Zhewen Hou

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Education

Columbia University in the City of New York New York, NY
Department of Statistics, PhD Candidate in Statistics 09/2021-06/2026(expected)
Research Interests: Applied Statistics, Statistical Learning, Distributional Learning
Relevant Coursework: Stochastic Process, Statistical Learning, Linear Regression, Measure Theory, Price Impact Model

Peking University Beijing, China
School of Mathematical Sciences, BS in Statistics with talent training plan, BE in Economics 09/2017-07/2021
Relevant Coursework: Mathematical Statistics, Micro/Macroeconomics, Econometrics, Financial Economics, Financial Econometrics (Time Series), Investment, Game Theory, International Finance

Selected Awards and Honors

Columbia University Dean's Fellowship for Statistics, 5 years 2021-2026
Academic Excellence Scholarship, twice 07/2018,12/2019
1st Prize in Chinese Mathematical Olympiad, twice 2014, 2016
2nd Prize in Chinese National Olympiad in Informatics in Provinces 2014

Relevant Experience

Jump Trading Shanghai, China
Quantitative Researcher Intern 06/2025-08/2025
- Conducted predictive modeling to improve execution and performed alpha research from scratch using tick data
- Predicted aggressive fill order ratio using real and synthetic data; logistic regression achieved AUC > 0.75
- Used participant-tagged L3 order book flows and trade ticks to forecast 5-minute returns for HSI constituents; ridge regression yielded ~2% R squared
- Developed and executed a trading strategy in a simulated European bond market game, finishing 1st place

Jane Street Capital New York, NY, USA
Quantitative Trader Intern 05/2024-08/2024
- Developed alpha from execution inefficiencies and detected market patterns via stock volume forecasting
- Built an alpha exploiting suboptimal taker routing in options, yielding 8.5% return vs. bid-ask spread over 10 minutes
- Designed a stock volume prediction model with over 70% R squared for the next 30-minute period
- Computed idiosyncratic volume as prediction residuals and built metrics to identify elevated baskets—simultaneous volume spikes in ETF constituents—with over 95% accuracy on labeled data
- Predicted 5-day-ahead bond prices and executable levels; optimized quote edges in Bond RFQ challenge (2nd place)

QTG Capital Management Shanghai, China
Quant Intern 05/2023-08/2023
- Explored 30-second return prediction for Chinese stocks via feature selection, alpha signal design from index futures, and regression-based modeling
- Achieved an average R squared of ~7.4% in predicting 30-second returns across 40 randomly selected stocks

Research Experience

Distribution-Informed Learning via Kernelized Stein Discrepancy Calibration, Columbia University 03/2024-present
Supervised by Prof. Zheng Tian
- Proposed an alternative distribution-informed learning framework that enhances ML predictions with a calibration algorithm based on normalization and Kernelized Stein Discrepancy to address possible distributional divergence
- Utilized Kernelized Stein Discrepancy within a Reproducing Kernel Hilbert Space to improve the fidelity of model predictions to known marginal distributions of outcome variables

Bagged DIP for Recovering Images in the Presence of Speckle Noise, Columbia University 09/2023-02/2024
Supervised by Prof. Arian Maleki
- Provided the first MLE-based recovery error bound using sharp linear-algebraic bounds, decoupling techniques and concentration of measures, in terms of parameters in the presence of speckle noise
- Employed bagging of independent Deep Image Priors to provide more robust and effective projection
- Applied efficient matrix inversion approximation in projected gradient descent, achieving over 10,000x acceleration

Selected Course Project

Trend-following System Simulation | *Financial Price Analysis*
- Led and mentored classmates to implement the trend-following algorithm and back-test it on commodity futures
- Designed strategies to tune parameters and choose hyperparameters to maximize net profit to max drawdown ratio

Analysis on Intraday Price Patterns | *Financial Econometrics*
- Investigated the intraday pattern and the components of the bid-ask spread
- Formulated factor models and a structural model to identify the determinants of the bid-ask spread

Selected Papers

Hou, Z., Peter, J., Tian, Z. Distribution-Informed Learning via Kernelized Stein Discrepancy Calibration. In submission.
Chen, X., **Hou, Z.**, Metzler, C., Maleki, A., & Jalali, S. Bagged Deep Image Prior for Recovering Images in the Presence of Speckle Noise. In Forty-first International Conference on Machine Learning.

Skills & Interests

- **Programming**: Python, R, Stata, Matlab, kdb+, Java, C, JavaScript
- **Interests**: Tennis, Squash, History