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# 🌟 Professional Summary

AI/ML practitioner with a strong foundation in engineering and a transition into advanced machine learning, generative AI, and neural networks. Experienced in solving real-world problems using end-to-end ML pipelines, vector databases, and multimodal AI systems. Adept in deploying models, handling imbalanced datasets, and building robust GenAI systems.

# ⚖️ Technical Skills

Languages & Tools: Python, SQL, C++, R (basics), Git  
Libraries/Frameworks: Scikit-learn, XGBoost, TensorFlow, PyTorch, LangChain, HuggingFace Transformers  
Data: Pandas, NumPy, Matplotlib   
AI/ML: Classification, Clustering, SMOTE, Hyperparameter Tuning, Cross-Validation  
GenAI/LLMs: RAG pipelines, ChromaDB, Cross Encoders, Prompt Engineering  
Deployment: Flask, Streamlit, GitHub Pages

# 📈 Projects

* Credit Card Fraud Detection (Used ~282,000 transactions with ~500 fraud cases; achieved ROC-AUC ≈ 0.977).

Built a fraud classification system on a highly imbalanced dataset (only ~500 fraud cases in 282,000+ entries). Used SMOTE/ADASYN to handle class imbalance. Tuned XGBoost with cross-validation (ROC-AUC ≈ 0.977+). Custom threshold optimization improved TPR significantly with minimal FPR.

* Generative AI QA RAG System for Insurance Policy documents

Designed a retrieval-augmented generation system using LangChain + ChromaDB. Engineered chunking and cross-encoder reranking for top-k document retrieval. Used OpenAI LLMs with few-shot prompts to extract insights from Insurance policy documents.

* Gesture Recognition Using Deep Learning Trained on 10-class video gesture dataset; achieved >85% accuracy.

Developed a model to recognize hand gestures from video sequences. Employed CNNs and video generators to handle temporal image data efficiently. Demonstrated accuracy improvements via normalization and sequence sampling.

* Automatic Ticket Classifier (NLP) Applied NMF on 5000+ unlabelled complaints; final classifier achieved >80% test accuracy.

Built an end-to-end complaint classification system using topic modeling (NMF) and supervised learning. Mapped unstructured support tickets into product-based clusters and trained classifiers for prediction. Used Logistic Regression, Decision Tree, and Random Forest on topic features.

* Telecom Churn Prediction Used customer-level telecom data with 70,000+ rows and 172 features.

Preprocessed and analyzed large-scale telecom usage data to predict customer churn. Applied feature engineering, imputation strategies, and classification modeling. Identified key churn drivers using decision trees and random forest.

* Bike Demand Prediction (Linear Regression) Dataset spanned 700+ days; R² ≈ 0.80 on test set.

Performed EDA and feature analysis to model bike sharing demand using linear regression. Visualized weather/seasonality impact and tuned predictors for optimal RMSE.

* Lending Club Loan Default Risk Analysis Modeled using 10,000+ loan records; logistic regression ROC-AUC ≈ 0.89.

Built a predictive model to assess default risk using financial and demographic features. Cleaned and imputed real-world lending data; explored feature importances and applied logistic regression.

# 🎓 Education

Master of Science in AI/ML from Liverpool John Moores University • Oct 2024 – Oct 2025

Executive PG Program in Machine Learning & Artificial Intelligence with specialization in Generative AI IIIT Bangalore • Oct 2023 – Oct 2024

B. Tech in Mechanical Engineering  
Manipal Institute of Technology • Aug 2015 – May 2019

# 📖 Publications

First-author publication in Solar Energy (Elsevier) "[Influence of Stepped Cylindrical Turbulence Generators on the Thermal Enhancement Factor of a Flat Plate Solar Air Heater](https://www.sciencedirect.com/science/article/pii/S0038092X20300724)"

# 🏆 Awards & Achievements

* 2nd place, Essay Competition — Indian Medical Association
* Gold medal in Science Olympiad
* 3rd place, State-level Open Chess Tournament
* Manipal Marathon finisher — mental health awareness

# 🌍 Languages

English, Tamil & German (A1)

# 📜 Certifications

* Data Science: R Basics — HarvardX (edX), Dec 2019
* Programming for Everybody (Python) — University of Michigan (Coursera), May 2018
* Solar Energy: Photovoltaic Conversion — Delft University of Technology (edX), May 2020