Harikesh Kushwaha

Location: New Delhi, Delhi

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Quantitative Researcher

As a recent graduate with a strong foundation in **statistics**, data science and **finance**. I have worked on several personal projects as well as taken a number of courses which have honed my skills as a **analytics**. With a passion for solving complex problems and a drive to constantly learn and improve, I am excited to take on new challenges in this position.

Technical Skills

Languages	:	Python (Proficient), C++, SQL
Libraries	:	matplotlib, pandas, NumPy, Seaborn, BeautifulSoup, Selenium, OpenCV, Statsmodels
Databases	:	MySQL, MongoDB
Dev Tools	:	VS Code, Tableau, Git, GitHub, Jupyter Notebook, Anaconda, AWS, S3, Unix/Linux
Soft Skills	:	Analytical and Problem-Solving Skills, Good Presentation Skills, Communication skills
Financial Skills	:	Financial Modeling, Portfolio Management, Option Pricing Models, Stock Pricing Models

Education

Indian Institute of Technology Delhi — New Delhi, India
Master of Science in Physics, (8.6 GPA) — *July 2021 – May 2023 (Expected)*

Banaras Hindu University — Varanasi, Uttar Pradesh India
Bachelor of Science in Physics, (8.4 GPA) — *July 2018 – May 2021*

Projects

pystock — *Python, portfolio theory, finance, pytest* — Source Code

- Developed **pystock**, a comprehensive **Python library** for **portfolio optimization** and management. Utilizing **object-oriented programming**, created a **user-friendly API** capable of optimizing portfolios with any number of securities.
- The library includes various models, such as the **Capital Asset Pricing Model, Single Index Model**, **Fama-French three-** and **five-factor models**, and has a suite of over **100 unit tests** written with **pytest and fixtures**, spanning more than **1500 lines of code**.
- This library shows my ability to **design and implement** a **complex project** from scratch, and develope, test and document a **Python package**.

optionalyzer — *Python, options, futures, plotly, BS model* — Source Code

- Developed **optionalyzer**, a powerful **Python library** for **Options Strategy Builder** that makes it easy to create custom options trading strategies.
- Implemented the **Black-Scholes Model** to accurately calculate **Option prices** and utilized **optimization** techniques to find the **implied volatility** of the Option, enabling users to make better trading decisions.
- Leveraged **Plotly** to create an **interactive Options payoff diagram** for any date, allowing users to explore potential outcomes for different combinations of Options.

frontier — *Python, portfolio theory, pytest* — Source Code

- Developed **frontier**, a Python module for **plotting the efficient frontier** of a portfolio with an arbitrary number of securities.
- Utilizes **Monte Carlo simulations** to create an **interactive efficient frontier**, enabling users to easily explore different portfolios and their expected returns and risks.

Certifications

- Financial Markets (Yale University) Certificate
- Simulation Models for Decision Making (University of Minnesota) Certificate
- Machine Learning Specialization (DeepLearning.AI) Certificate