DACHUAN CHEN

Curriculum Vitae

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July 2025

ACADEMIC APPOINTMENT

Full-Time Employment:

2024.07-present	**Singapore Management University** **School of Economics** Assistant Professor of Economics and Statistics	Singapore
2019.12-2023.12	**Nankai University** **School of Statistics and Data Science** Assistant Professor	Tianjin China

Visiting Positions:

2024.04-2024.06	**The Hong Kong University of Science and Technology** **Department of Information System, Business Statistics and Operations Management** Research Associate	Hong Kong China
2024.01-2024.03	**Singapore Management University** **School of Economics** Visiting Scholar	Singapore
2023.09-2023.11	**The Hong Kong University of Science and Technology** **Department of Information System, Business Statistics and Operations Management** Visiting Scholar	Hong Kong China

EDUCATION

2014-2019	**University of Illinois at Chicago** **Liautaud Graduate School of Business** Ph.D. in Business Administration. Dissertation advisors: Professor Lan Zhang and Professor Per Mykland.	Chicago Illinois
2015-2016	**The University of Chicago** **Department of Statistics** Travel Scholar in Chicago Metropolitan Exchange Program. Curriculum included Measure-theoretic Probability, Stochastic Calculus, and Statistics in High Frequency Financial Data.	Chicago Illinois
2012-2014	**University of Colorado Denver** **Business School** Ph.D. Student in Computer Science and Information System Program.	Denver Colorado

RESEARCH INTERESTS

Financial Econometrics that is related to High Frequency Data.

HONORS AND AWARDS

2023	Excellent Local Organizer in the Second National Competition of Big Data Analysis Technology Skills.
2023	The Sixth National Education and Teaching Achievement Award for the Master Degree of Applied Statistics, Excellent Case Award, Second Prize.
2023	Favorite Teacher for Undergraduate Graduates of Class 2023 at School of Statistics and Data Science, Nankai University.
2022	Excellent Instructor in the First National Competition of Big Data Analysis Technology Skills.
2022	Advisor of First Prize Team in Asia and Pacific Mathematical Contest in Modelling (APMCM).
2018	Stevanovich Student Fellowship from the Stevanovich Center for Financial Mathematics, The University of Chicago (UoC), as the first recipient from non-UoC universities.
2018	CBA Doctoral Student Travel Fund from University of Illinois at Chicago.
2014 - 2018	Doctoral Scholarship and CBA Fellowship from University of Illinois at Chicago.
2013	Dean's Scholarship from University of Colorado Denver.

GRANTS

2024-2025	DART Funds and Conference Funds of School of Economics, SMU.
2022-2024	National Natural Science Foundation of China, Young Scholar Project (Grant 12101335).
2022-2023	Natural Science Foundation of Tianjin Municipal, Young Scholar Project (Grant 21JCQNJC00020).

PUBLICATIONS

Chen, D., Lu, W. and Xie, S. (2025). "*High Frequency Factor Analysis with Partially Observable Factors*". Journal of Econometrics, **251** (1), 106058. DOI: https://doi.org/10.1016/j.jeconom.2025.106058

Chen, D., Feng, L., Mykland, P.A. and Zhang, L (2024). "*High Dimensional Regression Coefficient Test with High Frequency Data*". Forthcoming in Journal of Econometrics. DOI: https://doi.org/10.1016/j.jeconom.2024.105812

Chen, D. (2024). "*High Frequency Principal Component Analysis based on Correlation Matrix that is Robust to Jumps, Microstructure Noise and Asynchronous Observation Times*". Journal of Econometrics, **240** (1), 105701.

Chen, D., Li, C., Tang, C.Y. and Yan, J. (2023). "*The Leverage Effect Puzzle under Semi-nonparametric Stochastic Volatility Models*", Journal of Business & Economic Statistics, **42** (2), pp. 548-562.

Chen, D., Mykland, P.A., and Zhang, L. (2023). "*Realized Regression with Asynchronous and Noisy High Frequency and High Dimensional Data*", Journal of Econometrics, **239** (2), 105446.

