Jiajing Sun

Associate Professor & Deputy Director, Department of Statistics and Data Science

School of Economics and Management, University of Chinese Academy of Sciences, Beijing

jiajing.sun@gmail.com • jiajing-sun.com • ORCID • Google Scholar • SSRN • GitHub • LinkedIn

Research Interests

Financial and time-series econometrics; self-normalisation and adjusted-range inference; online monitoring and sequential change-point detection; functional time series and large factor models; integer-valued (count) time series; machine learning in economics; and environmental and ecological economics.

Employment

Deputy Director, Department of Statistics and Data Science Apr 2022 – present

School of Economics and Management, University of Chinese Academy of Sciences (UCAS)

- Core role in curriculum development and renewal for the statistics and data science programmes.
- Organise departmental seminars and workshops and present in joint events, including the Joint Seminar on the Frontiers of Econometrics (with Academia Sinica), the Gregory C. Chow Lecture, and the Young Scholar Forum at SEM.
- Co-developed a FinTech index ranking the FinTech capabilities of Chinese small and medium-sized banks; delivered a keynote at the China Finance Forum (14 December 2024).
- Conference organisation: leadership role in the 2022 and 2023 Asian Summer Schools in Econometrics and Statistics (lecturers including Cheng Hsiao, Jiti Gao, Jun Yu, Liangjun Su, Oliver Linton, Whitney Newey, Yongmiao Hong, Zhijie Xiao); assisted the 2024 Asian Summer School; co-organised the "Econometrics — Time Series I" session at the 2024 Asian Meeting of the Econometric Society; member of the organising committee for the China Journal of Econometrics Second Annual Conference (Hunan University, 2023); hosted Whitney Newey and Cheng Hsiao at a Doctoral Dissertation Symposium (Xiamen University, 2023).

Associate Professor Nov 2018 – present

School of Economics and Management, University of Chinese Academy of Sciences

- Module leader for Advanced Time Series Analysis, Financial Data Modelling and Analysis, Financial Econometrics, Financial Statistics and Econometrics, Financial Economics, and Nonparametric Statistics; lead instructor for Advanced Time Series Analysis in 2025 and 2026.
- Recognised with several teaching awards (see *Honours and Awards*).

Assistant Professor Mar 2013 – Nov 2018

School of Economics and Management, University of Chinese Academy of Sciences

- Module leader for Financial Economics, Financial Econometrics, Financial Statistics and Econometrics, English for Finance (MBA), and Corporate Finance (MBA).
- Guest lecturer in Financial Time Series Analysis, China University of Political Science and Law.

Deputy Director of International Relationships Mar 2013 – Dec 2014

School of Economics and Management, University of Chinese Academy of Sciences

- Organised seminars and hosted academics including Professor Nicholas Hope (Director, Stanford Centre for International Development) and Professor James T'ien (then Dean, University of Miami College of Engineering).
- One of two school representatives for a 2013 memorandum of understanding with the Energy Studies Institute, National University of Singapore; contributed to AMBA accreditation and several Executive Development programmes.

Lecturer / Teaching Fellow (Grade 7, Teaching and Scholarship) Sep 2011 – Nov 2012
Management School, University of Liverpool

- Module leader for Introduction to Finance; continued teaching support on modules taught during doctoral studies.
- Facilitated a bid between UCAS and the University of Liverpool Management School to the Sino-UK Higher Education Research Partnership for PhD Studies, part of a three-year UK–China Partnership Education Action Plan.

Assistant Professor Feb 2006 – Oct 2007
College of Economics and Management, Tianjin University of Science and Technology

- Taught Economics Case Studies, Basic Econometrics, Microeconomics, and Business English Foundation; econometrics laboratory coordinator; supervised undergraduate dissertations.

