Canyi Chen

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Experience

Department of Biostatistics, University of Michigan　　　　　　　　　**Ann Arbor**
Postdoc Researcher　　　　　　　　　　　　　　　　　　　　　　　　　　*2023 –*

Education

Renmin University of China　　　　　　　　　　　　　　　　　　　　　**Beijing**
PhD in Statistics　　　　　　　　　　　　　　　　　　　　　　　　　　*2018 – 2023*
Dissertation: "Distributed Statistical Algorithms for Nonsmooth Problems: Theories and Applications"

Beijing Normal University　　　　　　　　　　　　　　　　　　　　　　**Beijing**
BSc in Mathematics and Applied Mathematics　　　　　　　　　　　　　*2014 – 2018*

Research Interests

○ Distributed statistical computing; High-dimensional data analysis; Non-Linear dependence measure

Publications

Journal Articles

* indicates equal contributions
† indicates corresponding author(s) (if not the senior author)
boldface indicates me

[1] N. Qiao*, **C. Chen***†, and Z. Zhu*. "Robust and Efficient Sparse Learning over Networks: A Decentralized Surrogate Composite Quantile Regression Approach". In: *Statistics and Computing* 35.1 (Jan. 2025), p. 24.

[2] B. Chen and **C. Chen**†. "Convoluted Support Matrix Machine in High Dimensions". In: *Statistica Sinica* (2024). DOI: 10.5705/ss.202024.0194.

[3] **C. Chen**†. "Scalable and Globally Convergent Algorithm for Sufficient Dimension Reduction". In: *Statistics and Its Interface* 17.3 (July 2024), pp. 479–491.

[4] **C. Chen***, B. Chen*, L. Kong, and L. Zhu†. "Robust Multi-Task Learning in High Dimensions under Memory Constraint". In: *Statistical Analysis and Data Mining* 17 (3 2024), e11700. DOI: 10.1002/sam.11700.

[5] **C. Chen** and Z. Zhu†. "Byzantine-Robust and Efficient Distributed Sparsity Learning: A Surrogate Composite Quantile Regression Approach". In: *Statistics and Computing* 34.5 (Oct. 2024), p. 158.

[6] Y. He, **C. Chen**, and W. Xu[†]. "Debiased Distributed Quantile Regression in High Dimensions". In: *Statistics and Its Interface* 17.3 (2024), pp. 337–347.

[7] N. Qiao and **C. Chen**[†]. "Fast and Robust Low-Rank Learning over Networks: A Decentralized Matrix Quantile Regression Approach". In: *Journal of Computational and Graphical Statistics* 33.4 (Oct. 2024), pp. 1214–1223.

[8] B. Chen and **C. Chen**. "Fast Optimization Methods for High-Dimensional Row-Sparse Multivariate Quantile Linear Regression". In: *Journal of Statistical Computation and Simulation* 94.1 (July 2023), pp. 69–102.

[9] **C. Chen**[*], Y. Gu[*], H. Zou[*], and L. Zhu[*†]. "Distributed Sparse Composite Quantile Regression in Ultrahigh Dimensions". In: *Statistica Sinica* 33 (2023). DOI: 10.5705/ss.202022.0095.

[10] C. Chen, W. Xu, and L. Zhu. "Distributed Estimation in Heterogeneous Reduced Rank Regression: With Application to Order Determination in Sufficient Dimension Reduction". In: *Journal of Multivariate Analysis* 190 (July 2022), p. 104991. DOI: 10.1016/j.jmva.2022.104991.

[11] **C. Chen** and L. Zhu[†]. "Distributed Decoding from Heterogeneous 1-Bit Compressive Measurements". In: *Journal of Computational and Graphical Statistics* 32.3 (Aug. 2022), pp. 884–894. DOI: 10.1080/10618600.2022.2118751.

[12] Y. Zhang, C. Chen, and L. Zhu. "Sliced Independence Test". In: *Statistica Sinica* 32 (2022). DOI: 10.5705/ss.202021.0203.

[13] P. Song, **C. Chen**, Y. Lou, H. Jiang, W. Li, and L. Zhu. "Assessing Effectiveness of Integrated Strategies for Preventing and Controlling the Outbreak of COVID-19 and Predicting Impact of Opening Exit Channels to Leave Hubei Province". In: *Chinese Journal of Applied Probability and Statistics* 36.3 (June 2020), pp. 321–330. DOI: 10.3969/j.issn.1001-4268.2020.03.007.

Preprints

[14] **C. Chen**, R. Kundu, W. Hao, and P. X.-K. Song. "Copula Structural Equation Models for Mediation Pathway Analysis". 2025.

