Weizhi LIU, Ph.D., FRM

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Work Experience

Southern Ridges Capital — **Singapore**
Quantitative Researcher — Mar 2020 - Present

- Developed systematic global macro strategies for bond/equity index/commodity futures, interest rate swaps, and fx spot/forwards with medium to low trading frequency (daily to quarterly).
- Collaborated with teammates to build the portfolio optimization engine and the interest rate swaps database (data cleaning, interpolation).
- Managed part of the money as a spinoff from BlueCrest Capital Management (Singapore).

National University of Singapore — **Singapore**
Research Fellow, Centre of Excellence in Modelling and Simulation for Next Generation Ports — Oct 2018 - Feb 2020

- Collaborated with other researchers to accomplish "Design for High-Performance Framework of Multi-fidelity Simulation Optimization" project.
- Proposed efficient simulation budget allocation strategies for binary classification with noisy labels to save simulation cost and improve classification accuracy.
- Developed three simulation budget allocation strategies to identify non-dominated systems with correlated multiple objectives with asymptotic convergence for multi-objective ranking and selection.

WorldQuant — **Singapore**
Research Consultant (Part-time) — Sep 2018 - Oct 2019

- Analyzed various data sources using statistical and machine learning techniques to seek statistical arbitrage opportunities in the US, European and Asian equity markets on the WorldQuant Websim.
- Designed near 400 equity long/short strategies using Python and in-house programming language to identify optimal trading strategies with excellent and stable out-of-sample performances (median sharpe $\sim$ 2.2, median annualized returns $\sim$ 8.2%, and median maximum drawdown $\sim$ 1.8%).
- Created a top trading strategy that has one and a half year out-of-sample Sharpe ratio 5.26, 15.40% annualized return, and ten-year in-sample Sharpe ratio 3.47, 13.63% annualized return. Some trading strategies perform quite well in highly liquid stock universes (e.g., Russell top 200, Asia top 150).

Martian Capital Management — **Singapore**
Quantitative Researcher Intern — Mar 2018 - Sep 2018

- Developed an automatic signal-generation framework in python to find promising indicators relevant to forward returns of front month futures of WTI/Brent Crude/Heating Oil/Gasoline/Gasoil.
- Implemented an automatic report generation tool using LaTeX and Python to visualize trading indicators' profile that could help understand their prediction power more easily.
- Established a flexible backtesting framework in Python to cross-validate out-of-sample performances of different multi-period trading strategies and respective hyper-parameters which led to a machine-learning-based multi-factor directional strategy with three years out-of-sample Sharpe ratio 1.4.

ADVANCE.AI — **Singapore**
Data Scientist Intern — Jul 2017 - Oct 2017

- Designed and implemented two graph-based anti-fraud algorithms for GoJek in Hive SQL and pySpark to identify fraudulent drivers/customers with abnormal topological structures in co-occurrence graphs.
- Conducted feature engineering and applied isolation forest, ensemble supervised learning, and natural language processing methods to predict fraudulent and abnormal scores for email addresses dataset.

Education

National University of Singapore :: Industrial Systems Engineering & Management — **Singapore**
Ph.D. in Multi-objective Simulation Optimization — Aug 2014 - Nov 2018

Nanjing University :: Management Science and Engineering — **Nanjing, China**
B.Econ in Financial Engineering; B.Eng in Industrial Engineering — Sep 2010 - Jun 2014

Awards

- **Gold Medal and Top 10 in the world:** WorldQuant Global Alpha Building Competition - Spring Alphathon — Apr 2017
- **Level 5 (Finalist):** Google FooBar Coding Challenge — Mar 2017
- **Graduate of Excellence:** Nanjing University — May 2014
- **INFORMS Paper Award (0.04%, 2/5536) and Outstanding Winner:** The Mathematical Contest in Modeling — Feb 2013

Additional Information

- **Certificates:** Certified FRM, Passed CFA Level 1, Deep Learning and Reinforcement Learning Specialization in Coursera.
- **Programming:** Python, Matlab, R, SQL, Git, Linux, Shell Scripting, LaTeX.
- **Languages:** Mandarin Chinese (native), English (fluent).
- **Miscellaneous:** Singapore Permanent Resident.