

Urmila Saini

Generative AI Engineer | RAG & Agentic Systems

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Portfolio — [LinkedIn](#) — [GitHub](#) — [Hugging Face](#)

Experience

Data Science Intern — Climate Reservations Observatory (CRO) Sep 2025 – Present

- Built predictive analytics pipelines in Python and SQL to forecast climate-risk indicators from environmental datasets, applying machine learning and deep learning models.
- Owned the full pipeline from preprocessing and feature engineering through experimentation and evaluation, comparing multiple model architectures to select the strongest performer.
- Translated forecasting outputs into actionable climate-risk insights used to support decision-making for the team.

Teaching Assistant — IIIT Lucknow 2025 – Present

- Mentor students one-on-one and in groups on Machine Learning, Deep Learning, Python, and Data Science coursework, resolving conceptual and implementation doubts.

Projects

Saarthi AI — Agentic Commute Intelligence Platform [GitHub](#) — [Live Demo](#)

- Built an agentic platform that estimates lateness risk and recommends optimal departure times by simulating commutes against live traffic, weather, local events, and route-risk signals.
- Designed multi-agent workflows orchestrated via Model Context Protocol (MCP), integrating real-time external APIs with MongoDB Atlas for persistent state and history.
- Shipped an explainable risk score with a "why" breakdown and departure-vs-arrival comparison, deployed live on Hugging Face Spaces.

SmartNotes AI — Handwritten Notes RAG Assistant [GitHub](#) — [Live Demo](#)

- Built a RAG assistant that turns photographed handwritten notes into a searchable, queryable knowledge base using OCR, embeddings, and semantic retrieval.
- Engineered the document ingestion pipeline—chunking, indexing, and vector search—to keep retrieval grounded and contextually accurate.
- Enabled question answering, summarization, and study-material generation directly from handwritten content, deployed live on Hugging Face Spaces.

MediSwap — Semantic Medicine Recommendation System [GitHub](#) — [Live Demo](#)

- Built a medicine recommendation platform that surfaces composition-based alternatives, combining fuzzy string matching with vector similarity over BGE embeddings.
- Architected the retrieval layer on FastAPI, SQLite, RapidFuzz, and Qdrant to balance fast fuzzy lookup with semantic accuracy.
- Designed the matching logic to recommend safe, composition-equivalent alternatives, deployed live on Hugging Face Spaces.

Certifications

- Anthropic — Model Context Protocol (MCP): Advanced Topics
- LangChain Academy — Introduction to LangGraph (Python)
- Google Cloud Skills Boost — Introduction to Generative AI

Technical Skills

Languages: Python, SQL, HTML, CSS, JavaScript

GenAI & LLM Systems: LangChain, LangGraph, LlamaIndex, Hugging Face Transformers, Prompt Engineering, Agentic AI, MCP

RAG & Retrieval: FAISS, ChromaDB, Embeddings, Semantic Search, Vector Databases, Retrieval-Augmented Generation

Deep Learning: PyTorch, CNN Architectures, Vision Transformers (ViT), EfficientNet, Transfer Learning

Backend & Deployment: FastAPI, REST APIs, Docker, Hugging Face Spaces

Tools: Git, GitHub, Jupyter Notebook, VS Code, Google Colab, Kaggle, Hugging Face Hub

Achievements

- Deployed 5+ AI and Generative AI applications on Hugging Face Spaces.
- Participated in Google Cloud Rapid Agent Hackathon.

Education

Indian Institute of Information Technology Lucknow 2025 – 2027

M.Sc. Data Science

Relevant Coursework: Machine Learning, Deep Learning, NLP, Generative AI

University of Rajasthan 2021 – 2024

B.Sc. Mathematics