

Naman Kumar

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Education

Indian Institute of Information Technology Raichur

Raichur, Karnataka

Bachelor of Technology in Computer Science and Engineering

May 2025

Relevant Coursework: Machine Learning, Deep Learning, NLP, Generative AI, Algorithm, Data Structures

Experience

Data Analyst Intern | DRDO

Jan 2025 - Apr 2025

- Enhanced over 100 **raw satellite images** using **noise filtering**, **contrast amplification**, and **anomaly detection**, improving visual clarity for downstream **defense-grade applications** across **geospatial** formats.
- Built a **custom anomaly classifier** using **morphological filters**, **outlier scoring**, and adaptive **threshold logic**, achieving 93% accuracy on synthetic minefield datasets under multi-channel controlled noise conditions.

Technical Skills

- Programming Languages:** Python, SQL (MySQL, PostgreSQL), R, C++
- Libraries & Frameworks:** scikit-learn, statsmodels, TensorFlow, PyTorch, Transformers, FAISS, Langchain
- Deployment & Tools:** Flask, Streamlit, Gradio, HugginggFace, Git
- Core Competencies:** Time Series Forecasting, LLM Integration, RAG Pipelines, Recommendation Systems

Projects

Behavioral Product Recommendation System Deployed App

- Developed a behavioral **recommendation engine** on 4M+ **Kaggle e-commerce events**, converting implicit user actions into numerical ratings and using time-aware features to enhance personalization and model robustness.
- Implemented a lightweight, production-ready **Flask API** serving **top 10 product recommendations** per user ID, achieving high **Precision** and **Recall** by optimizing a calibrated **SVD model** using **Grid Search** algorithm.

QuotientRAG Deployed App

- Devised a **Retrieval-Augmented Generation (RAG)** pipeline combining **fine-trained MiniLM embeddings**, **FAISS vector search** and preprocessing to retrieve relevant quotes from a **47,000+ Abirates entry corpus**.
- Executed an responsive **Streamlit app** that parses **natural language queries** into structured **JSON responses** – quote, author, tags, LLM summary—enhancing interpretability across **50+ user-facing prompt categories**.

ForecastForge Deployed App

- Engineered a **modular forecasting system** integrating **LSTM**, **Transformer**, **XGBoost**, and **Liquid Neural Networks** across **4 domains**, lowering the average **RMSE by 23%** compared to best-tuned standalone models.
- Deployed a interactive **Gradio app** with **4 Kaggle dataset selectors**, **5 model toggles**, and real-time **RMSE charts**, streamlining experimentation and accessibility for both **technical** and **non-technical** stakeholders.

Soft Skills

- Teamwork:** Collaborated closely with a **4-member research unit**, aligning individual preprocessing tasks and **anomaly classification modules** into a cohesive pipeline and enhancing team-level output consistency.
- Decision Making:** Chose Caruana's **Ensemble Selection** over 8 other ensemble methods after cross-validation, improving overall **forecasting accuracy by 12.6%** and enabling adaptive model inclusion across domains.
- Growth Signals:** Adapted to **ranking-based collaborative filtering** from similarity based models, boosting **Precision by 19%** in offline A/B tests — reflecting a shift towards a **metrics-first approach** going forward.
- Communication:** Refined clarity by **designing intuitive query-response formats** and **tuning LLM outputs** to align with diverse **audience tones**, resulting in a **35% rise in repeat queries** during live demos.