Yuqi Wang

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Industry Experience

Dec. 2023 - Jun. 2024 **Shanghai Xuanling Asset Management Co., Ltd** | *Quantitative Researcher Intern*

Unconventional Alpha Constructed two physics-based operators that produced 1,568 alpha factors; among them, 466 factors passed backtesting (2018-2023). After decorrelation, 10 effective factors remained, with the best achieving an IC mean of 0.051 and a 19.2% annualized excess return, while maintaining correlation coefficients below 0.2 with existing factors from company's library.

Auto Alpha Generator Developed a scalable, automated system for alpha factor discovery by modularizing code and logically assembling the modules. This framework generated 51,840 minute-frequency alpha factors, 46.7% of which passed backtesting; 218 factors remained effective after decorrelation, with the best factor displaying an IC mean of 0.079 and a 17.8% annualized excess return.

Volatility Forecasting Addressed limitations of traditional volatility measures, reviewed literature, and implemented 10 realised volatility estimators. Verified RV's superiority over standard deviation and GARCH approach. Implemented and tested the HAR-RV model, confirmed its accuracy in one-step ahead forecasts; multi-step forecasts converged to a constant.

Research Experience

Jun. 2023 - Aug. 2023 **Institute of Theoretical Physics, Chinese Academy of Sciences** | *Meng Group*

Research project Growth and division of active droplets: a model for protocells [a,b]

Apr. 2023 - Jun. 2023 **String Theory Group, Yau Mathematical Sciences Centre** | *Hung Group*

Research project Exact holographic tensor networks——constructing CFT_D from TQFT_{D+1}

Education

2020 - 2023 **Queens' College, University of Cambridge** | *Bachelor of Arts, Natural Sciences Tripos (2.i Honours)*

Courses statistical physics, quantum condensed matter, classical field theory, general relativity

Projects (i) The mathematical foundation of machine learning (ii) The time complexity of percolation algorithms

Independent Projects

2023 **Mathematics for Non-Mathematicians** | *Linear Algebra, Abstract Algebra*

Description I wrote Mathematics for Non-Mathematicians to help non-math majors understand abstract algebraic structures. The book begins with practical linear algebra applications, progresses to formal vector space discussions, and introduces structures like modules to demonstrate abstraction.

2022 **Grad-Level Maths & Physics for Undergrads** | *Differential Geometry, Statistical Physics*

Description I created notes, slides, and videos to clarify subtleties in graduate-level physics and math for advanced undergraduates. Topics include: (*a*) Kaluza-Klein Theory (*b*) Lee-Yang Zero (*c*) Killing Equations & Isometry (*d*) Metric Tensor=Line Element?

Technical Skills

Languages Python★★★★, SQL★☆☆☆
Libraries Numpy★★★★, Pandas★★★☆, Numba★☆☆☆, TensorFlow★☆☆☆
Software PyCharm★★★★, Git★★☆☆
Markup TeXmacs ★★★★, LaTeX★★★☆, Markdown★★★☆

Basic ★☆☆☆
Proficient ★★☆☆
Advanced ★★★☆
Expert ★★★★

References

Prof. Eugene Terentjev **Cavendish Laboratory, University of Cambridge** | Professor of Polymer Physics
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Prof. Fanlong Meng **Institute of Theoretical Physics, Chinese Academy of Sciences** | Professor of Physics
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Dr. João Rodrigues **St Catharine's College, University of Cambridge** | Doctor
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