

VAIBHAV RUNGTA

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PROFESSIONAL EXPERIENCE

Invest My Paisa – Financial Analysis

December 2020-Present

Founder

- Engineered a Python-based **mutual fund screening pipeline** that aggregates web-scraped data on **all Indian mutual funds** and ranks them using **proprietary risk-adjusted return metrics** to identify **consistent alpha generators** over the past decade
- Iterating on and enhancing the fund screening methodology to improve predictive accuracy and robustness
- Delivering **bespoke portfolio analysis** for high-net-worth clients (5Cr+ AUM) to evaluate **sequence of returns risk** and design **sustainable systematic withdrawal plans**
- Applying **Monte Carlo simulations** to model **portfolio longevity** and optimize withdrawal strategies for clients seeking **passive income through mutual fund investments**

EDUCATION

University of Southern California, Marshall School of Business, Viterbi School of Engineering

May 2024

Bachelor of Science, Business Administration

Bachelor of Science, Computer Science

Dean's List: Viterbi School of Engineering, Marshall School of Business

SAT (2019): 1550/1600 [Verbal 750/800, Math 800/800]

AISSCE (2019): 96%

QUANTITATIVE FINANCE PROJECTS

VIX Volatility Prediction using NLP

December 2023

- Developed an NLP pipeline to predict changes in the American VIX volatility index using financial news sentiment
- Wrote custom scripts to parse and preprocess large volumes of financial articles for model training
- Fine-tuned the FinBERT model and added a regression layer to output numerical VIX predictions
- Integrated sentiment analysis with quantitative volatility forecasting for enhanced predictive capability

Quantitative Trading Research

August 2022-December 2022

- Led a three-member team in execution of five quantitative research projects over a period of 4 months

Factor Momentum Strategy

- Performed Fama-Macbeth regression on fundamental US equity data spanning 60 years to gauge Factor Momentum
- Analyzed strategy's performance with favorable results and a Sharpe ratio of 1.40

ETF Reversal Strategy

- Examined Volatility Clustering as a predictor for daily reversal in ETF Pricing over a period of 10 years
- Devised and appraised an algorithmic strategy with a Sharpe ratio of 1.85

Custom Indicators

- Built indicators combining price momentum, factor momentum and a Deep Neural Network trained over 1.4M data points

Deep-Learning for Index Forecasting

- Forecasted daily returns on the Nifty 50 by building a Neural Network model trained on price and volatility data
- Gained hands-on experience in machine learning techniques for financial applications

SKILLS

- Technical:** Python, Pandas, NumPy, Machine Learning, NLP, TensorFlow, Keras, Data Analysis, Web Scraping, Statistical Modeling
- Finance:** Portfolio Analysis, Risk-Adjusted Returns, Monte Carlo Simulation, Factor Investing, Quantitative Research
- Languages:** English, Hindi, Bengali

TECHNICAL PROJECTS

High-Performance C++ Development

January 2022-July 2022

- Engineered a high-performance REST API server for IMDb movie database, loading 5.5 GBs of data in under 10 seconds
- Developed multi-threaded password cracking program generating 6+ quintillion potential passwords, cracking 200,000+ passwords in under 2 seconds using profiling and optimization techniques
- Implemented Needleman-Wunsch algorithm for DNA sequence alignment using Dynamic Programming, computing global pairwise alignment for Ebola and Covid genomes in under 8.5 seconds with 1.2 GB memory usage
- Solved Travelling Salesman Problem using Genetic Algorithms on geospatial data for Los Angeles