

# Arman Kazmi

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## Summary

Founding engineer with ~4 years of experience building data platforms, scientific tools, and applied AI systems. My work spans system architecture, technical product development, prototyping, and production delivery, primarily in biotech and drug discovery.

## Experience

| Founding Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SoulBio   | Feb 2024 - Present  |
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| <ul style="list-style-type: none"><li><b>Defined SoulBio's Scientific AI Enablement offering from the ground up</b>, including the target problems, core capabilities, knowledge/workflow architecture, and evaluation approach.</li><li><b>Designed a biotech context graph</b> connecting scientific knowledge with organizational decisions and documents, and built a working proof of concept for customer discussions.</li><li><b>Designed and deployed drug targetability and selectivity models</b>, reducing hypothesis-validation time by ~40% for oncology teams through production-grade inference pipelines.</li><li><b>Architected scalable ingestion and computation workflows for bulk and single-cell RNA-seq</b> across a ~1 TB PostgreSQL system, reducing workloads from nearly a day to a few hours (~10x improvement for key workflows).</li><li><b>Co-developed LLM-powered natural-language search across 250K+ GEO datasets</b> using embeddings and retrieval pipelines.</li><li><b>Built agentic bioinformatics workflows with LangGraph</b> to automate multi-step RNA-seq analysis while improving reproducibility and reducing repetitive manual work.</li><li><b>Developed and deployed scientific web applications and APIs</b> using FastAPI and JavaScript for RNA-seq analysis, exploration, and visualization.</li><li><b>Designed and maintained AWS infrastructure and CI/CD workflows</b> across EC2, ECS, RDS, Batch, and GitHub Actions, with responsibility for reliability, scalability, deployment, and cost trade-offs.</li><li><b>Wrote product requirements, technical specifications, blogs, and whitepapers</b> covering scientific platforms, system design, and new client initiatives.</li></ul> |           |                     |
| Data Analyst                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Elucidata | May 2022 - Dec 2023 |
| <ul style="list-style-type: none"><li>Implemented <b>NLP pipelines for large-scale biomedical data extraction</b> from GEO and PubMed, improving information-retrieval accuracy by ~20%.</li><li>Co-developed <b>multi-task learning models for biomedical NER</b>, achieving ~3x faster inference in production settings.</li><li>Fine-tuned a <b>proprietary 3B-parameter language model</b> using PEFT, improving performance by 40% on biomedical curation tasks.</li><li>Designed an <b>LLM-assisted ontology-normalization system</b> that achieved ~96% accuracy and enabled scalable data-standardization workflows.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |                     |

## Selected Projects

### TeachersLab · teacherslab.in

Built a full-stack product that gives Indian teachers curriculum-aware AI tools for lesson plans, worksheets, and presentations, with authentication, subscriptions, logging, and production deployment.

### India Over Time · indiaovertime.com

Built a public-data platform that brings scattered Indian economic, health, governance, and social indicators into one place for transparent comparison over time.

## Education

### BS-MS in Electrical Engineering & Computer Science

Indian Institute of Science Education & Research

Aug 2017 - Apr 2022

Bhopal, MP

- MS Thesis:** Identifying Manipulative Writing Style in Shorter Texts (2021-2022)

## Skills

**Programming:** Python, SQL, C, JavaScript/TypeScript

**ML & AI:** PyTorch, scikit-learn, NLP, LLMs, fine-tuning (PEFT), embeddings, RAG, LangChain, LangGraph

**Backend & systems:** FastAPI, Django, REST APIs, system design, distributed systems (basic)

**Data engineering:** PostgreSQL, data pipelines, ETL, large-scale data processing

**Cloud & DevOps:** AWS (EC2, ECS, S3, IAM, RDS, VPC, Lambda, Batch, CloudWatch), Google Cloud (Compute Engine, IAM, Vertex AI), Docker, CI/CD (GitHub Actions), Linux

## Publications

### DeepGEO-Search: LLM-Powered Schemaless Retrieval for Biomedical Data Discovery

D. Singh, S. Jatav, S. Lathwal, A. Kazmi, S. Luthra

bioRxiv, 2025

### Reducing Inference Time of Biomedical NER Tasks Using Multi-Task Learning

M. Chaudhry, A. Kazmi, S. Jatav, A. Verma, V. Samal, K. Paul, A. Modi

ICON, 2022

### Beyond the Hype: The Complexity of Automated Cell Type Annotations with GPT-4

A. Kazmi, D. Singh, S. Jatav, S. Luthra

bioRxiv, 2025

### Linguistically Motivated Features for Classifying Shorter Text into Fiction and Non-Fiction Genre

A. Kazmi, S. Ranjan, A. Sharma, R. Rajkumar

COLING, 2022