

# RITIK BANSAL

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## SUMMARY

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**Backend & AI Engineer** specializing in **Distributed Systems and LLM Orchestration**. Experienced in building event-driven microservices, multi-tenant platforms, and automated extraction pipelines using **FastAPI, RabbitMQ, and AWS**. **Codeforces Specialist** with a strong foundation in **System Design** and **Data Structures**.

## EXPERIENCE

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**Backend Developer** *CollegeDekho* | Gurugram, Haryana **05/2025 – present**  
**Fono – Voice Intelligence & Call Analytics Platform**

- Built and scaled backend services for Fono, a multi-tenant voice intelligence platform processing **50K+ call recordings with 500+ daily active users**.
- Built an **event-driven distributed processing pipeline** using **RabbitMQ workers and AWS S3** to ingest, process, and analyze call recordings.
- Implemented **AI-powered transcription, speaker diarization, and insight extraction pipelines**, converting raw audio into structured analytics.
- Architected **multi-tenant CRM integrations** supporting multiple lead sources and dialer systems using **Adapter, Factory, and Strategy** design patterns.

### Web Monitoring & Information Extraction Platform

- Built a **web monitoring system** that continuously scrapes official exam and institute websites and detects updates using **snapshot hashing and content diffing**.
- Implemented **LLM-powered extraction pipelines (Google Gemini & Azure OpenAI)** to convert unstructured HTML/PDF updates into structured database records.
- Designed a **data pipeline using FastAPI, PostgreSQL, and AWS S3** to store versioned snapshots and structured updates.

**Freelance AI Trainer** *ShipD.ai* | Remote **10/2024 – 03/2025**

- Authored 200+ complex **DSA and System Design** problems to benchmark LLM code reasoning and debugging capabilities.
- Designed rigorous test suites and edge-case scenarios to evaluate model-generated solution accuracy.

## SKILLS

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- **Languages:** C++, Python, SQL (PostgreSQL, MySQL, SQLite)
- **Backend:** FastAPI, Django, REST APIs, Microservices, RabbitMQ, Celery, Redis
- **AI & Data:** LLM Orchestration (Groq, Gemini, Azure OpenAI), Structured Extraction (Pydantic v2), Pandas
- **DevOps & Tools:** AWS (EC2, S3, RDS), Docker, Nginx, Linux, Git, Playwright, BeautifulSoup
- **Core Concepts:** DSA, System Design, OOP, Distributed Systems, Event-Driven Architecture, Design Patterns

## PERSONAL PROJECTS

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### LeadScout — AI-Powered Business Intelligence Platform

- Architected full-stack platform (**FastAPI + React + Celery + PostgreSQL**) that **reduced lead research time from hours to minutes** for freelancers, agencies and founders; autonomously discovers and scores 200+ high-potential businesses across Instagram, Google Maps, and YouTube using **AI-powered analysis** (Groq LLM) and intelligent **algorithms**; supports real-time search, filtering by growth metrics, and **JWT-authenticated email verified user accounts** for personalized lead discovery.
- Engineered **asynchronous job processing (Celery + Redis)** handling 10+ concurrent searches with intelligent deduplication, reducing API calls by 60%; includes real-time progress tracking and automated token budget management for cost optimization.
- Built **user account system** enabling users to save/bookmark leads, track outreach status (new/contacted/closed), add internal notes, and export lead lists to CSV; **automated weekly data refreshes** across 25 industry niches ensuring continuous market intelligence updates with persistent, personalized lead management.
- Deployed production backend on **AWS EC2 (t2.small instance)** with **PostgreSQL on Amazon RDS**; implemented intelligent **caching** reducing database load by 30% and achieving sub-100ms query response times.

## EDUCATION

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- **NIT Jamshedpur** | MCA | **8.66 CGPA** 2022 – 2025
- **Shivaji College, University of Delhi** | BSc. (Hons.) Mathematics | **9.49 CGPA** 2019 – 2022
- **IIT Madras** | Foundational Level in Programming and Data Science | **9.10 CGPA** 2020 – 2021

## ACHIEVEMENTS

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- **Competitive Programming:** **Codeforces Specialist** (Max 1410), **LeetCode** (Max 1819), **ICPC 2022** Participant.
- **Problem Solving:** Solved **900+** problems across **Codeforces, LeetCode, and GFG** focusing on DSA and Algorithms.
- **GATE (Graduate Aptitude Test in Engineering)** Qualified in **Data Science and AI: All India Rank 623**