Varun Kannan
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Summary

Theoretical physicist and quantitative researcher with extensive research experience building optimal portfolios. Focus on portfolio modeling with the use of technical tools from theoretical physics. Enthusiastic about the intersection of theoretical physics and quantitative finance as a foundation for both fundamental research and real-world applications.

Education

2018-09 - 2022-06: Bachelor of Science: Physics, Minor in Mathematics
University of California - San Diego - La Jolla, CA
GPA: 3.32 | 3.60 Major Honors: Provost Honors (5 terms), Salutatorian (HS)

Technical Skills

Programming Languages: Python, Java, Mathematica, C#, JavaScript
Programming related frameworks: Pandas, NumPy, Matplotlib/Plotly, VectorBt, OOP, Multiprocessing
Programming related platforms: Linux, WSL, PowerShell, Jupyter Lab, PyCharm, Android Studio

Projects

Quantitative Trading Model

Skills: Python, NumPy, Plotly, VectorBt, Pandas, Multiprocessing, JSON/Parquet
Designing Trading Strategies which outperform the SP 500 with the most proficient ones having metrics of Sharpe Ratio > 2 and Alpha > 1.5. Implemented in Python with the use of vectorized operations. Focus is on low/medium frequency data, but have also attempted HFT. Use of roll forward analysis across multiple timeframes. Focus on accurate and efficient data extraction, analysis, and storage. Various methods have been tested including PCA, cointegration, and general arbitrage. The process is being documented on my personal website: https://qgspinor.com/projects/coding/alp_gen

Technical Experience

Quantum Physics Research

Internship (Paid): 06/2021 - 09/2021 UCSD Physics Department , La Jolla, CA
Dr. Daniel Green, Associate Professor at UCSD
- Gathered and summarized research data from various online technical sources using Mathematica to create representative graphs and summaries highlighting key insights.
- Identified issues in existing models of the theory, analyzed related information and provided solutions to problems by proposing alternate models

Honors Research: 09/2021 - 12/2021
- Continued the previous internship as an official research subproject with the goal of aiding Dr. Green in his research and learning under his mentorship

Independent Study/Research 03/2021 - 12/2021 UCSD Physics Department , La Jolla, CA Dr. George Fuller, Distinguished Professor, Former Director of the Center for Astrophysics and Space Science at UCSD
- A mentorship and research on various topics in the field of General Relativity, including the formulation of alternate descriptions of gravity as a geometrical theory.

Publications and Technical Writing

- Authored a paper based on individual study along with a review from a distinguished professor on the geometric interpretation of gauge theories and their applications in the formulation of theoretical models in quantum gravity
- Created the website, https://www.qgspinor.com, where I post technical writing, short review articles, derivations, and related exploratory topics in theoretical physics and mathematics.

Awards

- Provost Honors: 5 terms

References

References available upon request