Chen, D., Mykland, P.A., and Zhang, L. (2020). "*The Five Trolls under the Bridge: Principal Component Analysis with Asynchronous and Noisy High Frequency Data*", Journal of the American Statistical Association, **115** (532), pp. 1960-1977.

Mykland, P.A., Zhang, L., and Chen, D. (2019). "*The Algebra of Two Scales Estimation, and the S-TSRV: High Frequency Estimation that is Robust to Sampling Times* ", Journal of Econometrics, **208** (1), pp. 101-119.

Li, C., and Chen, D. (2016). "*Estimating Jump-Diffusions Using Closed-form Likelihood Expansions*", Journal of Econometrics, **195** (1), pp. 51-70.

Li, C., An, Y., Chen, D., Lin, Q., and Si, N. (2016). "*Efficient Computation of Likelihood Expansions for Diffusion Models*", IISE Transactions, **48** (12), pp. 1156-1171.
(This paper received the *best paper award* in the IISE Transactions on Operations Engineering and Analytics for 2018.)

Backues, S. K., Chen, D., Ruan, J., Xie, Z., and Klionsky, D. J. (2014). "*Estimating the Size and Number of Au-*

tophagic Bodies by Electron Microscopy", Autophagy, **10**, pp. 155-164.

Publication in Chinese

Chen, D. and Li, C. (2025). "*Closed-form Expansion of Option Prices under Stochastic Volatility Model*", Chinese Journal of Applied Probability and Statistics, **41** (2), pp. 223-247.

WORKING PAPERS

Chen, D., Hu, S., Li, Y. and Zheng, X. (2025). "*Efficient High-Dimensional Covariance Matrix Estimation Incorporating Trading Information*". Working Paper.

This paper proposes the first trading information incorporated estimation methodology for high-dimensional covariance matrix using high-frequency data. Our method extends the univariate trading information incorporated variance estimator of Li, et al. (2016) to the high-dimensional setting, allowing the cross-sectional dimension d to grow exponentially in $n^{1-\varepsilon}$ for any $\varepsilon \in (0,1)$, where n is the intraday observation frequency. Theoretically, under mild assumptions, we establish the tail property of the trading information incorporated covariance estimator. We then impose a factor structure on cross-sectional intraday returns and apply POET to estimate high-dimensional covariance and precision matrices. We demonstrate the effectiveness of the proposed estimators through simulations and an empirical study using second-by-second Trade and Quote data from S&P 500 index constituents, showing that the minimum variance portfolio constructed with our estimator achieves lower long-term risk than that relying on the pre-averaging-based estimator.

PRESENTATIONS AND TALKS

Conference presentation at Chicago Area SIAM Student Conference 2018, Chicago. (April 2018)

Invited talk at Department of Business Statistics and Econometrics, Guanghua School of Management, Peking University, Beijing. (June 2018)

Invited talk at International Symposium on Financial Engineering and Risk Management, Fudan University, Shanghai. (June 2018)

Invited seminar talk at Stevanovich Center for Financial Mathematics, The University of Chicago. (November 2018)

Invited seminar talk at School of Economics and Management, University of Electronic Science and Technology of China, Online. (May 2019)

Conference presentation at SoFiE Annual Conference 2019, Shanghai. (June 2019)

Invited seminar talk at Center of Statistical Research, Southwestern University of Finance and Economics, Chengdu. (June 2019)

Conference presentation at China International Conference in Finance, Shanghai. (July 2021)

Conference presentation at Financial Econometrics and Risk Management Conference, Mianyang. (July 2021)

Paper accepted for the conference presentation at SoFiE Annual Conference 2022, University of Cambridge (UK). (June 2022, failed to attend due to COVID-19 pandemic)

Invited seminar talk at Guanghua School of Management and Center for Statistical Science, Peking University, Online. (September 2022) Topic: High Frequency Econometrics: Foundation and Recent Progress.

