VISHNU TEJA SARDEE
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PROFESSIONAL SUMMARY

A highly motivated and detail-oriented quantitative analyst possessing a solid foundation in mathematics, programming, data analysis and financial modeling who demonstrates exceptional proficiency in developing and implementing machine learning models to drive informed decision-making. A proactive self-starter, excellent communicator, and an exceptional team player fully committed to delivering optimal results.

EDUCATION

Master of Science in Applied Mathematics and Statistics (Operations Research) Aug 2021 – May 2023
Stony Brook University Stony Brook, NY
Courses Taken: Linear Programming, Machine Learning, Probability and Statistics, Analysis of Algorithms, Stochastic Models, Simulation and Modeling, Financial Engineering.

Bachelor of Technology in Electronics and Computer Engineering Aug 2015 - May 2019
Jawaharlal Nehru Technological University Hyderabad, India
Courses Taken: Engineering Mathematics, Database Management and Systems, Web Technologies, Internet of Things, Big Data Analysis, Information Security.

WORK EXPERIENCE

Research Assistant –Financial Modeling of Derivatives Pricing May 2022 – present
School of Business, Stony Brook University Stony Brook, NY

- Wrote API scripts to extract historical stock returns /options price data and conducted statical analysis for model fitting.
- Implemented models based on **Geometric Brownian Motion** (**GBM**) and the **Heston Pricing model** to simulate stock price behavior. Utilized **Monte Carlo simulation** (**MCS; 100,000 simulations**) to calculate long-term average option prices and compared with market data.
- Derived **Options Greeks** from above to carry out **Delta Hedging** to simulate **risk management**.
- Employed the **Black Scholes** (BS) formula with randomly generated parameters to price call options and trained an **Artificial Neural Network** (**ANN**) model to predict option prices.
- Wrote a python function to calculate the **implied volatility** and plotted the smile curve and surface.
- Calibrated volatility (sigma) by reducing root mean squared error (RMSE) between the market prices and ANN prices. Currently developing an ANN model based on the Duan GARCH model.

Data Analyst Jun 2019 – Jul 2021
Accenture Bangalore, India

- Successfully managed and maintained accurate **financial/accounting records** of a multinational corporation in **SAP systems**, overseeing the analysis and updates to **cost center / profit center** accounting tables, facilitating seamless coordination between actual and fiscal year planning of 10,000+ records which resulted in **improved efficiency**.
- **Developed Python scripts** to extract financial data from SAP databases and perform data validation, ensuring the integrity and consistency of financial information and leveraged **pandas** library to clean, transform, and analyze large financial datasets from SAP, providing valuable **insights for financial decision-making and minimizing operational risk**.
- Prepared executive-level financial presentations using Python-generated (**matplotlib, seaborn**) visualizations to effectively communicate financial performance and trends across business entities.
- **Automated financial reporting** processes by combining SAP data with Python, **reducing manual efforts**, and delivering timely and accurate financial reports.

TECHNICAL SKILLS

- Computer Programming: Python, R, MATLAB, MySQL, Java, C/C++, Bash / UNIX command line, SAP ABAP/HANA.
- Data Analysis / Machine Learning: pandas, numpy, scikit-learn, dplyr, tidyr, ggplot, quantmod.
- Industry Tools: PowerBI, Tableau, MS Excel, Linux, Git, Google Cloud Platform, Bitbucket, Jupyter Notebook.

PROJECTS

Portfolio Optimization and Risk Management: Jun 2023 – July 2023

- Created a portfolio of various stocks by assigning weights to optimize allocation based on **Modern Portfolio Theory** (MPT).
- Calculated mean returns and volatility/risk of the assets in the portfolio, optimized it by **minimizing Sharpe Ratio**(neg) using in-built python optimizer and custom implementation of the **gradient descent algorithm**. Also plotted the **efficient frontier**.

Data Analysis of Healthcare Survey Results: April 2023 – May 2023

- Analyzed mental health survey results of SBU graduate students to understand their help seeking behavior and support needed during the COVID-19 pandemic as part of a research study in the School of Public Health and Social Welfare.
- Performed comprehensive data cleaning and **exploratory analysis** on a dataset of **1000+ records using R**.
- Developed ML models for variable selection/**principal component analysis** and **multiple logistic regression** to determine correlation between various healthcare factors asked in the survey. **Communicated findings/patterns using visualizations.**

Bank Loan Classification using Machine Learning: April 2023 – May 2023

- Utilized machine learning algorithms to accurately classify bank loans (approved/rejected) based on a comprehensive dataset obtained from Kaggle.
- Developed **Decision Tree**, **Random Forrest**, Support Vector Machine (**SVM**) and **Neural Network** models.
- Optimized best parameters using **cross-validation** to improve predictions accuracy, achieving 80-94% accuracy across all models.