Prabhmehar Pal Singh Bedi

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Education

Thapar Institute of Engineering and Technology — Patiala, India
Bachelor of Engineering in Electronics and Computer; Minor in Conversational AI by NVIDIA — *2021 – 2025*
CGPA : 8.31

GRM School, Bareilly — India
CBSE; Senior Secondary (12th): ***93%*** *— Secondary (10th):* ***94.4%*** — *2019 – 2021*

Experience

Generative AI Intern — Jan. 2025 – Present
TerraByte Technologies — *Bengaluru, India*

- Implemented and customized LLMs through **prompt engineering** to build custom RAG code generation systems
- Developed advanced **RAG pipelines** using **LangChain** with ChromaDB and Cohere embeddings.
- Designed **evaluation framework using RAGAS** to measure context relevance, answer faithfulness, and semantic similarity, enabling data-driven optimization of RAG system performance.
- Engineered **short-term and long-term memory** systems for AI chat applications, enhancing context retention across conversations and improving response coherence in production environments.

Position of Responsibility

Finance Secretary | link — Jan. 2023 – Dec. 2024
Environment Conservation Club — *India*

- Directed the allocation of funds for club activities, ensuring optimal use of resources and **enhanced engagement** among over 200 members.
- Organized a society fair showcasing past projects and led the development of six projects involving 50+ students
- Enhanced financial acumen in **financial management** and effective collaboration with senior stakeholders.

Projects

Fracture Detection | *Git, Keras, TensorFlow, OpenCV* | link — Sept. 2024

- Developed a medical image analysis system using Convolutional Neural Networks (CNNs) to detect bone fractures in X-ray images, achieving 90% accuracy through model optimization and data augmentation
- Implemented a web interface, ensuring seamless interaction between the deep learning model and the user, with **optimized response time**.
- **Fine-tuned model hyperparameters** and deployed the application on a cloud platform to ensure real-time accessibility and efficient performance.

Real Time Motorcycle Helmet Rule Violation Detection | *ELC Thapar* — July 2024

- Developed and implemented a real-time motorcyclist helmet rule violation detection and warning system using **YOLO v8**, achieving **86.8% accuracy**.
- Integrated the model with **Jetson Nano** for **real-time detection**, enhancing road safety measures.
- Evaluated the effectiveness of two advanced neural network architectures, ResNet50 and VGG19.

Article Sentiment Analysis | *Tableau, BeautifulSoup* | link — Jan. 2024

- Engineered a sentiment analysis system to extract emotional tones from articles, with an **accuracy score of 86%**
- Implemented **web scraping** with Python (requests, BeautifulSoup) for data collection from diverse online sources
- Applied advanced NLP techniques (**tokenization, stopword removal**) using nltk for precise sentiment analysis.
- Developed an interactive visualization dashboard using **Tableau** to display sentiment analysis insights effectively.

Skills

Languages: Python, SQL, C/C++
Machine Learning/ AI: Natural Language Processing, Deep Learning, RAG, Prompt Engineering, Vector Databases
Frameworks and Libraries: PyTorch, TensorFlow, Keras, LangChain, Hugging Face, scikit-learn, Pandas, Matplotlib
Tools and Platforms: Git, VS Code, Jupyter, SQL Workbench, MS Excel
Soft Skills: Problem Solving, Team Collaboration, Technical Documentation, Project Management, Communication