RAVISANKAR CHENGANNAGARI

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SUMMARY

Machine Learning Engineer with experience designing end-to-end ML pipelines, predictive modeling, and deploying models using Docker and Flask. Skilled in NLP, deep learning, feature engineering, with hands-on project work in LLM fine-tuning, recommender systems, sentiment analysis, and credit scoring. Strong foundation in scalable ML systems, supported by academic training and certifications in AI and Data Science.

SKILLS

Machine Learning & AI: *LLMs, Transformers, Hugging Face, TensorFlow, Scikit-learn, XGBoost, LightGBM, NLP, CNNs, RNNs, Predictive Modeling, Feature Engineering, Hyperparameter Tuning*
MLOps & Deployment: *Docker, MLFlow, Flask, FastAPI, Streamlit*
Cloud & Big Data: *AWS (EC2/S3/SageMaker), Hadoop, Spark, SQL, ETL Pipelines*
Data Analytics: *Statistics, Probability, Time Series Forecasting, Bayesian Inference, PCA, Hypothesis Testing*
Programming: *Python, Java, JavaScript*
Visualization: *Matplotlib, Seaborn, Plotly, Folium*
Other Skills: *Data Structures, HTML, CSS, Git, GitHub*

EXPERIENCE

Cognizant Technology Solutions: *Programmer Analyst*   *June 2022 – November 2023*
Bengaluru, Karnataka, India
- Designed and deployed end-to-end machine learning pipelines including data ingestion, preprocessing, feature engineering, model training, and deployment into production.
- Developed predictive models (classification, regression, and time series forecasting) using scikit-learn, XGBoost, and TensorFlow, achieving up to 20-30% improvement in prediction accuracy.
- Automated ETL workflows for large-scale datasets, enabling real-time model retraining and reducing manual intervention by 40%.
- Conducted hyperparameter tuning, cross-validation, and feature selection to optimize models for scalability and performance.
- Deployed ML models via Flask/Flask API and containerized solutions using Docker, improving deployment reliability and scalability.
- Collaborated with cross-functional teams to integrate ML-driven insights into business dashboards, accelerating data-driven decision-making.

Cognizant Technology Solutions: *Intern*   *January 2022 – June 2022*
Remote
- Implemented proof-of-concept ML models for structured and unstructured data to demonstrate predictive analytics capabilities.
- Applied feature engineering techniques (missing value imputation, categorical encoding, scaling, text preprocessing) to improve model accuracy.
- Built exploratory EDA reports with Matplotlib, Seaborn, and Pandas to identify data patterns and driven feature selection.
- Assisted in developing sentiment analysis and recommendation system prototypes using NLP and collaborative techniques.
- Gained hands-on experience with Supervised learning algorithms and their evaluation metrics.

ADDITIONAL EXPERIENCE

Mercy University: *Student Teaching Assistant*   *Feb 2025 – Dec 2025*
Dobbs Ferry, New York, United States
- Assist students in mastering core Python, Java, and Data Structures concepts across both Spring and Fall semesters, including OOP, data structures, and algorithms.
- Provide one-on-one debugging support during Spring (Python/Java) and Fall (Data Structures) courses, helping students resolve coding issues and strengthen logical problem-solving skills.
- Support the Data Structures course (Fall 2025) by clarifying complex topics, guiding students through assignments, and facilitating understanding of algorithms.
- Grade programming assignments in both semesters and provide detailed feedback to help students improve code efficiency, readability, and accuracy.

ACADEMIC & INDEPENDENT ML PROJECTS

Personalized News Recommendation System | LINK   *Dec 2025*
- Architected a Hybrid Recommendation Engine on the Microsoft News Dataset (MIND), processing 156,000+ user impressions by unifying Collaborative Filtering (SVD) and Content-Based Filtering (Word2Vec) to mitigate the "Cold Start" problem.

- Developed a Neural News Recommendation (NRMS) Transformer with Multi-Head Self-Attention, achieving 0.64 AUC which delivers 90% of the State-of-the-Art (SOTA) research benchmark (0.71 AUC) while utilizing significantly lower computational resources (< 7 hours training time).
- Benchmarked 8+ filtering architectures, systematically advancing from statistical baselines (Popularity, TF-IDF) to Deep Learning sequences (RNN, LSTM, Bi-LSTM) to strictly evaluate the trade-off between model complexity and inference accuracy.
- Engineered a custom attention mechanism to capture long-term user interests from click history, improving recommendation relevance for dynamic news content compared to static collaborative filtering methods.

Emotion Classification in Twitter Messages | LINK   *Oct 2025*
- Engineered and benchmarked 7+ machine learning architectures, ranging from statistical baselines (Naïve Bayes, Logistic Regression, Support Vector Classifier) to Deep Learning models (RNN, LSTM, Bi-LSTM), to identify the optimal classifier for 416k+ tweets.
- Achieved state-of-the-art performance (94.1% accuracy) by fine-tuning a DistilBERT Transformer, outperforming the best LSTM model (93.5%) and traditional machine learning baselines by significant margins.
- Deployed the winning Transformer model as a scalable Flask web application, enabling real-time inference and dynamic multimedia mapping based on predicted user sentiment.
- Optimized training pipelines by implementing TF-IDF vectorization for traditional models and custom tokenization for Deep Learning, addressing severe class imbalances to boost recall for minority emotions like "Surprise".

Credit Approval Prediction | LINK   *May 2025*
- Architected a credit risk scoring model using 438,000+ application records and 1,000,000+ credit history logs, consolidating fragmented datasets to automate manual loan processes.
- Developed a high-performance LightGBM gradient boosting classifier, achieving 0.85 ROC-AUC, successfully identifying high-risk applicants while maintaining a high approval rate for qualified customers.
- Solved severe class imbalance (90% rejection rate) by implementing SMOTE (Synthetic Minority Over-sampling Technique), which prevented model bias and significantly improved recall for the minority "Approved" class.
- Engineered predictive features such as "Years Employed" and "Log-Transformed Income" to normalize skewed financial data, reducing the influence of outliers and improving model stability by ~15%.

EDUCATION

Mercy University, New York, US
Master of Science in Computer Science (Specialization: Machine Learning)   *Expected December 2025*
Coursework: Machine Learning, Natural Language Processing, Big Data, Computational Data Analysis, Math Methods, Database Management Systems, Object Oriented Programming

Lovely Professional University, Punjab, India
Bachelor of Technology in Computer Science and Engineering (Specialization: Data Science)   *August 2022*
Coursework: Machine Learning Algorithms, Convolution Neural Network, Recurrent Neural Network, Data Science & Analytics, Big Data Technologies, Data Visualization, Python, Java

CERTIFICATIONS

- Artificial Intelligence Engineer   *Simplilearn* | CERTIFICATE
- Machine Learning   *Simplilearn* | CERTIFICATE
- Deep Learning with TensorFlow   *IBM* | CERTIFICATE
- Data Science with Python   *Simplilearn* | CERTIFICATE
- Competitive Programming   *Cipher Schools* | CERTIFICATE