

Varun Kannan

Email: varunkannan2000@gmail.com Phone: 1-630-210-6897
Website: <https://www.qgspinor.com> Flagship Project: https://qgspinor.com/projects/coding/version_1_2
LinkedIn: <https://www.linkedin.com/in/varun-kannan-321b58207> GitHub: <https://github.com/sponge-mi-boi>

Summary

Theoretical physicist and quantitative researcher with varied experience in research and development. Focus on creating profitable and scalable portfolios with the use of technical tools from theoretical physics, including mathematical modeling of various asset classes in differing market regimes. 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, HTML
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 with accurate signal extraction, model validation, and scalability analysis on low/medium frequency timescales with performance judged based on risk-adjusted performance metrics
- Implemented with a Python based, vectorized research pipeline, focused on efficient data extraction and the use of roll forward analysis to validate both out of sample performance and multi-regime stability
- Testing of various quantitative methods including PCA-based factor models, multi-stock cointegration, and statistical arbitrage based portfolios
- Research/methodology is being documented on my website: https://qgspinor.com/projects/coding/alp_gen

Technical Experience

Quantum Physics Research

Internship (Paid): 06/2021 - 09/2021 (3 months) UCSD Physics Department, La Jolla, CA

Dr. Daniel Green, Associate Professor at UCSD

- Identified issues in existing models of quantum fields and tested proposed models on existing data with rigorous analysis tools and a comprehensive research process. Use of Bayesian filters to estimate hidden variables in the context of quantum phenomena, such as decoherence.
- Analyzed research data from various technical sources using Mathematica to create representative graphs and summaries highlighting key insights.

Honors Research: 09/2021 - 12/2021 (3 months)

- 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 (9 months) UCSD Physics Department, La Jolla, CA

Dr. George Fuller, Distinguished Professor, Former Director of the Center for Astrophysics and Space Science, 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. Obtained testable predictions and attempted to compare to existing data.

Publications and Technical Writing

- Authored a paper based on individual study along with a review from a distinguished professor on the application of the geometric interpretation of gauge theories to formulating 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 quantitative finance.

References

References available upon request