Ram Charan Polisetti

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EDUCATION

MS in Data Science | University at Buffalo

December 2023, Buffalo, New York

Relevant Coursework: Statistical Data Mining, Probability, Algorithm Analysis and Design, Data Analysis, Data Visualization, Machine Learning, Deep Learning, Web Scraping, Applications of Data Science.

SKILLS

Industry Knowledge: Deep Learning, Machine Learning, Data Analysis, Natural Language Processing (NLP), ETL, Data Visualization, Image Processing, Quantitative Analysis, Pattern Recognition, Time-Series Analysis, Financial Modeling, Risk Management, Algorithmic Trading, Market Analysis, Bayesian Statistics, Predictive Modeling.

Programming Languages: Python (Pandas, NumPy, Scikit-learn, Keras, TensorFlow, PyTorch, XGBoost, SciPy, Seaborn, Plotly, Beautiful Soup, Selenium), Distributed Computing (MapReduce), R (Tidyverse, ggplot), SQL, MATLAB, C++, C.

Tools and Technologies: AWS, Docker, Snowflake, Hadoop, NoSQL databases (MongoDB), Tableau, Power BI, Git, Excel, Advanced Financial Analysis Tools.

Interpersonal Skills: Cross-functional collaboration, Stakeholder Management, Adaptability, Process Improvement, and Supply Chain Optimization.

PROJECT EXPERIENCE

Improving Civic Services through Data-Driven Insights: NYC 311 Request Analysis

- Developed machine learning pipeline using SMOTE oversampling combined with RandomUnderSampler for balanced training sets, improving model performance on severely skewed NYC housing complaint data (34:1 ratio). Tuned Random Forest and XGBoost models through stratified cross-validation; achieved over 81% accuracy on test sets.
- Assessed model performance on noisy real-world data employing SMOTE and under-sampling alongside accuracy, AUC-ROC, confusion matrix, and other metrics to select optimal approach for disproportionate class distributions.

Sentiment-Based Strategy Trading

- Merged eight years of Yahoo Finance stock data with news headlines to refine trading strategies. Engineered feature sets from 1.2 million+ financial articles using advanced NLP techniques, significantly enhancing the sentiment analysis framework.
- Transformed model performance by integrating contextualized word embeddings and neural network innovations, achieving a 97% accuracy in sentiment classification. This advancement drove a 15% increase in trading profitability and prompted the development of a sentiment-driven trading algorithm.

Telco Customer Churn Analysis

- Led the comparison and evaluation of six machine learning models, ultimately identifying Gradient Boosting as the most effective for customer churn prediction with the Scikit-Learn library, and enhanced model precision through the engineering of 15 targeted features.
- Improved the Gradient Boosting model's accuracy to 86% by meticulously fine-tuning hyperparameters via RandomizedSearchCV, alongside refining the dataset and utilizing mutual information scores to bolster precision and ensure robustness for future analysis.
- Developed a custom analytics dashboard in Python to visualize churn predictions and insights from Gradient Boosting models, showcasing front-end development skills and the ability to translate complex model outputs into actionable business intelligence.

Analyzing and Forecasting Amazon Stock Prices

- Crafted and optimized a SARIMAX forecasting model, achieving a remarkable 0.98 R-squared and a 3.36 RMSE on test data, which marked a significant advancement over existing baseline models for predicting stock closing prices.
- Executed a comprehensive statistical analysis leading to an improved ARIMA model with a 24-point AIC reduction, and conducted Augmented Dickey-Fuller tests, enhancing the SARIMAX model's accuracy with an MSE of 2.46 and revealing a strong 96% correlation between stock opening and closing prices.

Deploying GRU, LSTM, and RNN for Market Analysis

- Pioneered the development of advanced RNN, LSTM, and GRU models for stock price prediction, crafting a predictive feature set based on 60-day historical data that boosted accuracy by 20% and honed model precision to 85%, sharpening the forecast error margin from 20.3% down to 17.2%.
- Mastered GRU model performance, achieving an industry-leading RMSE of 0.0018 after meticulous hyperparameter adjustments, excelling past LSTM and RNN benchmarks, complemented by creating over 20+ dynamic Plotly visualizations to reinforce strategic, data-led trading decisions.
- Implemented a cloud-based deployment of predictive models using AWS services, integrating GRU, LSTM, and RNN architectures into a production environment, emphasizing skills in cloud computing, deployment automation, and distributed computing.

Comprehensive Analysis of the European Soccer League with SQL

- Analyzed eight years of European soccer data with advanced SQL techniques to reveal a clear correlation between teams' goals scored and their league standings, informing strategic decisions.
- Developed reusable SQL views and custom metrics for detailed season-by-season team performance analysis, and calculated key statistics using SQL functions to support comprehensive evaluations.
- Designed and implemented an SQL-based data retrieval system to automate the extraction of complex performance metrics, demonstrating skills in database schema design and optimization for high query efficiency.

WORK EXPERIENCE

Transportation Specialist | Amazon Development Center

November 2020 - July 2022, Hyderabad, India

- Orchestrated cross-departmental automation enhancements in dispatch systems, boosting scheduling accuracy by 40%, curbing carrier-related fraud by 15%, and recapturing 2.5 daily operational hours.
- Systematized onboarding for transportation operations by authoring SOPs and integrating automation, trimming acclimatization time by 30%, and reinforcing team efficiency.
- Analyzed transportation data using SQL, optimizing route efficiency, which slashed empty miles by 8% and pared down logistical expenses.
- Devised and managed real-time dashboards for logistics oversight, diminishing operational incidents by 20% and enhancing punctuality in deliveries.

CERTIFICATIONS

Google Data Analytics Professional Certificate | Coursera

Intro to Hadoop and MapReduce | Udacity