Poorna Manikanta Kandiboina

AI / ML Engineer

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Professional Summary

AI/ML Engineer with **4+ years of experience** in data-driven operational environments at CRPF, where extensive hands-on work with large-scale datasets fuelled a deliberate **transition into AI/ML Engineering**. Proficient in **Python, SQL, machine learning, and deep learning** with demonstrated end-to-end project delivery spanning EDA, feature engineering, model training, evaluation, and cloud deployment using **Docker and AWS**. Hands-on experience with **CNNs, NLP, and Generative AI pipelines**, underpinned by a strong foundation in data quality and analytics.

Technical Skills

Languages & Data: Python, SQL, Pandas, NumPy

Machine Learning: Supervised & Unsupervised Learning, Feature Engineering, Hyperparameter Tuning, Model Evaluation (R^2, RMSE), Scikit-learn, Linear Regression, Ridge, Lasso, Random Forest, Gradient Boosting

Deep Learning & Computer Vision: TensorFlow, Keras, CNN, MobileNet, Transfer Learning, Image Classification

NLP & Generative AI: Transformers, BERT, RAG, Embeddings, Vector Databases, LLMs, Prompt Engineering

MLOps & Deployment: Docker, AWS EC2, AWS ECR, CI/CD Pipelines, GitHub Actions, Streamlit

Data Visualization: Power BI, Matplotlib, Seaborn

Professional Experience

Central Reserve Police Force (CRPF) **2021 – May 2025**

Operations & Data Reporting Analyst — India

- Managed and analyzed large-scale operational and administrative datasets across **multiple CRPF battalions and departments** using internal reporting tools and spreadsheets to support resource planning and deployment tracking.
- Prepared and delivered periodic analytical reports and executive summaries for **senior leadership**, improving reporting turnaround by **40%** through streamlined data aggregation processes.
- Ensured **100% data accuracy**, regulatory compliance, and integrity while handling sensitive personnel information across **15+ departments**.
- Standardized data documentation and cross-departmental reporting workflows, reducing data inconsistencies and improving inter-departmental data exchange efficiency by **30%**.
- Collaborated with cross-functional teams to implement **data governance standards**, improving data pipeline reliability and auditability across operational units.
- Identified patterns and anomalies in large operational datasets to flag issues early, demonstrating strong **analytical thinking** that motivated the transition into AI/ML Engineering.

Project Experience

Student Performance Prediction System | *Python, SQL, Scikit-learn, Docker, AWS EC2, ECR, CI/CD*
■ github.com/poorna-manikanta/ML-Project-Student_performance

- Engineered and deployed a full end-to-end ML regression pipeline achieving a best-in-class **~92% R^2 score** across five model comparisons, demonstrating strong predictive modeling capability.
- Performed comprehensive EDA and feature engineering on student datasets — extracting key predictors, handling missing values, and encoding categorical features to improve downstream model quality.
- Trained and benchmarked five regression models (Linear, Ridge, Lasso, Random Forest, Gradient Boosting) via **cross-validated hyperparameter tuning** to select the optimal performer.
- Containerized with Docker, implemented **CI/CD pipeline** via GitHub Actions, and deployed to **AWS EC2** with image management through **AWS ECR**, following production-grade ML architecture.
- Built predictive model to **forecast student academic performance for early intervention planning**, demonstrating business thinking and real-world impact beyond technical accuracy.

CNN Binary Image Classification System | *Python, TensorFlow, Keras, CNN, MobileNet, Streamlit, Docker*
■ github.com/poorna-manikanta/CNN-Binary-image-classification

- Designed and trained a custom CNN architecture from scratch, iterating from an initial **56–60% accuracy** baseline to an optimized model achieving **70–80% validation accuracy** through systematic architecture refinement.
- Applied **Transfer Learning** with MobileNet leveraging pre-trained ImageNet weights, further boosting validation accuracy and reducing training time on limited labeled data.
- Deployed the final model as an interactive **Streamlit** web application containerized with Docker, enabling real-time inference for end users.

RAG-Based PDF Chatbot (GenAI / NLP) | *Python, LLMs, Embeddings, Vector Databases, RAG, NLP*
■ github.com/poorna-manikanta/RAG-PDF-CHATBOT

- Developed an end-to-end **Retrieval-Augmented Generation (RAG)** chatbot for PDF question answering, integrating document ingestion, text chunking, embedding generation, and semantic vector search.
- Reduced LLM hallucinations by injecting retrieved context into prompts, producing **accurate and grounded responses** compared to standard LLM baselines.
- Architected the system for **scalable enterprise knowledge-assistant deployment**, demonstrating production-readiness for real-world GenAI use cases.

Education

Bachelor of Technology – Electrical & Electronics Engineering **2019**
Jawaharlal Nehru Technological University, India | ***68%***

Diploma – Electrical & Electronics Engineering **2016**
State Board of Technical Education, India | ***76%***

Certifications

- Artificial Intelligence & Deep Learning – 360DigiTMG (2026)
- Data Science Certification – 360DigiTMG (2025)
- Python for Data Analysis – 360DigiTMG (2025)
- SQL for Data Analytics – 360DigiTMG (2025)
- Microsoft Power BI – 360DigiTMG (2025)

Languages

English | Hindi | Telugu