# Vansh Dhar

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## Education

**Indian Institute Of Science** — Bengaluru, Karnataka
*Bachelor of Techonolgy in Mathematics and Computing* — *Oct. 2022 – Aug 2026*

**K.C International School** — Jammu, Jammu and Kashmir
*CBSE 12th Board, 93.66% Aggregate* — *2022*

**K.C International School** — Jammu, Jammu and Kashmir
*CBSE 10th Board, 94.6% Aggregate* — *2020*

## Skills

**Programming Languages**: Python, JavaScript, TypeScript, C++

**Frameworks**:PyTorch, Scikit-learn, LangChain, Github, Mlflow, Flask

**Developer Tools**: Google Colab, Postman, Docker

**Databases**: MongoDB, ChromaDB

## Projects

**Custom Transformer-Based Joke Generator** | *Python, PyTorch, Transformers* — **Code and Report**

- Implemented the core concepts from the **Attention Is All You Need** paper to build a custom decoder-only transformer architecture from scratch.
- Trained the custom model on a curated Reddit Joke Dataset to generate contextually relevant and humorous text outputs.
- Conducted experimentation, achieving significant performance differences between the custom model and GPT-2 in terms of joke quality, coherence, and creativity.

**Wildlife Conservation Monitoring System** | *Python, PyTorch, YOLOv11, Streamlit* — **Code**

- Developed a computer vision-based system for wildlife conservation monitoring.
- Utilized YOLOv11 for object detection and species identification.
- Integrated Groq API for leveraging LLMs to assist with conservation decision-making.
- Deployed the system using Streamlit-Cloud for real-time data visualization and analysis.

**RAG System for Textbook QA** | *Python, LangChain, ChromaDB, Generative AI* — **Code**

- Developed a **Retrieval-Augmented Generation (RAG)** system to accurately answer questions from a psychology textbook dataset.
- Built a robust pipeline using **LangChain** and **ChromaDB** for efficient document retrieval and LLM-based response generation.
- Experimented with **advanced RAG techniques** such as **Re-Ranking** and **HyDE** to improve retrieval precision and answer quality.

**Mars Rover Challenge** | *Python, OpenCV, YOLO* — **Code**

- Developed and fine-tuned a computer vision model for real-time detection and classification of geological features, such as rocks and surface anomalies.
- Utilized state-of-the-art YOLO (You Only Look Once) for object detection and OpenCV for image preprocessing, achieving high accuracy and optimized performance.