

Yifeng Guo

Postdoctoral Research Associate (Statistics & Machine Learning)
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RESEARCH SUMMARY My research lies at the intersection of high-dimensional statistics and artificial intelligence, with a focus on explainable AI and complex data modeling. I develop theoretically grounded methods for feature importance, functional data analysis, and high-dimensional inference, with applications in computational biology, medicine, and finance.

My recent work has appeared in leading venues in statistics and artificial intelligence, including the Journal of the American Statistical Association (JASA), IEEE JBHI, ICLR, and others.

ACADEMIC APPOINTMENTS **St. Jude Children's Research Hospital** Memphis, TN, USA
Postdoctoral Research Associate (Statistics & Machine Learning) Feb. 2024 – Present
Department of Computational Biology
Advisor: Dr. Xiang Chen
Research: Machine learning and statistical methods for biomedical and single-cell data analysis.

EDUCATION **The University of Hong Kong (HKU)** Hong Kong SAR
Ph.D. in Statistics Sep. 2019 – Jan. 2024
Dissertation: High-dimensional Statistical Methods for Financial Data Analysis
Advisors: Prof. Guodong Li and Dr. Aijun Zhang

Sun Yat-sen University (SYSU) Guangzhou, China
B.S. in Mathematics and Applied Mathematics Sep. 2015 – Jun. 2019
Advisor: Prof. Xueqin Wang

Southern University of Science and Technology (SUSTech) Shenzhen, China
Visiting Student, Business School Apr. 2023 – Aug. 2023
Advisor: Prof. Li Jin

University of California, Berkeley Berkeley, CA, USA
Visiting Student, Department of Mathematics Aug. 2017 – Dec. 2017

PUBLICATIONS * Equal contribution, † Corresponding author

Statistical and Machine Learning Methodology

Published and Accepted

- Jin-Hong Du*, **Yifeng Guo*** and Xueqin Wang. "High Dimensional Portfolio Selection with Cardinality Constraints". *Journal of the American Statistical Association* (2023), 118:542, 779–791 [[pdf](#)]
- Yifeng Guo**, Jin-Hong Du, and Xueqin Wang. "Conditional Value-at-Risk Portfolio Optimization in High Dimensions". Accepted at *Statistics and Its Interface* (2025)
- Xingshu Chen*, **Yifeng Guo*** and Jin-Hong Du. "Flow-Disentangled Feature Importance". *The Fourteenth International Conference on Learning Representations (ICLR 2026)* [[OpenReview](#)]

Preprints

- Huiling Yuan, Kexin Lu, **Yifeng Guo** and Guodong Li. "HAR-Itô Models and High-dimensional HAR Modeling for High-frequency Data". Major Revision at *Statistica Sinica* [[arXiv](#)]
- Yifeng Guo***, Yan Chen*, Xueqin Wang and Guodong Li. "Dynamic Functional Factor Model with Multiple Breaks". Under Review
- Yifeng Guo**, Jin-Hong Du and Xiang Chen. "Beyond Importance: Interchange-Sobol Sensitivity Reveals Task-Specific Content Channels in Transformer Components". Under Review
- Xingshu Chen*, **Yifeng Guo***, Jin Zhu*, Junxian Zhu*, Ting Tian and Xueqin Wang. "Stabilize Feature Selection via Neural Network". In preparation

5. **Yifeng Guo**, Cai Li and Xiang Chen. "Direction-Specific Biomarker Informativeness in Alzheimer's Disease". In preparation
6. **Yifeng Guo***, Roulin Wang*, Anping Guo* and Xueqin Wang. "Sequential Monitoring of Interrupted Time Series: Valid Repeated-Look Inference for Pharmaceutical Policy Surveillance". In preparation

Interdisciplinary and Applied Studies

Published and Accepted

1. Yipeng Zhuang*, **Yifeng Guo***, Yuewen Li*, Yuheng Wu, Tingting Song, Zhiyong Wang, Yiteng Liang, Kunzhong Zhou, Weifang Wang, Junxuan Yu and Li Zhuang. "AI-Driven Prediction of Cancer Pain Episodes: A Hybrid Decision Support Approach". Accepted at *IEEE Journal of Biomedical and Health Informatics* (2026)
2. Yipeng Zhuang*, **Yifeng Guo***, Longfei Ju*, Jieying Xu, Li Zhuang, and Philip Yu. "Grounded Interactive AI for Adaptive Medical Education". *28th International Conference on Human-Computer Interaction (HCI 2026)*
3. Jie Song, Jiang Wu, Xiangyang Li, Qingong Ning, Wei Liu, Zefan Liu, Guoyi Yuan, Haichang Huang, **Yifeng Guo**, Yipeng Zhuang, Yuxiang Bai, Wang Ge and Dingchun Zi. "Tobacco Cultivation in Yunnan: An Integrated Analysis of Economic Trends and Diversification". *Frontiers in Sustainable Food Systems* (2025), 9:1622916

