YIN FU
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EDUCATION

NEW YORK UNIVERSITY New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance (Sep. 2021 - Dec. 2022)
- *Coursework:* Stochastic calculus, derivative pricing, quantitative portfolio theory, risk management, financial data science and machine learning, time series analysis, interest rate modeling

UNIVERSITY OF WASHINGTON Seattle, WA
BS in Mathematics (Sep. 2017 – Jun. 2021)
- *Coursework:* Probability, linear algebra, numerical analysis, statistics, ODEs and PDEs, measure theory
- *Honors:* Magna Cum Laude (Top 3.5%), Dean's List

EXPERIENCE

CHINA CONSTRUCTION BANK, NEW YORK BRANCH New York, NY
Quantitative Risk Analyst (Jun. 2022 – Aug. 2022)
- Built a country risk predictor leveraging linear models, boosting, random forest based on S&P data of economics and political factors, and achieved 87.2% in-sample and 78.9% out-of-sample accuracy
- Drafted country risk report for the US collaboratively by analyzing macro risk factors and ML predictions
- Implemented the stock-flow cycle model for the US real estate market, and calibrated parameters to the market data from 1980 to 2022; tuned hyperparameters for model interpretability and performance

WASHINGTON EXPERIMENTAL MATHEMATICAL LAB - WXML Seattle, WA
Research Assistant (Apr. 2020 – Dec. 2020)
- Derived mathematical properties of number operators and Hamiltonians in bosonic quantum field theory
- Proved non-uniqueness of field configuration, given the same observation in Minkowski particle content
- Explained theoretical behavior of number operators' in real-world terms

PROJECTS

NEW YORK UNIVERSITY New York, NY
Simulation of Backward SDEs and Applications to Nonlinear PDEs in Finance (Python)
- Implemented deep BSDE and generalized LSMC method for nonlinear PDEs based on ML algorithms
- **Option Pricing:** Priced exotic options by simulation of BSDEs and derived dynamic hedging strategies
- **Optimal Execution:** Leveraged LSMC to solve the HJB-PDEs in equity market impact models presented by Cartea et al. (2015) for optimal inventory processes, and analyzed convergence, numerical stability, etc

Implied and Local Volatility Calibration (Python)
- Calibrated SVI parameterization with SPX options data to a continuous implied volatility surface, and computed local volatility surface

Backtesting and Statistical Arbitrage (Python)
- Researched and presented the CNN+Transformer model in *Deep Learning Statistical Arbitrage* (2020) and analyzed the out-of-sample performance for 550 largest US stocks with different risk factors.
- Implemented and backtested the Adapted P&Q strategy presented by Fong and Tai (2009) for S&P 500 stocks, calculated performance metrics (ROI, Sharp ratio), and analyzed the impact of market frictions.

Financial Data Science (Python)
- **Index Tracking:** Built a dynamic index tracking strategy for S&P 500 leveraging Kalman filter
- **ICA:** Performed pICA on Reuters news to identify the most related articles to specific topics such as earnings, rates, and CPI; analyzed and compared the performance to PCA-based LSA.

UNIVERSITY OF WASHINGTON Seattle, WA
Introduction to Numerical Methods for Solving Large and Sparse Linear Systems (MATLAB)
- Elaborated Krylov subspace methods and implemented conjugate gradient method in MATLAB
- Researched numerical limitations of current best sparse linear system solver by Peng and Vampala (2020)

COMPUTATIONAL SKILLS/OTHER

Programming Languages: Python, Java, MATLAB, Mathematica
Languages: English (fluent), Mandarin (native), Japanese (intermediate)