Assistant Professor, Ph.D, Star Xingyu Dai

Nanjing University of Aeronautics and Astronautics, star.dai@nuaa.edu.cn

Personal information

Dr Star Xingyu Dai (戴星宇) is an Assistant Professor at the College of Economics and Management, Nanjing University of Aeronautics and Astronautics (NUAA), and is the Deputy Director of the Fourth Division at Research Centre for Soft Energy Science of NUAA. His research interests mainly include multi-timescale analysis, interval-valued time series analysis, energy finance, and climate finance. He obtained his Bachelor's degree in Economics from Central China Normal University and his PhD in Management Science and Engineering from NUAA, supervised by Professor Qunwei Wang.

As the ***first*** or ***corresponding*** author, Dr Dai has published 21 academic papers in journals such as *The British Accounting Review*, *The European Financial Management*, *Journal of Commodity Markets*, *Annals of Operations Research*, *Journal of Forecasting*, *Energy Economics*, and *International Review of Financial Analysis*. Among them, 10 papers in ABS 3-star journals, and one paper was listed as a Highly Cited Paper in the Web of Science database. He has also published two textbooks.

Dr Dai has been the principal investigator of projects funded by the National Natural Science Foundation of China, and the Postgraduate Research & Practice Innovation Program of Jiangsu Province, and was selected for the Jiangsu Funding Program for Excellent Postdoctoral Talent. He is a member of the International Society for Energy Transition Studies (ISETS) and holds professional certifications from the China Futures Association as a Futures Practitioner and Futures Investment Analyst.

Dr Dai was born in 1995 in Nanjing, China. He has a daughter, and his wife is a secondary school chemistry teacher. Xingyu Dai was a prize-winner in top national mathematics competitions in China and is proficient in several computer programming languages.

Teaching & Research field

I am currently teaching *Time Series Analysis* to third-year undergraduate students, and *Financial Data Analysis* and *Frontier Research Methods in Economics* to first-year postgraduate students. I deliver computer programming lectures for new master/doctoral postgraduate students. I am also the class advisor for Class of 2029 in the Finance programme at NUAA. I wrote two Chinese textbooks.

- *Frontier Research Methods in Economics (经济学前沿研究方法)*, textbook co-author, 2023, China Science Publishing & Media Ltd.
- *Time Series Analysis of Energy Prices (能源价格时间序列分析)*, textbook associate editor, 2024, China Science Publishing & Media Ltd.

Energy and climate finance: I am interested in primary energy instruments (such as energy stocks, energy bonds, and energy commodities) and energy derivatives (such as energy futures) pricing and risk management. In the field of climate finance, my research mainly focuses on how climate physical risks, climate transition risks, and public climate attention affect systemic risks in financial markets.

Multi-timescale analysis: It includes multi-timescale asset price risk management and multi-timescale investment decision-making. The methodology combines time–frequency analysis techniques with financial time series modelling.

Interval-valued time series analysis: I am interested in researching how to use interval-valued Time Series (ITS) data to measure asset returns volatility and on decomposition–ensemble forecasting issue. My recent work centres on developing functional-coefficient univariate/bivariate ITS forecasting models.

Publication

First author papers (# for co-first author)

- **Dai, Xingyu**, Lau, Chi Keung*, Wang, Qunwei, & Wojewodzki, Michal. (2025). Public climate attention and European electricity markets systemic risk: Evidence from Google Trends data. *The European Financial Management* (**ABS 3, ABDC A**), *Accepted*.
- **Dai, Xingyu**, Yousaf, Imran, Wang, Jiqian, Wang, Qunwei*, &Lau, Chi Keung Marco. (2023). The pass-through of macro variable to volatility co-movement among US currency and commodity futures markets system. *Journal of Commodity Markets* (**ABS 3, ABDC A, JCR Q1**), 38, 100463. https://doi.org/10.1016/j.jcomm.2025.100463.
- **Dai, Xingyu**, Cerqueti, Roy, Wang, Qunwei*, & Xiao, Ling. (2025). Volatility forecasting: A new GARCH-type model for fuzzy sets-valued time series. *Annals of Operations Research* (**ABS 3, ABDC A, JCR Q1**), 348(1), 735-775. https://doi.org/10.1007/s10479-023-05746-z.
- **Dai, Xingyu**, Wang, Qunwei*, Zha, Donglan, & Zhou, Dequn. (2020). Multi-scale dependence structure and risk contagion between oil, gold, and US exchange rate: A wavelet-based vine-copula approach. *Energy Economics* (**ABS 3, ABDC A*, JCR Q1**), *88*, 104774. https://doi.org/10.1016/j.eneco.2020.104774.
- **Dai, Xingyu**, Zhang, Dongna, Lau, Chi Keung Marco*, & Wang, Qunwei. (2023). Multiobjective portfolio optimization: Forecasting and evaluation under investment horizon heterogeneity. *Journal of Forecasting* (**ABS 2, ABDC A, JCR Q1**), *42*(8), 2167-2196. https://doi.org/10.1002/for.3010.
- **Dai, Xingyu**, Dai, Peng-Fei, Wang, Qunwei*, & Ouyang, Zhi-Yi. (2023). The impact of energy-exporting countries' EPUs on China's energy futures investors: Risk preference, investment position and investment horizon. *Research in International Business and Finance* (**JCR Q1, Scopus TOP 10%**), *64*, 101806. https://doi.org/10.1016/j.ribaf.2022.101806.
- **Dai, Xingyu**, Dai, Peng-Fei, Wang, Qunwei*, & Ouyang, Zhi-Yi. (2024). The tail risk safe haven property of China's energy futures against US market implied volatility *Journal of Management Science and Engineering* (**JCR Q1**), *9*(2), 2167-2196. https://doi.org/10.1016/j.jmse.2024.01.005.

