Hao Zeng

Postdoc, Department of Statistics and Data Science, Southern University of Science and Technology

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Education

Gregory and Paula Chow Institute for Studies in Economics, Xiamen University Sep 2020 – Jun 2024
Ph.D. in Statistics, Supervised by Wei Zhong, Xingbai Xu, and Tuo Liu

Wang Yanan Institute for Studies in Economics, Xiamen University Sep 2018 – Jun 2020
M.S. in Quantitative Economics *Transfer to Ph.D. in Statistics*

School of Mathematics, Shandong University Sep 2014 – Jun 2018
B.S. in Mathematics (Peng's Class: Base of Financial Mathematics & Financial Engineering)

Research Interests

Statistical Machine Learning: Theory and Methods, Uncertainty Quantification in Machine Learning, Conformal Prediction, Transfer Learning
Interdisciplinary Research: Spatial Statistics, Econometrics, and Biostatistics

Experience

Southern University of Science and Technology & National University of Singapore Jul 2024 – Present
Postdoctoral Researcher in Statistics, Supervised by Bingyi Jing, Hongxin Wei, and Wang Zhou

Department of Statistics, National University of Singapore May 2023 – Oct 2023
Visiting Researcher, Cooperated with Tao Yu

School of Economics, Xiamen University Fall 2022
Teaching Assistant in Probability Introduction (Undergraduate)

School of Economics, Xiamen University Spring 2022
Teaching Assistant in Real Analysis (Undergraduate)

School of Economics, Xiamen University Fall 2021
Teaching Assistant in Advanced Probability Theory (Postgraduate)

School of Economics, Xiamen University Spring 2021
Teaching Assistant in Real Analysis (Undergraduate)

School of Economics, Xiamen University Fall 2019
Teaching Assistant in Advanced Econometrics I (Postgraduate)

Publications

(* means corresponding author, † means equal contribution.)

Journal Articles

- Liu, K., Sun, T., **Zeng, H.**, Zhang, Y., Pun, C.-M., & Vong, C.-M. (2025). "Spatial-Aware Conformal Prediction for Trustworthy Hyperspectral Image Classification." ***IEEE Transactions on Circuits and Systems for Video Technology***. (CAS Q1 journal, Top)
- **Zeng, H.**, Wan, C., Zhong, W., & Liu, T. (2024). "Robust Integrative Analysis via Quantile Regression with Homogeneity and Sparsity." ***Journal of Statistical Planning and Inference***.
- Wan, C.†, **Zeng, H.***†, Zhang, W.†, Zhong, W.†, & Zou, C.†. (2024). "Data-driven Estimation for Multithreshold Accelerated Failure Time Model." ***Scandinavian Journal of Statistics***.

Conference Papers

- **Zeng, H.**†, Liu, K.†, Jing, B., & Wei, H. (2025). "Parametric Scaling Law of Tuning Bias in Conformal Prediction." ***42nd International Conference on Machine Learning***. (AI Top conference)
- Xi, H., Liu, K., **Zeng, H.**, Sun, W., & Wei, H. (2025)."Robust Online Conformal Prediction under Uniform Label Noise." ***39th Annual Conference on Neural Information Processing Systems***. (AI Top conference)
- Liu, K., **Zeng, H.**, Huang, J., Zhuang, H., Vong, C.-M., & Wei, H. (2025). "C-Adapter: Adapting Deep Classifiers for Efficient Conformal Prediction Sets." ***28th European Conference on Artificial Intelligence***.

Working Papers

- **Zeng, H.**, Jing, B., & Wei, H. (2025). "Conditional Tuning in Conformal Prediction."
- **Zeng, H.**, Jing, B., & Wei, H. (2025). "The Double Descent of Conformal Prediction."
- **Zeng, H.**, Liu, K., Jing, B., & Wei, H. (2025). "On Tuning Bias in Conformal Prediction."
- Huang, H., Liao, W., Xi, H., **Zeng, H.**, Zhao, M., & Wei, H. (2025). "Selective Labeling with False Discovery Rate Control." (Submit to ICLR 2026)

- Liu, Z., **Zeng, H.**, Huang, W., & Wei, H. (2025). "High-Power Training Data Identification with Provable Statistical Guarantees."(Submit to ICLR 2026)
- **Zeng, H.**†, Huang, J.†, Jing, B., Wei, H., & An, B. (2025). "PAC Reasoning: Controlling the Performance Loss for Efficient Reasoning."(Submit to ICLR 2026)
- Gao, H., Zhang, F., **Zeng, H.**, Meng, D., Jing, B., & Wei, H. (2025). "Exploring Imbalanced Annotations for Effective In-Context Learning."(Submit to ICLR 2026)
- **Zeng, H.**, Zhong, W., & Xu, X. (2024). "Transfer Learning for Spatial Autoregressive Models with Application to U.S. Presidential Election Prediction." (Under Second Review in ***Journal of Business & Economic Statistics***)

Software

- Wan, C., **Zeng, H.**, Zhong, W., & Zou, C. (2023). "MTAFT: Data-Driven Estimation for Multi-Threshold Accelerate Failure Time Model." https://cran.r-project.org/web/packages/MTAFT/index.html

Awards

Excellent Teaching Assistant in Fall 2022-2023	*2024*
Meritorious Winner, Interdisciplinary Contest in Modeling, USA	*2016*
3rd Prize at the Provincial Level, Mathematics Competition for Chinese College Students	*2016*
2nd Prize at the Provincial Level, China Undergraduate Mathematical Contest in Modeling	*2015*
1st Prize for Outstanding Students, Shandong University	*2015*
Three Good Student, Shandong University	*2015*

Conference Presentations

Talk in ***The 2021 Forum for Doctoral Students in Quantitative Economics***	*Dec 2021, Xiamen*
Invited Talk in ***Xiamen University 2021 Symposium on Modern Statistics***	*Dec 2021, Xiamen*
Invited Talk in ***2023 PhD Forum on Econometric Modeling and Economic Policy Research***	*Nov 2023, Beijing*
Poster in ***Conference of the Youth Association of the Chinese Association for Industrial Statistics***	*Mar 2024, Xuzhou*
Invited Talk in ***The 1st Outstanding PhD Forum in Economics and Management Statistics***	*Jun 2024, Xiamen*
Invited Talk in ***The 2nd Joint Conference on Statistics and Data Science***	*Jul 2024, Kunming*
Talk in ***The 13th Conference on Probability and Statistics***	*Nov 2024, Xiamen*
Poster in ***The 3rd Joint Conference on Statistics and Data Science***	*Jul 2025, Hangzhou*
Poster in ***Forty-Second International Conference on Machine Learning***	*Jul 2025, Vancouver, Canada*

Academic Services

Journal Reviewer International Statistical Review, Journal of Multivariate Analysis, Spatial Economic Analysis, and Quarterly Journal of Economics and Management.

Conference Reviewer International Conference on Artificial Intelligence and Statistics (AISTATS), Association for the Advancement of Artificial Intelligence (AAAI), International Conference on Machine Learning (ICML), International Conference on Learning Representations (ICLR)