Preprints

1. Yi Yu*, Yi He*, **Yifeng Guo***, Jiali Deng, Jiaqi Shen, Feilong Deng, Ruogu Xu and Zhengchuan Zhang. "Influence of implant-membrane angle on non-grafting osteotome sinus floor elevation with simultaneous implant placement: a 6-year retrospective study". Under review
2. Lingxiang Jiang, **Yifeng Guo**, Xiang Chen and Xiumei Huang. "IB-DNQ Promotes Anticancer Immunity by inducing TH2 CD4+ T cell Responses in NQO1-Expressing Cancer Cells". Under review
3. Kaiwen Wang*, Hao Fu*, **Yifeng Guo***, Xuexin Li, Jiayang Du, Tauheed Ishrat, Csaba P. Kovcsdy, Francesca-Fang Liao, Feng Liu-Smith, Susan (Krum) Miranda, Na Chen, Kazuko Sakata, Zhongjie Sun and Weikuan Gu. "Evaluating the Capacity of LLMs in Assisting Proposal Review: A Comparative Study". Under review.
4. **Yifeng Guo**, Yu Su, Zebin Yang and Aijun Zhang. "Explainable Recommendation Systems by Generalized Additive Models with Manifest and Latent Interactions". [\[arXiv\]](#)
5. **Yifeng Guo**, Xingyu Fu, Yuyan Shi and Mingwen Liu. "Robust Log-optimal Strategy with Reinforcement Learning". [\[arXiv\]](#)
6. Xingyu Fu, Jin-Hong Du, **Yifeng Guo**, Mingwen Liu, Tao Dong and Xiuwen Duan. "A Machine Learning Framework for Stock Selection". [\[arXiv\]](#)

INVITED TALKS AND CONFERENCE PRESENTATIONS

- 2026 IMS New Researchers Conference Asia Hong Kong, China, Jun. 2026
Invited talk: "Dynamic Functional Factor Model with Multiple Breaks."
- The 40th International Conference on Learning Representations (ICLR 2026) Rio de Janeiro, Brazil, Apr. 2026
Poster presentation: "Flow-Disentangled Feature Importance."
- Joint Statistical Meetings (JSM) Portland, USA, Aug. 2024
Contributed talk: "HAR-Itô Models and High-dimensional HAR Modeling for High-frequency Data."
- The 6th International Conference on Econometrics and Statistics Tokyo, Japan, Aug. 2023
Contributed talk: "Conditional Value-at-Risk Portfolio Optimization in High Dimensions."
Session Chair: "Asset Allocation."
- International Chinese Statistical Association (ICSA) China Conference Chengdu, China, Jun. 2023
Invited talk: "High Dimensional Portfolio Selection with Cardinality Constraints."
Discussant: "Optimization in Statistics."
- Applied Stochastic Models and Data Analysis International Conference (ASMDA) Heraklion, Greece, Jun. 2023
Contributed talk: "High Dimensional Portfolio Selection with Cardinality Constraints."
- The 11th National R Conference Shanghai, China, Dec. 2018
Contributed talk: "Robust Log-optimal Strategy with Reinforcement Learning."

ACADEMIC
SERVICE AND
PROFESSIONAL
ACTIVITIES

Journal Referee

Statistics and Its Interface (x2)
IEEE Transactions on Neural Networks and Learning Systems

Conference Referee

STAI-X 2026

Professional Memberships

American Statistical Association (ASA)
Institute of Mathematical Statistics (IMS)
IEEE

HONORS AND
AWARDS

HKU-TEC Seed Program (HKD 100,000), The University of Hong Kong & HKSTP Mar. 2025
Ideation Program (HKD 100,000), Hong Kong Science and Technology Parks (HKSTP) Jun. 2024
First Place, Minghong Talks Competition (RMB 13,000) Oct. 2023
Excellent Teaching Award, Department of Statistics and Actuarial Science, HKU Jul. 2021
Postgraduate Scholarship, The University of Hong Kong Sep. 2019 – Aug. 2023

TEACHING
EXPERIENCE

Teaching Assistant, Department of Statistics and Actuarial Science, HKU

- Advanced Statistical Inference (PhD/Graduate level), Autumn 2022
- Advanced Quantitative Risk Management (Graduate level), Spring 2023
- Time Series Analysis (Undergraduate level), Spring 2022
- Data Mining Techniques (Graduate level), Spring & Autumn 2021
- Statistical Machine Learning (Undergraduate level), Autumn 2020
- Data Visualization (Undergraduate level), Spring 2020
- Business Logistics (Undergraduate level), Autumn 2019

TRANSLATIONAL
RESEARCH AND
INDUSTRY
ENGAGEMENT

Demotech Co., Ltd.

Co-Founder and Chief Technology Officer Hong Kong
Jun. 2024 – Present
AI-driven clinical decision support and statistical modeling for medical data analysis. Supported by the HKSTP Ideation Program and HKU-TEC Seed Fund.

Selected Industry Experience

Quantitative research and data science experience in financial institutions, including asset management and banking sectors (2018–2024).

TECHNICAL SKILLS

Programming: R, Python, \LaTeX
Languages: Chinese (Native), English (Fluent)