Mohit Singh Sinsniwal

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My experience combines a strong foundation in applied mathematics with end-to-end development of AI and data systems. I excel at the intersection of theory and execution, moving fluidly from algorithm design to deployment.

EDUCATION

Chennai Mathematical Institute **2024 – 2026**
*Master of Science in **Data Science** | CPI : 8.71* *Chennai*

Indian Institute of Technology, Madras **2021 – 2024**
*Bachelors of Science in **Data Science** | CPI : 7.47* *Chennai*

PROFESSIONAL EXPERIENCE

Summer Intern - AI Natives (LTIMindtree, Pune) **May 2025 - Aug 2025**

- Built **LLM** pipelines using **Langchain**, evaluated model bias and **RAG** metrics with **Trulens** & **Deepeval**.
- Achieved an **86%** reduction in data latency (3 min to 25s) by engineering a scalable **Airflow** platform on AKS kubernetes services, integrating **Kafka** for real-time streams and **ArangoDB** for complex data processing.
- Architected a decoupled multi-agent microservice using custom **A2A** and **MCP** servers. This design allows new agents from any framework to be integrated with **zero client-side code changes**, reducing overhead.
- Drove **3 enterprise-level POCs** across agentic AI, presenting demos to an audience of **200+ engineers**.

RESEARCH EXPERIENCE

Direct Tall & Skinny QR Factorization in MapReduce | **Guide: Prof. Kavita Sutar** **2024**

- Used **MapReduce** approach with **Dask** to perform scalable, out-of-core factorization on massive matrices.
- Benchmarked 4 QR methods, proving **Cholesky QR**'s instability & failure on ill-conditioned matrices.
- Verified **Direct TSQR**'s high stability (errors 10^{-16}), matching Householder QR's accuracy using **Dask**.
- Validated the Austin R. Benson paper via error & orthogonality analysis, proving **Direct TSQR**'s stability.

PROJECTS

PathPilot: AI-Powered Course Recommendation System | IIT Madras **2023**

A full-stack application that provides students with personalized course recommendations via ML-driven backend.

- Engineered a hybrid recommender using **scikit-learn** & **TensorFlow** for personalized course predictions.
- Architected a scalable **Django REST** backend to serve model prediction APIs, containerized with **Docker**.
- Implemented a **Vue.js** frontend using full SDLC principles, including unit & stress testing for robustness.

Real-Time Climate Pattern Classification | Self **2022**

I Developed a real-time machine learning model to classify streaming data from World Data Centre

- Implemented an **Adaptive Hoeffding Tree**, an incremental model designed for classifying high-velocity data
- Engineered system to handle **concept drift** in climate time-series by learning from sequential data chunks.

TECHNICAL SKILLS

Languages/Frameworks: Python, SQL, R, C, Java, JavaScript, Django REST, React, Flask, FastMCP, Vuejs
Machine Learning: PyTorch, Keras, NumPy, Pandas, Polars, Scikit-Learn, OpenCV, SciPy, PySpark, Parquet
Generative AI: Langchain, LangGraph, Autogen, OpenAI, Hugging Face, Trulens, Deepeval, Ollama, Pinecone
Cloud & DevOps: AWS, GCP, Azure, Docker, Kubernetes, Apache Airflow, Kafka, Terraform, Jenkins, Git
Databases Vis: NoSQL (MongoDB), Postgres, VectorDB, BigQuery, PowerBI, Tableau, Matplotlib, Seaborn

MATHEMATICS SCHOLASTIC ACHIEVEMENT

- Secured **All India Rank 25** in the **Indian Statistical Institute** (ISI) Bachelor's in Math Entrance Examination
- Secured **95%** in Class 12 Board Exam Mathematics, preceded by perfect scores **100%** in Class 11 & 10th

FREELANCE: AI/ML CONSULTANT

- Full-stack **MVP microservice** architecture for early startups; delivering robust solutions in 50-day cycles.
- Consulted 5+ startup founders & CEOs, specializing in debugging & translating business needs to code.
- Mentored 200+ learners globally in advanced AI programming, earning a 98% positive rating from 53 reviews.