- **Dai, Xingyu**, Xiao, Ling*, Wang, Qunwei., & Dhesi, Gurjeet. (2021). Multiscale interplay of higher-order moments between the carbon and energy markets during Phase III of the EU ETS. *Energy Policy* (**ABS 2, ABDC A, JCR Q1**), *156*, 112428. https://doi.org/10.1016/j.enpol.2021.112428.
- **Dai, Xingyu**, Xiao, Ling, Li, Matthew C., & Wang, Qunwei*. (2022). Toward energy finance market transition: Does China’s oil futures shake up global spots market? *Frontiers of Engineering Management* (**JCR Q1**), *9*(3), 409-424. https://doi.org/10.1007/s42524-022-0207-3.
- Zhao, Yi, **Dai, Xingyu**#, Zhang, Dongna, Wang, Qunwei*, & Cao, Yaru. (2023). Do weather conditions drive China’s carbon-coal-electricity markets systemic risk? A multi-timescale analysis. *Finance Research Letters* (**ABS 2, ABDC A**), *51*, 103432. https://doi.org/10.1016/j.frl.2022.103432.
- Wu, Dan, **Dai, Xingyu**#,*, Zhao, Ruikun, & Cao, Yaru*. Pass-through from temperature intervals to China’s commodity futures’ interval-valued returns: Evidence from the varying-coefficient ITS model. *Finance Research Letters* (**ABS 2, ABDC A**), *58*, 104289. https://doi.org/10.1016/j.frl.2023.104289.
- (In Chinese) **戴星宇 Dai, Xingyu**, & 王群伟 Wang, Qunwei*. (2025). 融合谱分解和傅里叶系数的多元区间值时序模型及其预测应用 A multi-variate ITS model with spectral decomposition and fourier-coefficient. 系统工程理论与实践 *Systems Engineering - Theory & Practice* (**FMS T1, Class A among the 30 important Chinese management journals recognised by the Department of Management Science, National Natural Science Foundation of China**), *45*(7), 2385-2404. https://sysengi.cjoe.ac.cn/CN/10.12011/SETP2023-2471.
- **Dai, Xingyu**, Li, Matthew C.*, Xiao, Ling, & Wang, Qunwei (2022). COVID-19 and China commodity price jump behavior: An information spillover and wavelet coherency analysis. *Resources Policy* (**ABS 2, ABDC B**), *79*, 103055. https://doi.org/10.1016/j.resourpol.2022.103055.