Visiting Positions and Fellowships

- **Jul 2024 – Jul 2027** — Honorary Research Fellow, Department of Work, Organisation and Management, University of Liverpool (unpaid; supports ongoing research collaboration).
- **Jun 2019 – Sep 2019** — Visiting Scholar, Management School, University of Liverpool.
- **Feb 2016 – Feb 2017** — Visiting Scholar, Department of Economics and Related Studies, University of York.
- **Nov 2015 – Dec 2015** — Visiting Scholar, School of Economics, Singapore Management University (exchanged research ideas with Professor Liangjun Su).
- **Oct 2007 – Sep 2011** — Teaching Assistant / Instructor, University of Liverpool (lectures, workshops, tutorials and lab sessions across microeconomics, finance, and econometrics modules; supervised MSc Strategic Business Analysis reports).

Education

PhD in Management Studies (Econometrics) Oct 2007 – Jul 2011
Management School, University of Liverpool

- Thesis: *Analysis of Integer-Valued Autoregressive Processes*. Supervisor: Professor Brendan McCabe.
- Research training: data collection strategies and techniques, quantitative methods for research, philosophy of social science, and research and information skills.

MSc in Economics Sep 2004 – Nov 2005
Department of Economics, University of Edinburgh

- Dissertation: *Applying the Bootstrap in Time Series Analysis*. Quantitative research report: analysis of the US monetary market.

BEcon in International Finance (First Class) Sep 2001 – Jul 2004
Tianjin University of Finance and Economics

- Dissertation: *Mortgage Loan Management in China*. Completed the four-year programme in three years with multiple distinctions.

Publications

JOURNAL ARTICLES (IN ENGLISH)

[1] Jiang, W., **Sun, J.**, Cole, M., & Zhang, Y. (2026). Virtual water in global supply chains: trade structure, industrial composition, and policy levers. *Ecological Economics*, 248, 109068.

[2] Yao, J., Wu, J., Feng, H., & **Sun, J.** (2026). Supply chain shocks and the reconfiguration of green finance markets: a quantile-on-quantile connectedness analysis. *Systems*, 14(6), 652.

[3] Wu, J., Yao, J., & **Sun, J.** (2026). Risk propagation and system resilience in sustainable-digital finance: a time-frequency higher-order moment analysis of green finance, green cryptocurrency, and non-green cryptocurrency markets. *Systems*, 14(6), 628.

[4] Wu, J., **Sun, J.**, Feng, H., & Long, F. (2026). Stablecoins, risk transmission and systemic reconfiguration in a fragmented USD access system: evidence from quantile time-frequency analysis. *Systems*, 14(5), 562.

[5] **Sun, J.**, Hong, Y., Lin, Z., & Xu, W. (2025). Structural stability of functional data: a new adjusted-range-based self-normalization approach. *Economics Letters*, 253, 112350.

[6] **Sun, J.**, Zhu, M., & Linton, O. (2025). Adjusted-range-based self-normalized autocorrelation tests. *Economics Letters*, 251, 112315.

[7] Cole, M., **Sun, J.**, Jiang, W., & Zang, L. (2024). Governmental capabilities and responsiveness: global investigations into CO_2 emissions and decarbonization. *International Journal of Public Administration*, 1–19.

[8] Hong, Y., Linton, O., McCabe, B., **Sun, J.**, & Wang, S. (2024). Kolmogorov–Smirnov type testing for structural breaks: a new adjusted-range based self-normalization approach. *Journal of Econometrics*, 238(2), 105603.

[9] **Sun, J.**, Hong, Y., Linton, O., & Zhao, X. (2022). Adjusted-range self-normalized confidence interval construction for censored dependent data. *Economics Letters*, 110873.

[10] Hong, Y., Linton, O., McCabe, B., & **Sun, J.** (2022). A score statistic for testing the presence of a stochastic trend in conditional variances. *Economics Letters*, 213, 110394.

[11] Jiang, W., Cole, M., **Sun, J.**, & Wang, S. (2022). Innovation, carbon emissions and the pollution haven hypothesis: climate capitalism and global re-interpretations. *Journal of Environmental Management*, 307, 114465.

[12] **Sun, J.**, Cole, M., Huang, Z., & Wang, S. (2018). Chinese leadership: provincial perspectives on promotion and performance. *Environment and Planning C: Politics and Space*, 37(4), 750–772.

