Harshil Handoo

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Education

IIIT-DELHI   **Expected Graduation: 2026**
Bachelor of Technology in Computer Science and Applied Mathematics

Rosary Senior Secondary School, Delhi   **2020–2022**
CBSE, Class XII — PCM + Computer Science   **Percentage: 90.6%**

Relevant Coursework: Machine Learning, Statistics, Data Structures, OS, Algorithms, DBMS, OOPs

Skills

Languages: Java, Python, C/C++, SQL, JavaScript, HTML/CSS

Software: AWS, Flask, TensorFlow, PyTorch, Docker, Git, GCP, Kubernetes, NumPy, Matplotlib.

Experience

Deep Learning Researcher   **March 2025 - present**
IIITD & AIIMS-Delhi
- Developed a multi-modal CNS tumor classification framework integrating custom **Vision Transformers (ViT)** and **BioBERT** and **LSTM**, achieving a **35% improvement in diagnostic accuracy** on limited datasets.
- Implemented **CLIP**-style contrastive learning to align histopathological images with clinical metadata, enhancing tumor subtype separation by **30%** in the embedding space.

Software Intern   **July 2024 – Aug 2024**
Nexus Info
- Analyzed datasets with **50,000+** entries using Python (Pandas, NumPy) and SQL, reducing query processing time by **20%** and enabling data-driven strategic insights.
- Designed, trained, and optimized 7+ machine learning models using TensorFlow and PyTorch, achieving a 30% performance boost and maintaining precision and **recall rates** above **95%**.

Projects

Chat with Multiple PDFs   June 2025 - Present
- Built a Streamlit chatbot using **LangChain** to parse and query PDFs; designed RAG pipeline with **OpenAI LLMs**, Hugging Face **embeddings**, and vector search.
- Integrated **custom UI/UX**, avatars, and conversational memory for seamless multi-document interaction.

Retinopathy Classification   Nov 2024 - Feb 2025
- Deployed **Xception, ResNet101, Swin, VGG16** on diabetic eye scans, reaching **94% accuracy**.
- Boosted F1-Score to 0.92 using **K-Fold validation**, **regularization**, and **augmentation**.
- Applied **CLAHE, Top-hat, Black-hat** image processing to enhance fine retinal vessel contrast in images on **APTOS 2019**.

Indian Banks Churn Prediction   Oct 2024 – Jan 2025
- Modeled **25k+ users** to predict churn with **Llama 3.1b, Groq, Vercel**; achieved **89% accuracy**.
- Automated email pipelines using feature engineering and **multi-LLM** hyperparameter tuning.

Optimized Traffic Detection via Deep Learning   Aug 2024 – Dec 2024
- Augmented 100+ images and applied **YOLOv12, SSD, Faster R-CNN** for a **30% boost** in accuracy.
- Extracted 15-frame sequences to improve training speed by **25%** using **video-to-frame pipeline**.

Activites

- Led a major hackathon at IIIT-Delhi, managing event stages and activities with prizes worth **150000+**.
- Third Position at **Maths Competition** @ LSR
- Represented Tryst, IIT-Delhi, promoting North India's largest fest with a footfall of over **45,000 people**.
- **SMP** [Student Mentorship Programme]-Guided group of 1st year students at IIITD
- **2nd** at Zonal Football Match
- Member of **School Cabinet**-Vice Captain and Prefect