Weibin Mo

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Contact Information

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Appointment

School of Business, Purdue University **June 2022 - Current**
West Lafayette, IN, USA
Assistant Professor (Tenure-Track)

Education

University of North Carolina at Chapel Hill **May 2021**
Chapel Hill, NC, USA
Ph.D. in Statistics
Advisor: Yufeng Liu
Dissertation: Efficiency and Robustness in Individualized Decision Making

Nankai University **June 2016**
Tianjin, China
B.B.A. in Business Administration
B.S. in Mathematics

Research Interests

- Statistical machine learning and reinforcement learning
- Personalized decision marking
- Causal inference and semiparametric inference
- Robust optimization

Publications

Journal

1 **Mo, W.**, and Liu, Y. (2022). Efficient learning of optimal individualized treatment rules for heteroscedastic or misspecied treatment-free effect models. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 84(2): 440-472. DOI: 10.1111/rssb.12474.

2 **Mo, W.**[*], Qi, Z.[*], and Liu, Y. (2021). Learning optimal distributionally robust individualized treatment rules (**with discussion and our rejoinder**). *Journal of the American Statistical Association*,

- (main paper) 116(533): 659-674, DOI: 10.1080/01621459.2020.1796359;
- (rejoinder) 116(533): 699-707, DOI: 10.1080/01621459.2020.1866581.

Conference Proceeding

1 Dong, J., **Mo, W.**, Qi, Z., Shi, C., Fang, X., and Tarokh, V. (2023). PASTA: Pessimistic assortment optimization. In *International Conference on Machine Learning (ICML) 2023*.

2 **Mo, W.**, Yu, H., and Liu, C. (2021). Markdown first reinforcement learning pricing with demand learning. In *Amazon Machine Learning Conference 2021*.

Book Chapter

1 **Mo, W.**, and Liu, Y. (2022+). A selective review of individualized decision making. In *Precision Medicine: New Methods and Applications*. To appear.

2 **Mo, W.**, and Liu, Y. (2021). Supervised learning. In *Wiley StatsRef: Statistics Reference Online* (eds N. Balakrishnan, T. Colton, B. Everitt, W. Piegorsch, F. Ruggeri and J.L. Teugels), DOI: 10.1002/9781118445112.stat08302.

[*]The authors have equal contributions.

Teaching

Instructor
Purdue University

- MGMT 30500 (Business Statistics): Spring 2023, Spring 2024.
- MGMT 69000 (Causal Inference and Semi-Parametric Inference, PhD): Fall 2022.

Teaching Assistance
University of North Carolina at Chapel Hill

- STOR 555 (Mathematical Statistics): Fall 2016.
- STOR 556 (Applied Time Series): Spring 2017.
- STOR 565 (Machine Learning): Spring 2018, Fall 2020.
- STOR 612 (Models in Operations Research, graduate): Fall 2017.
- STOR 635 (Probability, graduate): Spring 2018.
- STOR 767 (Machine Learning, graduate): Spring 2019.
- Introduction to Statistical Machine Learning Using R, 2019 Data Matters (`https://datamatters.org`).

Honors

Excellence in Teaching Assistance and Instruction Award **Dec. 2020**
Department of Statistics and Operations Research, UNC-Chapel Hill

Student Paper Competition Winner **Aug. 2020**
Statistical Learning and Data Science Section, American Statistical Association

Cambanis-Hoeffding-Nicholson Award **Dec. 2017**
Department of Statistics and Operations Research, UNC-Chapel Hill
(for outstanding academic performance during first year of Ph.D. studies)

Presentations

- "Efficient Learning of Optimal Individualized Treatment Rules", ICSA 2023 China Conference (Chengdu, China), July 2023.
- "Efficient Learning for Personalized Decision Making", 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics) (London, United Kingdom), Dec. 2022.
- "Efficient Learning for Personalized Decision Making", INFORMS Annual Meeting (Indianapolis, IN), Oct. 2022.
- "Efficient Learning of Optimal Individualized Treatment Rules", Center for Data Science, Zhejiang University (Hangzhou, ZJ, China), Oct. 2022.
- "Learning Optimal Distributionally Robust Individualized Treatment Rules", the Fifth ICSA-Canada Chapter Symposium (Banff, AB, Canada), Jul. 2022.
- "Markdown First Reinforcement Learning Pricing with Demand Learning" (poster), Amazon Machine Learning Conference (virtual), Oct. 2021.
- "Learning Optimal Distributionally Robust Individualized Treatment Rules" (contributed talk), Joint Statistical Meetings (virtual), Aug. 2020.
- "Variance-Regularized Policy Learning" (poster), Statistical and Computational Challenges in Precision Medicine Workshop (Minneapolis, MN), Nov. 2018.
- "Recent Development in Dynamic Treatment Regime" (poster), Conference on Statistical Learning and Data Science / Nonparametric Statistics (New York, NY), June 2018.

Academic Services

Reviewers for *Journal of the American Statistical Association*, *Mathematical Programming*, *Annals of Applied Statistics*, *Journal of Multivariate Analysis*, *Canadian Journal of Statistics*, *Stat*, *Statistics in Biosciences*, *Statistical Methods in Medical Research*.

Industrial Experience

Amazon **May 2020 - Aug. 2020; June 2021 - June 2022**
Seattle, WA, USA
Applied Scientist in Supplied Chain Optimization Technologies (SCOT)
Developed machine learning methodologies and algorithms for pricing and inventory management

SAS **June 2019 - Aug. 2019**
Cary, NC, USA
Graduate Statistical Intern in R&D Organization
Statistical programming for SAS procedures

Boehringer Ingelheim Pharmaceuticals **May 2017 - July 2017**
Ridgefield, CT, USA
Biostatistician Intern in Clinical Trial
Post-hoc research on clinical trials for respiratory disease

Volunteer Experience

Clover Youth **Sep. 2012 - Feb. 2014**
Guangzhou, Guangdong, China
Project Assistant, Human Resource Manager in Summer Camp Program
Supported migrant children development via peer-led programs