Aayush Kumar

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Education

Manipal University Jaipur **Aug 2022 – May 2026**
B.Tech in Computer & Communication Engineering Jaipur, Rajasthan
CGPA: 9.1/10

Narayana High School **Jun 2019 – May 2021**
Higher Secondary Education Visakhapatnam, Andhra Pradesh
Percentage: 86.9%

Delhi Public School, Dhanbad **Apr 2007 – Mar 2019**
Secondary Education Dhanbad, Jharkhand
Percentage: 93.2%

Technical Skills

- **Languages:** Python, C++, C, Java, JavaScript, HTML/CSS, SQL
- **Frameworks & Libraries:** NumPy, Pandas, Scikit-learn, TensorFlow, Keras, PyTorch, XGBoost, Matplotlib, Seaborn
- **AI/LLM & NLP:** LangChain, HuggingFace Transformers, FAISS, TextBlob, Tiktoken, OpenAI/Local LLM APIs
- **Tools & Platforms:** VS Code, Jupyter Notebook, PyCharm, Git, GitHub, LM Studio, Streamlit, Flask, ReportLab
- **Databases & OS:** MySQL, Linux, macOS

Experience

Tata Steel **May 2025 – Jul 2025**
Machine Learning Intern
- Developed a predictive maintenance system that reduced downtime risk by **15%** through early detection of blast furnace gas pipeline clogging.
- Processed and analyzed over **1M sensor readings**, engineering time-series features to enhance anomaly detection accuracy.
- Integrated ML models into the plant's real-time dashboard, enabling proactive alerts and reducing manual inspection workload by **30%**.

Projects

Reducing Blast Furnace Clogging | *Python, Scikit-learn, Pandas, Matplotlib* **May 2025**
- Designed a machine learning pipeline to predict and prevent gas pipeline clogging, improving maintenance scheduling efficiency by **20%**.
- Applied statistical trend analysis and hyperparameter tuning, increasing detection recall by **12%** over baseline.
- Delivered actionable insights for plant operators, leading to cost savings in unplanned shutdowns.

Parkinson's Disease Prediction | *Python, TensorFlow, Keras, Ensemble Learning* **Mar 2025**
- Implemented deep learning architectures (CNN, VGG16, ResNet50) to classify Parkinson's disease from handwriting and MRI images with **up to 97% accuracy**.
- Boosted performance by **4%** using ensemble averaging, validated on multi-modal datasets.
- Applied Grad-CAM to visualize model focus areas, improving interpretability for medical researchers.

Finance Summarizer (Local LLM + FAISS + Streamlit) | *Python, Streamlit, LangChain, FAISS* **Aug 2025**
- Built an AI-powered financial news tool that ingests URLs, **chunks & embeds** text with Sentence-Transformers + FAISS, and generates concise summaries using a **local 20B LLM via LM Studio** (no API cost).
- Implemented **sentiment analysis** (Positive/Neutral/Negative) and an **interactive Streamlit dashboard** with collapsible cards, keyword search, and sentiment filters to surface insights faster.
- Added **Retrieval-Augmented QA** (LangChain) over the vector index to answer questions with cited sources.
- Enabled one-click export of **individual or combined summaries** to TXT/PDF and used session state to persist results across interactions for a smooth UX.

Achievements & Publications

Dean's List Award **2022 – 2026**
Manipal University Jaipur
- Awarded for achieving an SGPA above 9.0 in five out of six semesters.

AI-Driven Parkinson's Disease Detection Using Machine Learning **2025**
FICTA-2025, London
- Published research on CNN, VGG16, and ResNet50 architectures with ensemble methods for Parkinson's prediction, receiving positive peer reviews.