Yu Shao

yshao19@bu.edu | 443-852-2048 | New York City, NY | https://yshao19.github.io

EDUCATION

Boston University, Boston, MA 08/2019 - 05/2024
Ph.D. in Statistics, Overall GPA: 4.0/4.0
Honors: Outstanding Teaching Fellow Award (2021), Dean's Fellowship (2019)
Advisor: Dr. Ting Zhang

Johns Hopkins University, Baltimore, MD 08/2017 - 05/2019
Master of Science in Engineering in Financial Mathematics, Overall GPA: 4.0/4.0
Honors: Outstanding Master's Research Award (2019)

Renmin University of China, Beijing, China 09/2013 - 06/2017
Bachelor of Science in Mathematics and Applied Mathematics, Overall GPA: 3.78/4.0
Bachelor of Engineering in Computer Science, Overall GPA: 3.78/4.0
Honors: Beijing Outstanding Graduate (2017), Jingdong Scholarship (2016), Excellent Student Cadre (2015)

INDUSTRY EXPERIENCE

Senior Business Consulting 09/2024 - Present
Ernst & Young LLP New York, NY

- Contributed to developing an anti-money laundering warning system for commercial banks, utilizing decision systems and logistic regressions, integrated with sentiment analysis via large language models.
- Created an automated credit check procedure for clients opening accounts at commercial banks, employing statistical tests and machine learning models.

Portfolio Management 09/2023 - 03/2024
Stepstone Group La Jolla, CA

- Performed time series analysis of net asset values at the industry and sector levels for US and EU private equity markets, delivering comprehensive risk analysis on the impact of foreign interest rates
- Developed methodologies for quarterly interpolation of unrealized asset values using private equity cash flows, addressing data gaps and inconsistencies in the database to improve accuracy and completeness

Quantitative Researcher Intern 06/2023 - 08/2023
IMC Trading Chicago, IL

- Constructed time-varying statistical models based on real-time trading data to identify trading signals from option implied volatility skew; designed and implemented option portfolios for signal capturing.
- Performed backtesting Profit and Loss analysis and sensitivity assessments using advanced option theory, resulting in dynamic optimization strategies for option position profitability maximization.

Data and Quantitative Analytics Intern 01/2023 - 05/2023
Stepstone Group La Jolla, CA

- Developed multi-factor models for portfolio management across private debts, infrastructure, venture capital and private equity; integrated into a Daily Valuation Engine for daily private equity pricing approximation based on public market data.
- Refined private equity portfolio return forecasting models and performed critical sensitivity analysis, enhancing model accuracy and robustness, and delivering actionable insights for predicting private market trends.

RESEARCH EXPERIENCE

Research Assistant 05/2022 - 09/2022 & 07/2024 - 09/2024
Department of Statistics, University of Georgia Athens, GA

- Proposed local linear nonparametric estimators for high quantiles in nonstationary tail-dependent time series with asymptotic theories developed; applied to time-varying Value at Risk estimation for Nasdaq 100 Index.
- Investigated tail index estimation for a general class of tail-dependent time series, establishing asymptotic theories via martingale approximation; applied to a robust mixture tail clustering (RMTC) algorithm, validated through Monte Carlo simulations and stock return clustering analysis within Russell 3000 Index.

Research Assistant 09/2019 - 05/2024
Department of Mathematics and Statistics, Boston University Boston, MA

- Proceeded statistical inference and visualization of time-varying correlation functions in settings of non-stationary time-series using locally homogenized centering scheme with applications in financial indices and COVID data
- Implemented stratified penalized kernel method to simultaneously label and estimate semiparametric coefficients in time-varying regression models with Monte-Carlo study and numerical experiment in global temperature series

Research Assistant 12/2017 - 05/2019
Applied Mathematics and Statistics Department, Johns Hopkins University Baltimore, MD

- Developed theoretical framework for analyzing distributed denial of service attacks using stochastic fluid queues
- Modeled transient behavior of stochastic fluid queues for theoretically assessing corporation ruins in financial network contagion and resource allocation deficiencies in supercomputing systems

Research Assistant 08/2015 - 06/2017
Lab of Information System Application, Renmin University of China Beijing, China

- Evaluated feature engineering techniques in business operational risk and applied them to ensemble learning models for credit card fraud detection.
- Developed an automated event-driven trading strategy leveraging quantitative technical analysis and internet media sentiment, achieving performance superior to baseline meachine learning models.

PUBLICATIONS & RESEARCH WORKS

- Hanyue Cao, Jingying Gao, Yu Shao, T. N. Sriram, Weiliang Wang, Fei Wen, and Ting Zhang. *Tail index estimation for tail adversarial stable time series with an application to high-dimensional tail clustering.* Journal of Time Series Analysis, forthcoming.
- Ting Zhang and Yu Shao. *Time-varying correlation for non-centered non-stationary time-series: simultaneous inference and visualization.* Statistica Sinica, forthcoming.
- Ting Zhang, Weiliang Wang, and Yu Shao. *A stratified penalization method for semiparametric variable labeling of multi-output time-varying coefficient models.* Statistica Sinica 33 (2023), 1025-1045.
- Antwan Clark, Yu Shao, Jiawen Bai, Giovanni Berrios, and Nicole Fleming. *Large Scale Storage Simulation (L-S3) Module for HPC Environments.* JHU Invention Disclosure, April 2022.
- Antwan Clark, Yu Shao, Jiawen Bai, Giovanni Berrios, and Nicole Fleming. *Node-Local Burst Buffer Reliability Analysis Framework.* JHU Invention Disclosure, Febrary 2022.
- Yu Shao, Jiawen Bai, Ning Liu, Kun Wang, and Antwan Clark. *Asymptotic transient solutions of fluid queues fed by a single ON-OFF source.* IEEE Annual Ubiquitous Computing, Electronics and Mobile Communication Conference (UEMCON), New York, USA, November 2018.

PROFESSIONAL SKILLS

- Computer Skills: Python, R, C, C++, Java, MATLAB, SAS, VBA, and PL/SQL
- Certificate: Chartered Financial Analyst (CFA) Level III Passed