Xuzhi YANG

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Education

London School of Economics and Political Science **London, UK** *Sep. 2021 - Sep. 2025*

- PhD student in Data Science group, Department of Statistics
- Supervisors: Tengyao Wang and Yining Chen

Harbin Institute of Technology **Shenzhen, China** *Sep. 2018 - Jul. 2020*

- Master of Science, major in Statistics (joint program with SUSTech)
- GPA: 3.75/4.0

Northeast Normal University **Changchun, China** *Sep. 2014 - Jul. 2018*

- Bachelor of Science, major in Statistics
- GPA: 86/100; *summa cum laude*

Research Interests

- **Machine learning:** Optimal transport, distribution shift, uncertainty quantification
- **Statistics:** Robust statistics, Nonparametric/semi-parametric statistics

Research Projects

Ongoing

Quantile regression via monotone couplings. | LSE *Jul. 2024 - present*

Introduced an optimal transport-based quantile regression estimator with asymptotic efficiency matching OLS under Gaussian noise and superior performance to OLS in heavy-tailed noise scenarios.

A coefficient of correlation for complex functional dependency. | LSE *May 2024 - present*

Defined an intuitive and computationally efficient rank-based correlation coefficient for detecting implicit functional dependencies between two random vectors, supported by rigorous theoretical analysis including strong consistency and limiting distribution.

Submitted

(*In revision*) Balanced policy switching in offline reinforcement learning. | LSE *Nov. 2023 - May 2024*

Constructed a novel offline reinforcement learning algorithm for policy switching, incorporating a policy switching cost motivated by optimal transport theory. Implemented and validated the method using diverse real-world datasets.

(*COLT2024*) Multiple-output quantile regression via optimal transport. | LSE *Nov. 2021 - Feb. 2024*

Developed a novel quantile regression method for multivariate response variables using optimal transport theory, providing both theoretical and empirical analysis on the robustness when data is perturbed by heavy-tailed random noise.

(*ICLR2024 Tiny Paper*) Policy evaluation enhancement by diffusion models. | LSE *Nov. 2023 - Feb. 2024*

Proposed a data augmentation method based on DDPM to boost the policy evaluation procedure in offline reinforcement learning.

(*Women's Health*) A rapid review on AI in mental health care | SUSTech *Aug. 2020 - Jul. 2021*

From a statistical perspective, investigated the development of AI applications on mental health care when the data is limited.

(*Thesis*) Test on the equality of two high-dimensional correlation matrices. | SUSTech *Jul. 2020*

Proposed a new test statistic on the equality of two high-dimensional correlation matrices under sparse setting. Provided a rigorous proof for the limiting distribution of the statistic.

Experience

Teaching Assistant | LSE *Sep. 2021 - present*

Graduate teaching assistant for statistics modules including Data Analysis and Statistical Methods (master), Graph Data Analytics and Representation Learning (master), Functional Data Analysis (master) and Elementary Statistical Theory (1st year).

Research Assistant | SUSTech *Aug. 2020 - Jul. 2021*

Based on meta-analysis, studied the causality between the prevalence of Covid-19, MERS and PTSD. Supervised by Jian Qing Shi.

Awards & Honors

COLT2024 Student Travel Award	*Jul. 2024*
LSE Postgraduate Travel Award	*May 2024*
LSE Class Teacher Award	*Apr. 2023*
Northeast Normal University Outstanding Graduates (top 0.5%)	*Jul. 2018*
Chinese Government National Scholarship (rank 1 institute-wide)	*Nov. 2017*
Honorable Mention, COMAP Mathematical Contest in Modeling	*May 2017*

Academic service

Journal reviewing: Journal of the Royal Statistical Society Series B
Conference reviewing: ICLR, AISTATS

Skills

Operating system: Ubuntu, Arch, Windows, Mac
Programming: Python, R, Bash, LaTeX, MATLAB
Data Analysis: PyTorch, pandas, NumPy, SciPy, scikit-learn, Keras
Language: Chinese (native), English (fluent)