Abhijit Deshpande

Business Analyst

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Experience

Charter Communication
St. Louise, MO

Business Analyst (Contract) *Apr 2024 – Present*

- Developed a predictive **churn model** to identify high-risk and high-value mobile customers, enabling targeted retention strategies and reducing churn through personalized offers and priority service.
- Used a combination of feature selection techniques (RFE, Lasso, and Random Forest) to identify the most influential variables, optimizing model performance and achieving **63% recall and 65% ROC AUC**, driving more effective customer retention initiatives.
- Effectively communicated the model's results to stakeholders, highlighting churn drivers and enabling data-driven decisions to reduce attrition.

Technology Credit Union
San Jose, CA

Business Analyst (Contract) *Mar 2023 – Apr 2024*

- Developed a predictive model to assess borrower risk, enhancing loan default prediction and enabling more informed credit decisions.
- Leveraged **Days Past Due (DPD)** across EMIs to label data and engineered features like roll rate and window roll analysis, optimizing model performance through hyperparameter tuning.
- Achieved an **AUC of 0.85**, developed a threshold optimization framework to limit **NPAs to 2%**, and enhanced portfolio quality by identifying creditworthy borrowers through risk-based score segmentation.

University of Texas Arlington
Arlington, TX

Research Assistant *Jan 2021 - Mar 2023*

- Engineered an **attention-based LSTM transformer encoder** architecture for **financial market** signal forecasting.
- Developed a novel **data sampling strategy** that leverages dollar volume and event-based triggers to optimize data selection for financial market prediction models.
- Implemented a robust **risk management** framework using the Triple Barrier methodology to dynamically label signals, optimizing **trading positions** and significantly enhancing both risk-**adjusted returns** and overall profitability.
- Led the development and deployment of a neural network architecture in **PyTorch**, leveraging **Optuna for hyper-parameter** optimization, This resulted in a 60% reduction in training time and a **9%** increase in overall prediction accuracy.

Skills

Languages	Python, SQL, SAS, Git.
Technology	Statistics, Neural Networks, Django, Linear Regression, Time Series Analysis, A/B Testing.
Certifications	AWS Solution Architect, AWS Cloud Practitioner, Tableau Desktop Specialist, ML & Deep Learning Specialization.

Projects

Dynamic Price Optimization Using Elasticity of Demand

- Developed a price optimization model using **price elasticity of demand (EPD) and OLS regression** to identify optimal pricing strategies, leveraging sales data to provide real-time pricing recommendations that maximize revenue and improve customer retention.

Pairwise Reviews Ranking and Classification for Ecommerce Application [NLP]

- Consumer purchasing decisions are significantly influenced by reviews. Quick, actionable insights are provided through the **pairwise ranking** of reviews by relevance, simplifying the decision-making process.

Opioid Risk Prediction Model

- Partnered with **UT Southwestern Medical Center** to design and implement a machine learning model that identified **90% of high-risk individuals for opioid misuse**, enabling early intervention and targeted preventive care for those most likely to benefit.

RFID Tag Performance Evaluation Across Various Mediums [SAS]

- Conducted **experimental design study** to assess RFID tag performance across three mediums (Air, Metal, Cardboard) and tag types (Universal, Mini, Hard). Applied factorial design and statistical analysis **(ANOVA, pairwise comparisons)** to identify key performance drivers.
- Transformed data to meet model assumptions for valid results. Found metal medium outperforms others, optimizing RFID tag efficiency.

Education

University of Texas at Arlington
Arlington, TX

Master of Science in Industrial Engineering, GPA: 3.9/4.0 *May 2022*

Shivaji University
Kolhapur, MH, India

Bachelor of Engineering in Mechanical Engineering, GPA: 3.3/4.0 *May 2018*

Competitions

A Novel Elastic Periodic Activation for Deep Neural Networks

- Contributed to the development of the PASS **(Parameterized Snake Swish)** activation function, boosting neural network performance for **time series forecasting** by capturing periodic and non-periodic components, enabling better extrapolation and pattern recognition.