Sankalp Mehani

Machine Learning Engineer

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PROFESSIONAL SUMMARY

Machine Learning Engineer with over 3 years of hands-on experience designing, developing, and deploying predictive models. Proficient in algorithms such as XGBoost, Random Forest, SVM, and LightGBM, with strong expertise in Python, SQL, and cloud services including AWS SageMaker and Lambda. Experienced in delivering real-time AI solutions across both structured and unstructured data pipelines. Skilled in NLP, exploratory data analysis (EDA), and MLOps. Known for collaborating across teams to automate workflows, enhance decision-making, and deploy explainable, scalable models. Demonstrated ability to convert complex business problems into impactful, intelligent solutions.

TECHNICAL SKILLS

Programming Languages: Python (NumPy, Pandas, Regex, Pickle, OS, JSON), SQL (PostgreSQL, MySQL)
Machine Learning Algorithms: Linear Regression, Logistic Regression (Binary & Multiclass), Ridge/Lasso/Polynomial Regression, Decision Tree, Random Forest, SVM, KNN, Naive Bayes, GBM, XGBoost, LightGBM, CatBoost, Statsmodels
ML Libraries & Frameworks: Scikit-learn, Matplotlib, Seaborn, TensorFlow, spaCy
Model Deployment & MLOps: Amazon SageMaker, Docker, Apache Airflow, FastAPI, AWS Lambda
Data Handling & Analysis: ETL, Data Cleaning, Feature Engineering, Exploratory Data Analysis (EDA), Joins, Aggregations, Structured & Unstructured Data Processing
Data Visualization: Tableau, Power BI, Advanced Excel, Looker
Development Environments: Jupyter Notebooks, PyCharm, Microsoft Visual Studio
Collaboration & Reporting: JIRA, Confluence, Microsoft Teams, TestRail

PROFESSIONAL EXPERIENCE

Machine Learning Engineer, Freddie Mac, USA **Feb 2024 – Present**

- Designed and deployed supervised learning models (XGBoost, Random Forest) to detect fraudulent insurance claims using structured/unstructured data. Integrated features like policy limits, past behaviors, and incident timelines. Achieved enhanced fraud scoring accuracy and early detection.
- Utilized unsupervised clustering to segment claims by behavioral patterns and anomalies, integrating third-party injury data to enhance fraud risk stratification and improve proactive detection in low-signal fraud cases.
- Developed NLP pipelines with sequence-based neural networks to extract intent and red flags from adjuster notes. Boosted fraud detection rates by automating manual review triggers. Streamlined claim processing workflows using AI-driven text analysis.
- Built and productionized fraud models on AWS using SageMaker, Lambda, and REST APIs integrated into SmartClaim Suite. Enabled real-time fraud scoring and automated routing of suspicious claims. Improved decision latency and early-stage fraud triaging.
- Created end-to-end data pipelines in Python and SQL, orchestrated with Airflow for automation and retraining. Visualized fraud trends, model metrics, and risk scores via Tableau and Power BI. Ensured transparency using SHAP values and monitored model drift bi-weekly.

Machine Learning Engineer, Sage Softtech, India **Jun 2020 – Jul 2022**

- Developed supervised ML pipelines using ensemble models (XGBoost) to predict customer churn and credit risk based on behavioral and transactional data.
- Engineered end-to-end data pipelines with structured and unstructured data using Python, SQL, and Pandas, integrating data from relational and NoSQL sources.
- Designed NLP-based solutions using semantic analysis and libraries like NLTK to classify support tickets and parse financial goals.
- Built and deployed ML models using AWS SageMaker, Lambda, Flask, and FastAPI for real-time inference and API integrations with CRM and loan platforms.
- Created hybrid fraud detection modules using anomaly detection techniques (Isolation Forest, One-Class SVM) to identify loan fraud patterns.
- Automated ML workflows for model retraining and data refreshes via orchestration tools integrated with enterprise data lakes.
- Implemented clustering algorithms (K-Means) and collaborative filtering for investment persona profiling and recommendation systems.
- Visualized model outcomes and business KPIs with Power BI, Tableau, and Looker to inform stakeholders and optimize operations.
- Deployed machine learning models as RESTful APIs using Flask and FastAPI and integrated them into client-facing loan approval and investment advisory platforms hosted on AWS and Firebase.
- Designed and prototyped a Machine Learning system for identifying experts/non-experts for a given topic through iterative feature engineering and model development.

EDUCATION

Master's in Data Science **Aug 2022 – Feb 2024**

University at Buffalo, Buffalo, NY, USA

Bachelor's in Computer Science **Jul 2016 – May 2020**

VIT University, India