[15] **C. Chen**[*], N. Qiao[*], and L. Zhu[*†]. "Efficient Distributed Learning over Decentralized Networks with Convoluted Support Vector Machine". Mar. 2025. arXiv: 2503.07563 [stat].

[16] R. Kundu[*], **C. Chen**[*], and P. X.-K. Song[†]. "Statistical Inference for Causally Ordered Multiple Mediation Analysis". 2025.

[17] B. Chen and **C. Chen**[†]. "A Unified and Efficient Algorithm for Penalized Convoluted Support Vector Machines". submitted. 2024.

[18] **C. Chen**, Y. He, H. J. Wang, G. Xu, and P. X.-K. Song[†]. "Quantile Mediation Analytics". submitted. Dec. 2024. arXiv: 2412.15401 [stat].

[19] **C. Chen**[*], Z. Zhu[*], and L. Zhu[*†]. "Robust and Efficient Decoding from Heterogeneous 1-Bit Compressive Measurements over Networks". major revision at Statistica Sinica. 2024.

[20] C. He[*], **C. Chen**[*], and L. Zhu[†]. "A Goodness-of-fit Assessment for General Learning Procedure in High Dimensions". major revision at JASA. 2024.

[21] M. Al-Hinai, **C. Chen**, E. C. Jansen, K. E. Peterson, P. X.-K. Song, and A. Baylin. "Vitamin D is Associated with Sleep Disturbance and Cognitive Function in Older Adults". 2024.

[22] N. Qiao, W. Li, J. Zhang, and **C. Chen**[†]. "Scalable and Distributed Individualized Treatment Rules for Massive Datasets". major revision at Biometrics. 2024.

[23] **C. Chen** and L. Zhu[†]. "Distributed Estimation and Gap-Free Analysis of Canonical Correlations". submitted. Dec. 2023. arXiv: 2412.17792 [stat].

[24] W. Hao, **C. Chen**, and P. X.-K. Song[†]. "A Class of Directed Acyclic Graphs with Mixed Data Types in Mediation Analysis". major revision at CJS. Nov. 2023. arXiv: 2311.17867 [stat].

Open-Source Software

○ SIT: Association Measurement Through Sliced Independence Test. [Link]

○ abima: Adaptive Bootstrap Inference for Mediation Analysis with Enhanced Statistical Power. [Link]

Grant Proposals

Renmin University of China
Canonical Correlation Analysis of Functional Data   2020

National Students' Innovation and Entrepreneurship Training Program
Asymptotics of the Derrida–Retaux Branch System   2016

Fellowships, Honors, and Awards

Excellent Doctoral Dissertation Award of Renmin University of China	*2024*
UMPDA Conference Award	*2024*
National Scholarship of China	*2023*
Outstanding Graduate of Renmin University of China	*2023*
Wu Yuzhang Scholarship Finalist	*2023*
Jingdong Special Scholarship Finalist	*2022*
The best presented poster	*2020*

Distributed Decoding from Heterogeneous 1-Bit Compressive Measurements, *Statistics and Data Science Young Scholars Forum*, Beijing. [pdf]

National Second Prize in National Undergraduate Mathematical Modeling Contest   *2016*

Volunteer Experience

Teaching Assistant

Computer Skills in Data Science – PhD Level	*Fall 2019*
Asymptotic Statistics – PhD Level	*Fall 2020*
Natural Language Processing – PhD Level	*Spring 2021*

Anonymous Referee

○ *Statistica Sinica (22, 23)*

○ *IEEE Transactions on Neural Networks and Learning Systems (23, 24, 25)*

○ *Statistics and Computing (24, 25)*

○ *Annals of Applied Statistics (24)*

- *SCIENCE CHINA Mathematics (24)*
- *Acta Mathematica Scientia (24)*
- *The American Statistician (24)*
- *Applied Mathematics and Computation (24)*
- *ScienceAsia (25)*

Seminars & Presentations

- Graduate Student Seminar, Department of Statistics, George Washington University, Washington, D.C., October 18, 2024 (invited speaker)
- ICSA Applied Statistics Symposium, Nashville, Tennessee, June 16 - 19, 2024 (invited speaker)
- The 7th International Conference on Statistical Optimization and Learning, Beijing Jiaotong University, Beijing, China, December 2022 (invited speaker)
- Data Science Frontiers Forum, Southwestern University of Finance and Economics, Chengdu, China, July 2021 (invited speaker)

Skills

- Programming languages: Python, R, C++, Bash, LaTeX, MATLAB, SQL
- Languages: Chinese, English, Eastern Min