Mutyalapati Akhil Kumar

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Professional Summary

Aspiring Machine Learning Engineer with strong knowledge of Python, SQL, and foundational machine learning algorithms. Completed academic projects in deep learning, natural language processing (NLP), and predictive modeling. Quick learner passionate about applying AI/ML techniques to solve real-world problems and contribute effectively in a dynamic internship setting.

Technical Skills

Languages: Python, SQL, C++
ML/AI: Supervised & Unsupervised Learning, CNNs, RNNs, LSTMs, Transformers, NLP
Libraries: TensorFlow, Keras, Scikit-learn, Pandas, NumPy
Deployment/Tools: FastAPI, Streamlit, Render, Git, LangChain, Cohere, HuggingFace, FAISS
Visualization: Matplotlib, Seaborn
Soft Skills: Analytical Thinking, Teamwork, Communication

Projects

PDF Question-Answering Chatbot *May 2025 – June 2025* `[GitHub]`

- Developed a Retrieval-Augmented Generation (RAG) chatbot for answering queries from PDFs, significantly reducing manual reading time.
- Implemented FAISS with HuggingFace embeddings for fast, semantic document search.
- Built a Streamlit UI supporting PDF upload and real-time streaming responses.
- Deployed a secure, scalable demo with API key management.

Traffic Sign Recognition System using Deep Learning *Apr 2025 – May 2025* `[GitHub]`

- Created a real-time traffic sign classification system using convolutional neural networks trained on the GTSRB dataset, achieving 98.7% test accuracy, outperforming many baseline models.
- Enhanced model robustness through advanced data augmentation, dropout regularization, and adaptive learning rate scheduling.
- Integrated OpenCV for live video feed processing to detect and classify traffic signs with bounding boxes and labels, enabling potential use in driver assistance systems.

Brain Tumor Detection using Deep Learning *Nov 2024 – Dec 2024* `[GitHub]`

- Designed and trained a CNN model on 1,000+ MRI brain scans to detect tumors, achieving 85.81% accuracy, showing promise for early diagnosis assistance.
- Applied image preprocessing and augmentation techniques to improve model generalization and performance on limited data.
- Visualized training progress and performance metrics including accuracy, loss trends, and confusion matrices using Matplotlib, facilitating model interpretability.

Education

B.Tech in Computer Science *Sep 2023 – May 2027*
Vellore Institute of Technology, Amaravati, India
CGPA: 8.1 / 10
Specialization: Machine Learning, Deep Learning, NLP