

VISHNU TEJA SARDEE

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PROFESSIONAL SUMMARY

A highly motivated and detail-oriented professional with a strong interest in quantitative analysis. Possessing a solid foundation in mathematics, finance, and programming that demonstrates exceptional proficiency in developing and implementing quantitative / machine learning models to drive informed decision-making. I am a proactive self-starter, proficient communicator, and an exceptional team player, fully committed to delivering nothing but my very best.

EDUCATION

Master of Science in Applied Mathematics and Statistics (Operations Research)

Aug 2021 – May 2023

Stony Brook University

Stony Brook, NY

Courses Taken: Machine Learning, Probability and Statistics, Analysis of Algorithms, Stochastic Models, Simulation and Modelling, Financial Derivative.

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.

WORK EXPERIENCE

Research Assistant –Financial Modeling of Derivatives Pricing

March 2023 – present

School of Business, Stony Brook University

Stony Brook, NY

- Utilized historical stock price returns to perform distribution fitting and estimate stock price movements. Developed models based on **Geometric Brownian Motion (GBM)** with constant volatility to simulate stock price behavior. Employed **Monte Carlo simulation (MCS)** techniques to calculate long-term average call option prices.
- Incorporated the **Heston model** to introduce stochastic volatility into stock prices, generating simulated stock prices and volatility for improved call option price calculations.
- 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. Utilized historical option prices to optimize volatility (sigma) and reduce root mean squared error (RMSE). Currently developing an ANN model based on the Heston model and MCS to enhance machine learning capabilities for **option price prediction, and also calibrate parameters.**

Application Development Analyst- SAP Finance and Controlling

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.**
- Resolved IT service request tickets, adhering to **service level agreement (SLA)**, which involved collaboration with **cross-functional teams** to execute processes well within the deadline.
- Monitored crucial systems, transactions and facilitated system transfers (quality to production) to ensure **smooth business functioning** under time constraint. Raised immediate alarms upon detection of certain failures, thus **reducing any potential financial losses.**

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, 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.

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.