ZHONGQI MA

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EDUCATION

MIT Sloan School of Management Cambridge, MA
Candidate for Master of Finance, Feb 2025 *2023 - Present*

- **Relevant Courses:** Advanced Mathematics for Financial Engineering, Advanced Data Analytics and Machine Learning in Finance, Financial Data Science and Computing, Options and Futures Markets, Quantitative Investment Management, Corporate Finance, Financial Markets

University of Michigan Ann Arbor, MI
Bachelor of Science in Mathematics of Finance and Risk Management *2019 - 2023*
Bachelor of Science in Computer Science

- **Honors:** James B. Angell Scholar (2021-2022), University Honors Designation (2019-2022)
- **Relevant Courses:** Discrete State Stochastic Processes, Numerical Methods with Financial Applications, Machine Learning, Data Structures and Algorithms, Theoretical Statistics, Probability Theory, Linear Algebra

WORK EXPERIENCE

X Asset Management Shanghai, China
Quantitative Researcher Intern *June 2024 - Aug 2024*

- Constructed de-residualized returns label using regression and sorting techniques, improving signal accuracy by removing market noise and isolating true expected returns.
- Back-tested performance of de-residualized returns label, resulting in a 12% increase in 3-year average return and a 1.6-point improvement in Sharpe Ratio compared to the baseline label using 1-day future returns.
- Validated label effectiveness through low bcorr values and Barra exposure analysis, confirming signals were uncorrelated and aligned with expected factor exposures.

Jinde Asset Management Beijing, China
Quantitative Researcher Intern *May 2023 - June 2023*

- Constructed a program to determine the distribution of stock price outliers based on time window length, established a relationship between outlier count and time of day.
- Analyzed stock price outliers within specific price ranges against the overall mean mid price in the same range.
- Identified abnormalities in return rates based on analysis of the total daily return of China A share equities, revealing significant trends in the highest and lowest return rates.

RESEARCH EXPERIENCE

Explaining CNN with Volterra Signature University of Michigan
Research Assistant *Nov 2021 - March 2023*

- Built a network for image classification with Volterra Signature, and compared the accuracy and time complexity with Convolutional Neural Network classification.
- Constructed a neural network that finds the corresponding kernel function of the Volterra Signature function for each given dataset.
- Tested the Volterra Signature image classification model against a selected subset of the MNIST dataset containing only 3 labels to determine places in need of enhancement.
- Created a mixed-data and a single-data neural network to see if the neural network is dependent on specific images when finding the corresponding kernel function of different datasets.

Improving Neural Networks with Domain Knowledge University of Michigan
Undergraduate Researcher at UofM Department of Mathematics REU Program *June 2022 - August 2022*

- Designed a custom loss function that penalizes prediction errors with respect to the desired domain knowledge of inputs, enforcing the satisfaction of the given domain constraints.
- Built a neural network model with PyTorch that successfully implemented known domain knowledge of polynomials in its prediction process with the custom loss function
- Tested the neural network with the custom loss function against a randomly generated gaussian noise dataset featuring the square function, increasing the prediction accuracy of the neural network model by over 70% in comparison to using the MSE loss function.
- Implemented a strong enforcement for symmetricity in the neural network forward function, lowering the difference between opposite data points by 5 times for inputs with symmetric traits.

TECHNICAL SKILLS

Python, C++, Matlab, Microsoft Excel, LaTex