector Search, NER-driven query understanding, semantic product tagging**, autosuggestion systems, and search monetization using **Java, Spring Boot, Elasticsearch, Kafka, Redis, and MongoDB**.

EXPERIENCE

Majid Al Futtaim

Software Engineer II

Apr. 2025 – Present

Gurugram, India

- Led architecture and backend ownership of the **customer-facing Search Platform** handling **25K+ RPM**, orchestrating low-latency Elasticsearch querying, real-time stock validation, pricing computation, marketplace-retail aggregation, voucher applicability, and geo/store-aware product availability.
- Built an **LLM-powered analytics agent** to identify and generate reports for **low-performing search queries** by analyzing topproducts and query behavior, relevance improvements to enhance **CTR** and **Add-to-Cart (ATC)** rates.
- Designed and developed distributed ingestion pipelines for **Stock, Pricing, Marketplace Offers, Promotions, and Elasticsearch Sync** using **Apache Kafka, Azure Event Hub, MongoDB, Redis, and Elasticsearch**, enabling near-real-time indexing and commerce data propagation for a catalog of nearly **10M products**.
- Developed intelligent **semantic product-tagging pipelines** and an **LLM-based tagging system** to improve **search relevance**, query-aware boosting, and intent-based product discovery for queries such as dairy-free, lactose-free, and vegan.
- Built a **Learning-to-Rank (LTR) framework** using **XGBoost/XGBRanker** with lexical, semantic, category, brand, popularity, CTR, ATCR, and order-rate signals integrated into **Elasticsearch rescore pipelines**.
- Led implementation of **hybrid lexical + Two-Tower Vector Search** and analytics-driven query tuning for broad, ambiguous, and long-tail queries.
- Integrated **NER-based query understanding** to detect product quantities, sizes, and units directly from queries, improving filtering, ranking, and recommendations.
- Designed scalable **automated filter-integration frameworks** and a **Dynamic Taxonomy & Filters Platform** with runtime-configurable PLP/SLP filters and admin tooling for category-aware merchandising without redeployments.
- Built **cross-CTA search functionality** to dynamically surface faster-delivery inventory options and improve conversion through delivery-aware ranking strategies.
- Contributed to **search monetization systems**, advertisement relevance optimization, experimentation pipelines, **GrowthBook-based feature rollouts**, and recommendation relevance tuning.

FabHotels / TravelPlus

Senior Backend Engineer

May 2023 – May 2025

Gurugram, India

- Led migration of large-scale **Elasticsearch infrastructure from version 6.x to 8.x** with minimal external dependency and zero major production disruption.
- Optimized **hotel search architecture** and **Redis-backed caching strategies**, reducing average search latency by nearly **40–50%**.
- Designed and developed **autosuggestion systems** from scratch, reducing dependency on external providers and improving **booking conversion metrics**.
- Implemented backend enhancements for **search result pages (SRP), property detail pages (PDP)**, homepage discovery systems, and mobile/web search experiences.
- Enhanced **review-rating algorithms** and ranking systems to improve recommendation quality and customer engagement.

- Integrated **hospitality channel-manager systems** enabling seamless B2B synchronization and operational scalability.
- Mentored **junior engineers** and conducted onboarding, technical KT sessions, and production debugging support.

Moglix / Credlix

Oct. 2021 – May 2023

Backend Engineer

Noida, India

- Contributed to development of **fintech platforms** enabling invoice discounting and channel financing services.
- Designed and developed **microservices** supporting WhatsApp notifications, document management, reporting systems, and **Elasticsearch-powered analytics dashboards**.
- Built a **lead-tracking Kanban platform** from scratch with analytics capabilities for operational visibility and performance tracking.
- Developed centralized **middleware systems for third-party integrations** with robust **rate-limiting** and fault-tolerant API orchestration.
- Worked extensively with **AWS S3, SQS, MongoDB aggregations, schedulers, asynchronous processing, and messaging systems**.

Xoriant Solutions Pvt. Ltd.

Aug. 2020 – Sept. 2021

Associate Software Engineer

Pune, India

- Worked as a Full Stack Developer using Java, Spring Boot, React, and Angular.
- Developed **integration frameworks** connecting **Dynatrace with Grafana through InfluxDB** for enterprise observability solutions.
- Worked on **OpenTelemetry-based instrumentation and monitoring** for Java applications.
- Performed **memory profiling and memory leak analysis** for production systems hosted on AWS infrastructure.
- Contributed to **API mocking frameworks** and frontend feature enhancements.

SKILLS

Languages: Java, Python, JavaScript, Node.js

Backend Frameworks: Spring Boot, Express.js

Search Technologies: Elasticsearch, Semantic Search, Vector Search, Learning-to-Rank (LTR), Query Understanding, Ranking Optimization, Autosuggestion Systems, Search Monetization

Databases & Caching: Redis, MongoDB, MySQL

Cloud & DevOps: AWS, GCP, Docker, Kubernetes, Jenkins, CI/CD, Git, Maven

Architecture & Engineering: Microservices, Distributed Systems, REST APIs, Event-Driven Systems, Kafka, Performance Optimization, Agile Development

EDUCATION

ABES Engineering College (AKTU)

2016 – 2020

Computer Science and Engineering - **CGPA: 8.03**

Ghaziabad, India

Sarswati Bal Mandir CBSE

2015 – 2016

Intermediate - **Percentage: 72%**

Hapur, India

Sarswati Bal Mandir CBSE

2014 – 2015

High School - **CGPA: 9.2**

India

PUBLICATIONS

- **Algorithmic Analysis of Automatic Attendance System using Facial Recognition: A Revolutionary Approach for Future Education**
<https://www.igi-global.com/article/algorithmic-analysis-of-automatic-attendance-system-using-facial-recognition/286688>
- **Knowledge Extraction in Digit Recognition Using MNIST Dataset: Evolution in Handwriting Analysis**
<https://www.igi-global.com/gateway/article/288321>