Ananya Verma

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Education

Indian Institute of Information Technology — Lucknow, Uttar Pradesh
Master of Technology in Computer Science (AI & Ml) — *Sep 2024 – July 2026*
- Cumulative GPA : **9.04/10.0**

University of Lucknow — Lucknow, Uttar Pradesh
Bachelor Of Technology in Computer Science — *Aug 2020 – Aug 2024*
- Cumulative GPA : **9.46/10.0**

Technical Skills

- **Programming Languages**: Python, C/C++
- **Machine Learning and Deep Learning**: Supervised and Unsupervised Learning, Regression, Classification, Neural Networks (CNN, RNN, LSTM, GANs, Transformer, ResNet, VGG, Inception, Autoencoders), Natural Language Processing (NLP), Computer Vision, Image Processing, TensorFlow, Scikit-Learn, PyTorch
- **Large Language Models (LLMs)**: Pretraining & Fine-tuning, Prompt Engineering, Attention Mechanisms, Transformers Architecture, Vector Databases (ChromaDB, Pinecone), Retrieval-Augmented Generation (RAG), Model Deployment (Hugging Face, OpenAI API, LangChain, LangGraph, LlamaIndex)
- **Data Science and Analytical Tools**: Data Cleaning and Preprocessing, Data Visualization (Matplotlib, Seaborn, Plotly), NumPy, Pandas, PostgreSQL , PySpark, Probability & Statistics, Hypothesis Testing
- **Software Development, MLOps, and Version Control**: Git, GitHub, Linux, MLflow, Airflow, Kubeflow, CI/CD Pipelines
- **Research and Writing Tools**: LaTeX, Research Writing

Research and Publications

LLM-Powered Context-Aware NPCs with Memory & Vision (Thesis)
- Integrated **LLMs with Computer Vision** to enable NPCs with **context retention, real-time adaptation, and vision-based interactions**.
- Developed multimodal processing for **scene understanding, object recognition, and memory-driven decision-making** in dynamic environments.

Comparative Analysis of Machine Learning Algorithms for Marine Animal Detection
- Compared RF, SVM, KNN, K-Means, and CNN for marine classification. CNN achieved **92% accuracy**, exceeding **2024 benchmark (91.94%)**.
- Applied **normalization, resizing, augmentation** for performance boost. **Published:** SSRN (Source).

Projects

SHL Assessment Recommendation Engine — **Web app: -** (*Link*)
- Scraped SHL's assessment catalog with Selenium. Built a RAG pipeline integrating LLM preprocessing with FAISS vector search to recommend SHL assessments from natural language queries.
- Deployed a dual-interface solution Streamlit UI and FastAPI POST API on cloud platforms, optimizing for skill-based retrieval.

NIST Database Information Extraction Framework — **Web app: -** (*Link*)
- Built an NLP-powered system using Hugging Face and spaCy to extract key cybersecurity entities (OS, attack vectors, prerequisites) from NIST's CVE records, leveraging the NVD API and web scraping for comprehensive data retrieval.
- Developed a Streamlit-based dashboard with real-time alerts, severity filters, and vulnerability dependency graphs (NetworkX + D3.js) to aid proactive cyber defense planning.

Kaggle Competition – Detect AI vs Human-Generated Images **Rank: 186th**

- Achieved top 186 rank in a global image classification challenge by building a pipeline for distinguishing AI-generated vs real images demonstrating expertise in image processing.

Beats and Books: Book-Based Music Recommender **GitHub: -** (*Link*)

- Developed an **AI-driven system** recommending music based on book preferences.
- Used **Flask, Scikit-learn, Pandas, NLTK, Matplotlib, HTML/CSS, JavaScript** for implementation.

Khwaab: AI-Based Dream Story Generator **GitHub: -** (*Link*)

- Built an **NLP-powered generator** using transformers to create coherent, creative dream stories.
- Utilized **GPT-2, Hugging Face, PyTorch, TensorFlow, Keras, NLTK, Flask** for implementation.

Academic Achievements

- **Qualified GATE Data Science and AI (2024 & 2025), GATE Computer Science (2024 & 2025), and CEED (2024),** demonstrating expertise in AI, ML, CS fundamentals, and design.
- **250**+ problems solved in Leetcode and GFG.