Adharsh Reddy C

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Education

- **International Institute of Information Technology(IIIT)** RK Valley, Andhra Pradesh
  Bachelor of Technology (BTech); CGPA: 8.17 *2017 – 2021*

Skills

Programming Languages: Python, SQL (MySQL, Oracle SQL), JavaScript
Machine Learning & Deep Learning: Supervised/Unsupervised Learning, Regression (Linear, Logistic), Tree-based Models (Random Forest, XGBoost, LightGBM), ANN, Clustering (KMeans++, DBSCAN, GMM), Dimensionality Reduction (PCA, t-SNE), Time Series Analysis, NLP, ML Ops
Generative AI: RAG Applications, Embeddings, Vector Databases(FAISS, ChromaDB), Prompt Engineering, LLM Fine-tuning
Statistics & Data Analysis: Descriptive/Inferential Stats, Hypothesis Testing, A/B Testing, Gain/Lift Charts, KS Scores
Libraries & Frameworks: Pandas, NumPy, Scikit-Learn, SciPy, Statsmodels, Matplotlib,TensorFlow, Spark
Tools & Platforms: Tableau, AWS (SageMaker, ECS), Docker, Flask, Jupyter Notebook, Git, MS Excel

Experience

- **TVS Credit** Chennai, India
  Data Scientist *Jun 2025 – Current*
  - Developed a **Used Car Loan Propensity Model** using **tree-based classifiers** (Random Forest, LightGBM, XG Boost) on 2Cr+ prospects, leveraging CIBIL tradelines, enquiry history, and internal disbursal data.
  - Built a **Socio-Economic Mobility model** using HMM, k-NN, and geospatial features (building heights, amenities) to capture upward mobility patterns.
  - Created a scalable **Pincode Distance Proximity Tool** with directions API, generating pincode-level stats (**prospects, customers, book value, geo-tier, risk quadrants**) to drive targeting strategies.
  - Working on **RAG-based Data Analyst tool** using OpenAI GPT-4o and **FAISS vector DB** for natural language querying and automated insights from structured company datasets.
  - Implemented **feature engineering, hyperparameter tuning**, and cross-validation; designed **Tableau dashboards** and conducted A/B testing to monitor model performance and campaigns.

- **ADP** Hyderabad, India
  Data Scientist *Dec 2022 - June 2025*
  - Developed **attrition prediction models** using regression and tree-based classifiers to quantify turnover risk, achieving 18% reduction in attrition and $2.1M annual savings in rehiring costs.
  - Built **employee career progression models** leveraging promotion velocity, tenure patterns, and compensation parity to forecast growth trajectories and internal mobility.
  - Engineered **behavioral and organizational features** (manager effectiveness, engagement indices, work-life balance metrics), improving predictive accuracy by 20%.
  - Applied **advanced ML pipelines** with feature scaling, target encoding, and class-imbalance handling to produce robust models, while validating with stratified cross-validation.

- **Infosys** Bengaluru, India
  Data Analyst *Dec 2021 - September 2022*
  - Supported senior analysts in **extracting and transforming** financial data for regulatory compliance reporting, improving accuracy for Solvency Capital Ratio (SCR) calculations for an insurance client.
  - Crafted optimized SQL queries that enhanced data retrieval **efficiency by 30%** from client databases.
  - Designed and maintained financial **dashboards and reports using Tableau and Excel**, resulting in a 25% reduction in reporting time.

Projects

- **Propensity Model for Used Car Loan Prediction – Prospect Base**
  Classification — Feature Engineering — LightGBM — K-Fold CV — SHAP — EDA
  - Developed a **classification model** using ensembling (LightGBM) to predict loan-taking propensity for 2Cr+ prospects leveraging CIBIL tradelines, enquiry history, and internal disbursal data.
  - Engineered 300+ behavioral features (e.g., credit utilization, delinquency patterns, enquiry-to-loan ratios) and applied **SHAP + permutation importance** for feature selection.
  - Tackled severe **class imbalance** with class weights, undersampling; applied **hyperparameter tuning (GridSearch, Bayesian optimization)** and validated using **stratified K-Fold cross-validation**.
  - Achieved **81% AUROC**, strong **KS score and gain chart lift**; delivered decile-wise **propensity scores** to prioritize borrowers and presented persona segmentation to stakeholders.

- **Socio-Economic Mobility Prediction using Geospatial Clustering and Hidden Markov Models**
  Hidden Markov Models — K-Means ++ — Geospatial Analytics — Credit Behavior
  - Developed a **Hidden Markov Model (HMM)** to capture temporal **income state transitions** (Low → High) using **product purchase behavior** based on CD loan disbursal data.
  - Applied **K-Means clustering** on geospatial features (amenities, internet speeds, building heights) to create spatial-economic clusters serving as **emission signals** in the HMM.
  - Leveraged the **Viterbi algorithm** with **transition matrices and emission probabilities** for most probable income trajectory estimation and maximum likelihood end-state detection across clusters.
  - Delivered **geojson visualizations and mobility path analysis** across all pincodes in India, enabling identification of **upward mobility clusters** and high-potential borrower segments.