MENGYU LI

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EDUCATION

Institute of Statistics and Big Data, Renmin University of China (RUC), Beijing, China

- Ph.D. Candidate in Statistics — Sep. 2020–Jun. 2025 (expected)
- Supervisor: Cheng Meng, Assistant Professor

Department of Statistics, The Chinese University of Hong Kong (CUHK), Hong Kong, China

- Exchange Student — Nov. 2023–May. 2024
- Supervisor: Xiaodan Fan, Professor

School of Statistics, Beijing Normal University (BNU), Beijing, China

- Bachelor in Statistics — Sep. 2016–Jun. 2020

RESEARCH INTERESTS

Optimal transport; Subsampling in big data; Machine learning; AI for healthcare

PUBLICATIONS & WORKING PAPERS

Publications

1. **Mengyu Li**, Jun Yu, Tao Li & Cheng Meng (2024). "Core-elements for large-scale least squares estimation." Statistics and Computing. In press.
   Student Paper Award in JSM2022, Sections on Statistical Computing and Graphics
2. Yukuan Hu, **Mengyu Li**, Xin Liu & Cheng Meng (2024). "Sampling-based methods for multi-block optimization problems over transport polytopes." Mathematics of Computation. In press.
3. **Mengyu Li**, Jingyi Zhang & Cheng Meng (2024). "Nonparametric additive models for billion observations." Journal of Computational and Graphical Statistics. In press.
4. Xinlai Kang, **Mengyu Li**, Xuqiang Chen, Fangyu Li & Cheng Meng (2023). "A Hausdorff regression paradigm for interval privacy." IEEE Signal Processing Letters, 31, 146–150.
5. **Mengyu Li**, Jun Yu, Tao Li & Cheng Meng (2023). "Importance sparsification for Sinkhorn algorithm." Journal of Machine Learning Research, 24(247), 1–44.
   Student Paper Award in JSM2023, Statistics in Imaging Section
6. **Mengyu Li**, Jun Yu, Hongteng Xu & Cheng Meng (2023). "Efficient approximation of Gromov-Wasserstein distance using importance sparsification." Journal of Computational and Graphical Statistics, 32(4), 1512–1523.
7. **Mengyu Li** & Junlong Zhao (2022). "Communication-efficient distributed linear discriminant analysis for binary classification." Statistica Sinica, 32, 1343–1361.

Under Review

8. **Mengyu Li**, Cheng Meng & Xiaodan Fan. "Iterative optimal transport for multimodal image registration." Submitted to *IEEE Transactions on Image Processing*.
9. **Mengyu Li**, Bencong Zhu, Cheng Meng & Xiaodan Fan. "Double optimal transport for gene regulatory network reconstruction with unpaired samples." Submitted to *Bioinformatics*.
10. Chengshuo Du, Han Hao, **Mengyu Li**, Tao Li, Cheng Meng & Jun Yu (Alphabetical order). "Ensemble pruning using optimal transport." Submitted to *IEEE Transactions on Information Theory*.

In Preparation

11. Dunyao Xue, **Mengyu Li** & Cheng Meng. "Sparsification subsampling for alternative least suqres regression."
12. Junyi Lin, **Mengyu Li**, Cheng Meng & Yongdao Zhou. "Sparsification subsampling for partial least squares regression."
13. Tao Wang, Qiannan Huang, **Mengyu Li**, Tao Li & Cheng Meng. "Global feature importance explanation with cooperative game framework based on Wasserstein dependency."
14. Junlie Huang, Xinlai Kang, Qiannan Huang, **Mengyu Li** & Cheng Meng. "Efficient approximation of leverage scores in 2D autoregressive models."

FUNDING & AWARDS

Funding

- Outstanding Innovative Talents Cultivation Funded Program (¥70,000), RUC 2021–2024
- Joint Ph.D. Program (¥50,000), RUC 2023–2024

Awards

- **Student Paper Award** in Joint Statistical Meetings (JSM), Statistics in Imaging Section, American Statistical Association (ASA) 2023
  5 winners per year
- **Student Paper Award** in JSM, Sections on Statistical Computing and Graphics, ASA 2022
  4 winners per year
- National Scholarship, Ministry of Education of the P.R. China 2023
- Jingdong Special Scholarship, RUC 2023
  20 winners per year
- First-Class Academic Scholarship, RUC 2021, 2022, 2023
- Merit Student, RUC 2021

PROJECT EXPERIENCE

Noise Analysis and Processing for Non-Native Bayer Raw Images Dec. 2023–Dec. 2024
Collaboration with Huawei Technologies Co., Ltd

- Explored noise characteristics across color channels and directions using the variogram from spatial statistics.
- Used autoregressive whitening to remove noise dependency and achieve effective image denoising.

Fiber Optic Sensing Data Augmentation May 2023–Aug. 2023
Collaboration with Huawei Technologies Co., Ltd

- Extended optimal transport theory to handle generalized measures with negative values for adapting fiber optic sensing data.
- Developed a geometry-based method using unbalanced optimal transport for high-fidelity signal generation and noise integration.

ACADEMIC EXPERIENCE

Research Assistant

- Department of Statistics, CUHK Nov. 2023–May 2024
  Developed novel algorithms for multi-modal image registration and gene regulatory network reconstruction based on optimal transport theory.

Teaching Assistant

- Data Mining, RUC Spring 2021, 2024
  My duties included lecturing exercise lessons, homework preparation and grading, etc.

Invited Presentations

- Capital Statistics and Data Science High-Level Forum, Beijing, China Jul. 2023
  Title: Efficient algorithms for large-scale optimal transport problems

Review for Journals

- Journal of Computational and Graphical Statistics
- Communications in Statistics - Simulation and Computation

PROFESSIONAL SKILLS

Programming

- Python, R, MATLAB, C++, Linux shell

Language

- Chinese Mandarin, English