[13] Cui, W., Cheng, H., & **Sun, J.** (2018). An RKHS-based approach to double-penalized regression in high-dimensional partially linear models. *Journal of Multivariate Analysis*, 168, 201–210.

[14] **Sun, J.**, & McCabe, B. P. (2013). Score statistics for testing serial dependence in count data. *Journal of Time Series Analysis*, 34(3), 315–329.

[15] Li, Z., **Sun, J.**, & Wang, S. (2013). An information diffusion-based model of oil futures price. *Energy Economics*, 36, 518–525.

[16] **Sun, J.**, Chernick, M. R., & LaBudde, R. A. (2011). A bootstrap test for comparing two variances: simulation of size and power in small samples. *Journal of Biopharmaceutical Statistics*, 21(6), 1079–1093.

COMMENTS ON PUBLISHED WORK

[1] Hong, Y., Linton, O., **Sun, J.**, & Zhu, M. (2023). Contribution to the Discussion Meeting on Probabilistic and Statistical Aspects of Machine Learning. *Journal of the Royal Statistical Society, Series B*.

JOURNAL ARTICLES (IN CHINESE)

[1] Sun, J., Lin, Z., & McCabe, B. (2026). Model averaging for count-data autoregressive models with covariates. *China Journal of Econometrics* (accepted).

[2] Hong, Y., **Sun, J.**, McCabe, B., & Wang, S. (2022). An adjusted-range based self-normalized statistic for testing structural breaks. *Statistical Research*, 39(4), 122–133.

[3] **Sun, J.**, McCabe, B., Cui, W., & Li, G. (2020). Integer-valued autoregressive process with Katz arrivals and its application in predicting counts of respiratory disease. *Chinese Journal of Applied Probability and Statistics*, 36(6), 551–568.

Books and Book Chapters

BOOKS (FORTHCOMING, 2026)

- **Sun, J.**, Hong, Y., & Linton, O. *Financial Econometrics: Theory, Cases, and R* (in Chinese). Higher Education Press.
- Hong, Y., Linton, O., & **Sun, J.** *Econometrics and Time Series Methods: Theory, Applications, and R Implementation*. Springer.
- **Sun, J.**, Hong, Y., Wang, S., & Yang, Y. *FinTech*. Higher Education Press.
- Johansson, P., & **Sun, J.** *Regression with R and Python: Description, Prediction, and Causal Inference*. Springer (publishing agreement signed).

BOOK CHAPTERS

- Li, Z., & **Sun, J.** (2015). Mechanisms and performance of Chinese bear markets and policy suggestions. In Z. Li & S. Cheng (Eds.), *China's Stock Market Review and Outlook: 2002–2013*. Science Press, Beijing.
- Li, Z., **Sun, J.**, & Cole, M. (2015). Mechanisms and performance of Chinese bear markets and policy suggestions. In Z. Li & S. Cheng (Eds.), *The Chinese Stock Market*, *Volume II* (pp. 125–189). Palgrave Macmillan, London.

Working Papers

- Hong, Y., Lin, Z., Linton, O., Newey, W. K., & **Sun, J.** (2026). Affine-Equivariant Adjusted-Range Self-Normalization.
- **Sun, J.**, Taamouti, A., & Lin, Z. (2026). Self-normalized inference for relevance-based functional Granger causality. *Revise and resubmit*, *Journal of Financial Econometrics*.
- Zhu, M., Hong, Y., **Sun, J.**, & Linton, O. Sequential change-point detection for time series: an adjusted-range based approach. *Revise and resubmit*, *Journal of Business & Economic Statistics*.
- Lin, Z., **Sun, J.**, Härdle, W. K., & Zhu, M. (2026). Monitoring relevant shifts in functional time series.
- **Sun, J.**, & Hong, Y. (2026). Online monitoring of loading-space instability in large factor models via self-normalized DFT spectral scores.
- **Sun, J.**, Taamouti, A., & Hong, Y. (2026). Online monitoring of distributional Granger causality.
- **Sun, J.**, Cole, M., & Härdle, W. K. (2026). Using machine learning for prediction and policy analysis in economics.
- **Sun, J.**, Zhu, M., Härdle, W. K., Linton, O., & Lin, Z. (2026). When to refresh a functional representation: online monitoring of structural change in functional time series.
- **Sun, J.**, Zhang, Q., Wu, J., Yan, X., Wei, X., Yau, S.-T., & Long, F. (2026). GLMY path homology reveals structural reorganization in cryptocurrency options markets.
- **Sun, J.**, et al. (2026). Mathematical sciences for trustworthy AI corpora.
- **Sun, J.**, Cole, M., Yan, F.-C., & Han, Y. Membership rules and the pricing of local public goods: evidence from China's Hukou system.
- Li, J., **Sun, J.**, Zhang, Q., Cole, M., & Hong, Y. Megaregion enlargement and the geography of gains: evidence from the Yangtze River Delta.

