ROHITH CHANDRA KANDAMBETH

US - Open to relocation | (857)2302183 | kandambeth.r | rohith-kandambeth | rohithram22 | Start by Jul/Aug

EXPERIENCE

Tesla Inc *California, United States*
Data Scientist, Reliability Engineering *Aug 2024 – Dec 2024*

- Optimized fatigue analysis algorithm using **parallel processing** (multiprocessing/multithreading) in Python to eliminate Rainflow cycle counting bottlenecks, achieving **20-25%** faster processing of large-scale sensor data for predictive maintenance.
- Built analytics solution with Python (**pandas, numpy, scikit-learn**) for statistical analysis and dashboards to visualize vehicle telemetry patterns, enabling failure prediction and optimized maintenance scheduling.
- Engineered data pipeline using **Apache Spark** for distributed **processing of terabytes of sensor data** and **Apache Airflow** for ETL workflows, supporting **real-time reliability metrics** calculation for predictive maintenance.
- Implemented machine learning models for vehicle reliability including **time-series forecasting, anomaly detection,** and survival analysis, improving maintenance prediction accuracy by 30% and reducing unplanned downtime.

Northeastern University *Boston, United States*
Data Science & Machine Learning Teaching Assistant *Jan 2024 – Apr 2025*

- Mentored **100+ students** through complete ML pipelines including EDA, data preprocessing, feature engineering (scaling, encoding, PCA), and model evaluation, helping **85% successfully complete** their data science projects.
- Provided hands-on support for supervised algorithms (**KNN, SVM, Regression, Trees, Random Forest**) and clustering methods (**K-Means**), guiding students to achieve **80-90% model accuracies** through debugging and optimization.
- Facilitated practical learning by assisting with Jupyter notebook exercises covering **cross-validation, hyperparameter tuning,** and evaluation metrics (**ROC-AUC, precision-recall**), ensuring students gained industry-relevant skills.
- Streamlined TA operations by coordinating with 5 fellow TAs to implement efficient grading workflows and structured office hours, improving student support by **30%** while maintaining consistent feedback quality.

Skematix Technologies *Coimbatore, India*
Data Scientist – Software Engineer *May 2021 – Jul 2021*

- Analyzed **100K+ COWIN vaccination records** using exploratory data analysis & clustering techniques (K-means, DBSCAN) to identify regional disparities in vaccine adoption patterns, providing actionable insights for targeted public health interventions.
- Built **Random Forest model** predicting vaccination hesitancy from socioeconomic features (income, education, demographics) with **85% accuracy** and **0.89 AUC score**, enabling data-driven resource allocation and outreach strategies.
- Automated data pipeline using Python, SQL, and COWIN API with **CI/CD integration** (Jenkins/GitHub Actions), reducing manual processing by **40%** and ensuring real-time data freshness for continuous monitoring.
- Developed interactive web dashboard using JavaScript, SQLite backend, and embedded **Tableau visualizations** to display vaccination KPIs, regional trends, and predictive insights, improving public health transparency and decision-making speed.

PSG Tech – Innovation Practices Lab *Coimbatore, India*
Deep Learning/Computer Vision Engineer *Jan 2021 – Jul 2022*

- Co-authored **peer-reviewed research paper** "Image Classification Using CNN to Diagnose Diabetic Retinopathy" published in **Springer Nature's Congress on Intelligent Systems** (2022), achieving **91% training accuracy** and 86% weighted F1-score, outperforming 7 existing state-of-the-art models by up to 40.5%.
- Developed **ResNet50-**based deep learning model for automated diabetic retinopathy detection, processing thousands of fundus images per minute with 88% precision and 86% recall across 5 severity classes (No DR, Mild, Moderate, Severe, Proliferative).
- Implemented comprehensive **hyperparameter optimization** using grid search across 12 parameter combinations (dropout rates, optimizers, learning rates), improving model performance from 22.6% to 91% accuracy.
- Achieved AUC scores greater than 0.9 for all classification categories and 80% validation accuracy through advanced data augmentation techniques including rescaling, random rotation, and random zoom.

EDUCATION

Northeastern University *Boston, United States*
Master of Science in Computer Science *2025*
Courses: *Natural Language Processing, Machine Learning, Information Retrieval, Programming Design Paradigm*

PROJECTS

AI Text Detoxification System | *LLM Fine-tuning, Reinforcement Learning, AI Safety*

- Fine-tuned **FLAN-T5** with **LoRA PEFT** on AWS SageMaker for dialogue summarization (ROUGE-validated) and implemented **RLHF/RLAIF** with **PPO** for toxicity reduction, ensuring safe and high-quality AI-generated content for production deployment.

Fraud Risk Analytics | *Fraud Detection, Model Optimization*

- Built fraud detection system achieving 93% precision and 35% recall improvement using ensemble methods (**XGBoost, LightGBM**) with Boruta feature selection, processing **imbalanced banking transactions** to minimize financial risk exposure.

MLOps Content Classifier | *MLOps, Natural Language Processing*

- Architected production MLOps pipeline achieving 91% accuracy for content classification, leveraging **Ray** for distributed processing, **MLflow** for experiment tracking, Ray Serve for scalable inference, and **GitHub Actions CI/CD** with comprehensive testing across code/data/models.