Invited seminar talk at School of Statistics and Academy of Statistics and Interdisciplinary Sciences, Faculty of Economics and Management, East China Normal University, Shanghai. (March 2023)

Conference presentation at 12th National Conference of Probability and Statistics, Qingdao. (April 2023)

Invited seminar talk at School of Statistics and Data Science, Nanjing Audit University, Online. (May 2023)

Conference presentation at the Workshop on Theory and Application of Time-Varying Econometrics Models, Changsha. (May 2023)

Invited seminar talk at School of Economics and Management, University of Electronic Science and Technology of China, Chengdu. (May 2023)

Invited seminar talk at School of Entrepreneurship and Management, ShanghaiTech University, Shanghai. (May 2023)

Invited seminar talk at Guanghua School of Management and Center for Statistical Science, Peking University, Beijing. (June 2023)

Conference presentation at SoFiE Annual Conference 2023, Sungkyunkwan University, Seoul (Korea). (June 2023)

Invited seminar talk at Center for Statistical Science, Tsinghua University, Beijing. (June 2023)

Invited seminar talk at Department of Information Systems, Business Statistics and Operations Management, The Hong Kong University of Science and Technology, Hong Kong S.A.R., China. (October 2023)

Invited conference presentation in the Econometric Workshop at School of Economics and Management, Beijing University of Aeronautics and Astronautics, Beijing. (December 2023)

Invited seminar talk at Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing. (December 2023) Topic: High Frequency Econometrics: Foundation and Recent Progress.

Invited seminar talk at School of Economics, Singapore Management University, Singapore. (January 2024)

Invited seminar talk at School of Statistics and Management, Shanghai University of Finance and Economics, Shanghai. (May 2024)

Invited seminar talk at Department of Economics, Chinese University of Hong Kong, Hong Kong S.A.R., China. (June 2024)

Invited presentation at 2024 Asia Meeting of the Econometric Society – China, Hangzhou. (June 2024)

Invited presentation at 2024 IMS – China International Conference on Statistics and Probability, Yinchuan. (July 2024)

Invited presentation at MPSS (Monash-Princeton-SJTU-SMU) Conference in Econometrics, Shanghai. (October 2024)

Invited presentation at SMU-XMU Econometrics Conference, Singapore. (November 2024)

Invited presentation at 2024 First Macau Conference in Business Intelligence and Analytics, University of Macau, Macau S.A.R., China. (December 2024)

Invited seminar talk at Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing. (July 2025)

Planned and Upcoming Talks

Invited presentation at Conference in honor of Professor Per Mykland's birthday, The University of Chicago. (October 2025)

ACADEMIC SERVICES

Referee for *Journal of the American Statistical Association*, *Management Science*, *Journal of Econometrics*, *Journal of Business and Economic Statistics*, *Econometric Theory*, *Statistica Sinica*, *Economic Modelling*, *Journal of Computational and Graphical Statistics*, *Journal of Statistical Planning & Inference*, *Journal of Systems Science & Complexity*.

External Reviewer of Research Grants Council (RGC) of Hong Kong.

Invited Session Chair at 2024 Asian Meeting of the Econometric Society, Hangzhou, China.

Session Chair at 2024 HKUST IAS-SBM Joint Workshop – Financial Econometrics in the Big Data Era, Hong Kong S.A.R., China.

Session Chair at 2024 SMU-XMU Econometrics Conference, Singapore.

Committee Member of Undergraduate Program in Data Science & Analytics Major, School of Economics, Singapore Management University. 2024.

TEACHING EXPERIENCE

2024-present Singapore Management University, School of Economics. Singapore

- DSA307 Big Data Analytics with Spark (U), Fall 2024, 2026
- DSA308 SQL and NoSQL Database (U), Spring 2026
- ECON6006 Financial Econometrics (G), Spring 2025, 2026
- ECON746 High Frequency Econometrics (G), Spring 2025
- ECON751 Topics in Financial Econometrics (G), Spring 2026