Anran Wang

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Proficient in Python, R, SQL; comfortable with Matlab, C++, Linux ｜ CFA Level II

EDUCATION

Stevens Institute of Technology, Hoboken, NJ, US   Aug 2018 - Jan 2020

M.S. in Financial Engineering

- Cumulative GPA: 3.83/4.00
- Honor and Award: 3rd place award in the first Quantitative Investment Competition by SIT School of Business
- Relevant Courses: Stochastic Calculus, Pricing and Hedging, Machine Learning, Computational Methods, Portfolio Theory, Market Microstructure

Ocean University of China - Qingdao, Shandong, China   Sep 2013 - Jun 2018

B.S. in Mathematics and Applied Mathematics

- Relevant Courses: Mathematical Analysis, Advanced Algebra, Statistics, Time Series, Economics

RESEARCH EXPERIENCE

Asset Pricing Dynamics in the Forex Market based on Quantitative Multi-Factor Analysis   Aug 2021 - Dec 2021

Advisor: Prof. Y. Chi, D. in Financial Economics from University of Chicago

- Engage in a research project on the pricing of dynamic assets in the foreign exchange market.
- Use multi-factor models to decompose the return of various Forex currencies into different types of return factors such as momentum, carry, quality and etc. Linear and non-linear statistical methods (such as neural networks) were used to price the Forex market dynamically, and finally analyze the characteristics of different currencies through the features shown by the factors.

Portfolio Construction based on Wavelet Neural Network and Reinforcement Learning   Sep 2019 - Dec 2019

Advisor: Prof. Khashanah, Director of Financial Engineering Division from Stevens Institute of Technology

- Selected project by Hanlon Financial System Center and posted on its website, *https://fsc.stevens.edu/portfolio-construction-based-on-wavelet-neural-network-and-deep-reinforcement-learning/.*
- Used deep learning and reinforcement learning to develop quantitative portfolio driven by volume and price data.
- Selected 11 years daily data of SP500 component stocks as the training set, combined with wavelet decomposition to train the LSTM networks. Established a mean-variance portfolio based on the outputs. The strategy had an excess annual return rate of 2.4% and extremely low volatility.
- Built agents that can improve investment decision automatically based on deep reinforcement learning. The agents using different rewards, observations, and network structures. The best model had an annual excess return rate of 3.6%.

The Soccer Team Rank Analysis based on Machine Learning   Oct 2018 - Dec 2018

- Applied supervised learning and clustering to analyze the strength of multiple football teams.
- Selected 5 out of 13 soccer team features based on forward stepwise selection. Regressed features to points earned each match using multiple regression and Lasso regression. The Lasso method had smaller MSE on the test set and the team ranking predicted by it had an accuracy of more than 90%.

Multifractal Analysis of Financial Time Series based on Empirical Mode Decomposition   Feb 2018 - Jun 2018

- Used EMD method to decompose the 10 years Shanghai Composite Index daily log return time series into IMFs, which are the subsequences representing different time scales. Calculated Hurst exponent using R/S method for each IMF. The short-term IMF had anti-persistence whereas long-term had sustainable features.

- Analyzed Multifractal of IMFs through generalized Hurst exponent and multifractal spectrum. Showed that the government's macro-control and the role of maintaining market stability are more obvious in short-term. The conclusions drawn by this method are more than 80% consistent with the real market changes.

Research on the Impact of Tides on Agriculture based on Machine Learning   Jul 2017 - Aug 2017
- Combined various tide features to classify daily tide data for ten years through classification methods such as KMeans and DBSCAN. Different tides were divided into three groups. The first group had higher vertical height and sodium content, which will cause damage to agricultural land by the sea.
- Took the tidal characteristics of each quarter as inputs and the farmland output as a label for supervised learning to predict the impact of the tide on agriculture based on neural network. The predictions had an 87% accuracy.

PROFESSIONAL EXPERIENCE

China Merchants Bank, Shanghai, China   Oct 2020 - Present
Analyst, FinTech Department
- Take charge of customer data analysis and product analysis. Collect and preprocess customer-related data generated in the background. Use data mining methods and recommendation systems to refine customers' risk preferences, product preferences, and minimum revenue requirements, etc., and draw customer characteristic maps. Make marketing guidance for the front desk.
- Responsible for the online channel access of marketing activities. By filtering and combining customer tags, different customer groups can be reached by marketing text messages or AI calls that meet their needs. The online marketing campaign successfully acquired 100,000+ new customers within half a month, achieving 20% of the annual target.

Shanghai CIFCO Futures Co. Ltd, Shanghai, China   Sep 2017 - Feb 2018
Quant Intern, Asset Management Department
- Joined the quantitative strategy group and participated in the establishment of a multi-factor Alpha strategy.
- Read the latest research reports at home and abroad, and discussed the development of new factors. Performed factor tests and calculated the excess return of the factor. IC, IR, and half-life are computed to estimate persistence and information attenuation.
- Tested factors' correlation and assisted in the construction of back-testing framework. The portfolio's actual trading had an excess annual return of nearly 10% and a Sharpe Ratio of nearly 1.5.

TA EXPERIENCE

Stevens Institute of Technology, Hoboken, NJ, US   Jan 2019 – May 2019
Teaching Assistant, School of Business
- Worked as a teaching assistant for the course *Stochastic Calculus for Financial Engineering*.
- Helped with students' homework correction and conducted daily Q&A sessions.

STANDARD TESTS

TOEFL 106 (Listening 28, Speaking 23, Reading 29, Writing 26)
GRE   **325** Verbal 157 (75%); Quantitative 168 (93%); Analytical Writing 3.0