Research Grants and Projects

- *Adjusted-range-based self-normalization in time series analysis.* Principal Investigator, NSFC General Project, Jan 2022 – Dec 2025. CNY 480,000.
- *Research on talent cultivation in the fields of economics and digital technology.* Co-investigator, collaborative project with Xiamen International Bank, May 2023 – Dec 2025. CNY 500,000.
- *Impact of the COVID-19 epidemic on the Chinese economy and finance, and policy recommendations using synthetic control methods.* Principal Investigator, SEM, UCAS, Sep 2021 – Feb 2022. CNY

50,000.

- *Employment, subjective well-being, public-service satisfaction, and labour-market efficiency in major Chinese cities.* Principal Investigator, Chinese Academy of Sciences Programme, Jan 2019 – Dec 2020. CNY 200,000.
- *Sparse parameter models in big data.* Principal Investigator, Chinese Academy of Sciences Programme, Sep 2015 – Dec 2017. CNY 120,000.
- *Spatial integer-valued autoregressive moving-average models and their application in socio-economic analysis.* Principal Investigator, NSFC Youth Project, Jan 2015 – Dec 2017. CNY 200,000.
- *Spatial integer-valued autoregressive moving-average models and their application in socio-economic analysis.* Principal Investigator, UCAS, Jun 2013 – Jun 2015. CNY 100,000.
- *Investor sentiment and stock-market policy failure: analysis and empirical evidence based on internet big data.* Co-investigator, NSFC General Project, Jan 2017 – Dec 2020. CNY 470,000.
- *Basic research on financial-futures market monitoring and early warning from a major-asset-class perspective.* Co-investigator, Institution of Financial Derivatives of China (China Financial Futures Exchange), Jan 2018 – Dec 2018. CNY 90,000.
- *Risk assessment and optimisation of emergency material-distribution systems under sudden natural disasters.* Co-investigator, NSFC Youth Project, Jan 2015 – Dec 2017. CNY 250,000.
- *Nonlinear mixed-frequency data models and their application in economics.* Co-investigator, Ministry of Education, Jan 2015 – Dec 2017. CNY 8,630.

Editorial Service

- Associate Editor, *Review of Mathematical Economics* (International Press of Boston).
- Associate Editor, *Digital Finance* (Springer Nature).
- Associate Editor, *Management & Marketing* (Springer Nature).

Reviewing and Professional Service

- Referee for *Journal of Business & Economic Statistics*, *Statistica Sinica*, *Finance Research Letters*, *International Review of Economics & Finance*, *Journal of Environmental Management*, *Journal of Institutional Economics*, and other international journals.
- Grant referee for the Youth and General programmes of the National Natural Science Foundation of China (NSFC).
- Reviewer of paper submissions for the 6th Chinese Econometricians Forum, Jinan University (2023).
- Developed the book proposal for *The Chinese Stock Market* (Palgrave Macmillan).
- Proof-read *Econometrics by Example* (1st ed., Damodar Gujarati) for Palgrave Macmillan and reviewed the 2nd ed. for Bloomsbury Academic; assisted with proof-reading, editing and indexing *An Introduction to the Bootstrap with Applications in R* (Chernick & LaBudde) for Wiley.

