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	Sept. 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	Sept. 2018 – Jun. 2020
M.S. in Quantitative Economics	*Transfer to Ph.D. in Statistics*
School of Mathematics, Shandong University	Sept. 2014 – Jun. 2018
B.S. in Mathematics (Peng's Class: Base of Financial Mathematics & Financial Engineering)	

RESEARCH AREA

Statistical Machine Learning: Model Free Predictive Inference, Conformal Prediction, Transfer Learning
Interdisciplinary Research: Large Language Models, 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

6. **Zeng, H.**, Zhong, W., & Xu, X. (2025). "Transfer Learning for Spatial Autoregressive Models with Application to U.S. Presidential Election Prediction." (Accepted for ***Journal of Business & Economic Statistics***, econometrics and statistics top journal)

5. 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)

4. **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***.

3. Wan, C.[†], **Zeng, H.***[†], Zhang, W.[†], Zhong, W.[†], & Zou, C.[†]. (2024). "Data-driven Estimation for Multithreshold Accelerated Failure Time Model." ***Scandinavian Journal of Statistics***.

2. Chen, W., **Zeng, H.**, Wang, X., et al. (2022). "A Structural Equation Modeling Approach to Determine the Correlation between the Vertical and Sagittal Skeletal Patterns and Posterior Basal Bones Mismatching in Patients with Skeletal Class III Malocclusion." ***American Journal of Orthodontics and Dentofacial Orthopedics***. (Cover paper)

1. Chen, W., **Zeng, H.**, Sun, L., et al. (2021). "Match of the Bimaxillary Basal Bone Arches and Its Variations among Individuals." ***Scanning*** 2021 (1): 9625893.

Conference Papers

3. **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)

2. Xi, H., Liu, K., **Zeng, H.**, Sun, W., & Wei, H. (2025). "Exploring the Noise Robustness of Online Conformal Prediction." ***39th Annual Conference on Neural Information Processing Systems***. (AI Top conference)

1. 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

10. Zhang, J., Yue, Y., Zhong, W., & **Zeng, H.*** (2025). "Robust Estimation of Grouped Network Vector Autoregression: An Empirical Analysis Based on China Air Quality Data." (Submitted to *Statistical Research*)

9. Huang, H., Liao, W., Xi, H., **Zeng, H.**, Zhao, M., & Wei, H. (2025). "Selective Labeling with False Discovery Rate Control." (Submitted to ICLR 2026)

8. Liu, Z., **Zeng, H.**, Huang, W., & Wei, H. (2025). "High-Power Training Data Identification with Provable Statistical Guarantees."(Submitted to ICLR 2026)

7. **Zeng, H.**[†], Huang, J.[†], Jing, B., Wei, H., & An, B. (2025). "PAC Reasoning: Controlling the Performance Loss for Efficient Reasoning."(Submitted to ICLR 2026)

6. Gao, H., Zhang, F., **Zeng, H.**, Meng, D., Jing, B., & Wei, H. (2025). "Exploring Imbalanced Annotations for Effective In-Context Learning."(Submitted to ICLR 2026)

5. **Zeng, H.**, Jing, B., & Wei, H. (2025). "Conditional Tuning in Conformal Prediction."

4. **Zeng, H.**, Jing, B., & Wei, H. (2025). "The Double Descent of Conformal Prediction."

3. **Zeng, H.**, Liu, K., Jing, B., & Wei, H. (2025). "On Tuning Bias in Conformal Prediction."

2. **Zeng, H.**, & Huang, J. (2025). "PAC Accelerate: A Statistically Guaranteed Acceleration Method for Large Generative Models."

1. **Zeng, H.**, & Huang, J. (2025). "Group-Conditional PAC Reasoning: Groupwise Efficient Reasoning with Statistical Guarantees."

Software

1. 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

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), AAAI Conference on Artificial Intelligence(AAAI), International Conference on Machine Learning (ICML), International Conference on Learning Representations (ICLR), IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)

AWARDS

Excellent Teaching Assistant in Fall 2022-2023, Xiamen University	*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*
Merit Student, Shandong University	*2015*