Teaching

- **Graduate, UCAS:** Advanced Time Series Analysis (lead instructor, 2025–2026); Financial Data Modelling and Analysis; Financial Econometrics; Financial Statistics and Econometrics; Financial Economics; Nonparametric Statistics; English for Finance (MBA); Corporate Finance (MBA).
- **Earlier:** Introduction to Finance and related modules (University of Liverpool); Basic Econometrics, Microeconomics, Economics Case Studies, and Business English Foundation (Tianjin University of Science and Technology).
- Topics span regression and econometric inference; univariate and multivariate time series; cointegration, VAR and state-space models; volatility modelling; nonparametric and semiparametric methods; HAR inference; continuous-time finance; and empirical finance with real financial and macroeconomic data.

- Supervised undergraduate dissertations and MSc reports; many students have progressed to doctoral study or careers in academia, finance, data science, and the public sector.

Selected Talks and Presentations

- **2026** — 4th IMA Conference on Mathematics of Finance and Insurance, Liverpool, UK. *Online monitoring of financial functional time series: when should a functional representation be refreshed?*
- **2025** — 17th CEA (Europe) & 36th CEA (UK) Annual Conference, Glasgow, UK. *Sequential change-point detection in time series: an adjusted-range-based self-normalization approach* (session).
- **2025** — University of Leicester (invited seminar) and Renmin University of China (invited seminar). *Sequential change-point detection in time series: an adjusted-range-based self-normalization approach.*
- **2024** — 75th European Meeting of the Econometric Society, Rotterdam, Netherlands. *Confidence-interval construction based on the adjusted-range self-normalization approach* (session).
- **2024** — Asian Meeting of the Econometric Society, Hangzhou, China. *Sequential change-point detection for time series: an adjusted-range based approach* (session).
- **2022** — Gregory C. Chow Young Scholar Forum, Beijing, China. *Kolmogorov–Smirnov type testing for structural breaks: a new adjusted-range based self-normalization approach* (invited).
- **2021** — CFE-CMStatistics, London, UK; Tsinghua University Statistics and Data Science Young Scholar Forum, Beijing; Australian Meeting of the Econometric Society, Melbourne; 13th Annual SoFiE Conference, San Diego, USA; North American Summer Meeting of the Econometric Society, Montreal, Canada. Presentations on self-normalization, confidence-interval construction, structural breaks, and stochastic trends in conditional variance.
- **2020** — 4th China Econometricians Forum, Shanghai; 12th Econometric Society World Congress, Milan, Italy. *Structural breaks via adjusted-range self-normalization* and *model averaging of integer-valued autoregressive models with covariates*.
- **2019** — Asian Meeting of the Econometric Society, Xiamen; China Economic Society Annual Conference, Dalian. *Model averaging of integer-valued autoregressive models with covariates* and *the subjective well-being of internal migrants*.
- **2016** — 9th ERCIM WG on Computational and Methodological Statistics / 10th CFE, University of Seville, Spain. *RKHS-based approach to SCAD-penalized regression in high-dimensional partially linear models.*
- **2015** — IEEE Symposium on Analytics and Risk, UCAS, Beijing. *Commodity shocks and the macroeconomy.*

Honours and Awards

- Young Teacher Teaching Special Award, SEM (*Financial Statistics and Econometrics*, 2017–18).
- Excellent Postgraduate Course Award (*Financial Statistics and Econometrics*, 2019; *Financial Data Modelling and Analysis*, 2022).
- Third Prize, Young Teacher's Basic Teaching Skills Competition, UCAS (2023).
- Course-development award (CNY 15,000) for the *Financial Econometrics and Statistics* module.

Professional Qualifications and Memberships

- CFA charterholder, CFA Institute (charter awarded 2013).
- Fellow of the Institute of Mathematics and its Applications (FIMA).
- Member of the London Mathematical Society.

Languages

Mandarin (native) • English (fluent) • German (basic).