Corresponding author papers

- Zhang, Dongna, **Dai, Xingyu***, & Wang, Qunwei*. (2025). Do green assets enhance portfolio optimization? a multi-horizon investing perspective. *The British Accounting Review*, 101612. https://doi.org/10.1016/j.bar.2025.101612. (**ABS 3, ABDC A*, JCR Q1**).
- Wang, Qunwei, Liu, Mengmeng, Xiao, Ling, **Dai, Xingyu***, Li, Matthew C., & Wu, Fei. (2022). Conditional sovereign CDS in market basket risk scenario: A dynamic vine-copula analysis. *International Review of Financial Analysis* (**ABS 3, ABDC A**), *80*, 102025. https://doi.org/10.1016/j.irfa.2022.102025.
- Lau, Chi Keung Marco, Wojewodzki, Michal, **Dai, Xingyu***, & Wang, Qunwei*. (2025). Detecting the macro drivers in the Australian National Electricity Market asymmetric volatility co-movement. *Energy Economics* (**ABS 3, ABDC A***), *143*, 108242. https://doi.org/10.1016/j.eneco.2025.108242.
- Tong, Yuan, Wan, Ning, **Dai, Xingyu***, Bi, Xiaoyi., & Wang, Qunwei* (2022). China’s energy stock market jumps: To what extent does the COVID-19 pandemic play a part? *Energy Economics* (**ABS 3, ABDC A***), *109*, 105937. https://doi.org/10.1016/j.eneco.2022.105937.
- Zhang, Dongna, **Dai, Xingyu***, Wang, Qunwei*, & Lau, Chi Keung Marco. (2023). Impacts of weather conditions on the US commodity markets systemic interdependence across multi-timescales. *Energy Economics* (**ABS 3, ABDC A***), *123*, 106732. https://doi.org/10.1016/j.eneco.2023.106732.
- Wu, Dan, **Dai, Xingyu***, Zhao, Ruikun, Cao, Yaru*, & Wang, Qunwei. (2023). Pass-through from temperature intervals to China’s commodity futures’ interval-valued returns: Evidence from the varying-coefficient ITS model. *Finance Research Letters* (**ABS 2, ABDC A**), *58*, 104289. https://doi.org/10.1016/j.frl.2023.104289.
- Zhang, Dongna, **Dai, Xingyu***, & Xue, Jianhao. (2024). Take weather conditions information into your commodity portfolio optimization: A factor-based Black-Litterman framework. *Finance Research Letters* (**ABS 2, ABDC A**). https://doi.org/10.1016/j.frl.2024.105672.
- Liu, Xinling, Wang, Bingjie, Xue, Jianhao, Wang, Qunwei, **Dai, Xingyu***, & Nghiem, Xuan-Hoa. (2025). Clean energy stock returns forecasting using a large number of predictors: which play important roles?. China Finance Review International (**ABS 1, JCR Q1**), 15(2), 247-276. https://doi.org/10.1108/CFRI-12-2024-0768.

First/corresponding authorship paper under review/RR

- (First author with Roy Cerqueti, Dongna Zhang, & Qunwei Wang) Asset returns interval forecasting: A novel decomposition-ensemble methodology with interval-valued operation rule. Under review in *International Journal of Forecasting*.
- (Corresponding auther with Binjie Wang, Qunwei Wang, & Yifei Wang) What factors play an important role in crude oil returns forecasting? New evidence from group predictors and multiple time scales. First round revision in *Journal of Commodity Markets*.
- (Corresponding auther with Jianhao Xue, Xuan-Hoa Nghiem) Portfolio optimization of energy futures assets: New evidence from a family of augmented Vine-Copula Black-Litterman models. Under review in *Energy Economics*.
- (Corresponding auther with Bo Zhou, Cheng Zhang, Qunwei Wang) Straw for making bricks: The role of sustainable finance development in enabling environmentally-specialized CEOs to mitigate greenwashing within Chinese brown firms. First round revision in *Pacific-Basin Finance Journal*.

Funding since 2024

The National Natural Science Foundation for Young Scientists of China (72503096) Principal Investigator
Ministry of Science and Technology of the People's Republic of China, 300000￥RMB Jan. 2026 | Dec. 2028

The Jiangsu Funding Program for Excellent Postdoctoral Talent (2025ZB893) Principal Investigator
Department of Human Resources and Social Security of Jiangsu Province, 200000￥RMB Aug. 2025 | Jul. 2027

Key Program of the National Social Science Fund of China (25AJY025) Research Group Member
Natinonal Office for Philosophy and Social Sciences, 350000￥RMB Jan. 2026 | Dec. 2028

Scientific Research Fund of Nanjing University of Aeronautics and Astronautics Principal Investigator
Nanjing University of Aeronautics and Astronautics, 40000￥RMB Jan. 2025 | Dec. 2026

Postgraduate Research & Practice Innovation Program (KYCX21_0237) Principal Investigator
Jiangsu Education Department Apr. 2021 | Dec. 2024

National level honor & certification

National Scholarship for Doctoral Students 1/1
Ministry of Education of the People's Republic of China Nov. 2022

First Prize, China National College Students Competition on Energy Economics 1/2
Chinese Society of Optimization, Overall Planning and Economic Mathematics Jul. 2019

Best Carbon Market Design Award, China National College Students Competition on Energy Economics 1/1
Chinese Society of Optimization, Overall Planning and Economic Mathematics Jul. 2019

Second Prize (National Level), National Postgraduate Mathematical Contest in Modeling Captain, 1/3
China Association for Science and Technology Dec. 2018

Professional Certifications for Futures Practitioner (TZ011704)
China Futures Association

Professional Certifications for Futures Investment Analyst (T243510)

China Futures Association

Professional Certifications for Securities Practitioner (201512423559853042)
Securities Association of China

Conference & Scholarship network

- 2022 International Conference on Climate and Finance (ICEF2022), Member of the Organizing Committee
- The Second International Society for Energy Transition Studies International Conference (ISETS2024), Member of the Organizing Committee
- The Third International Society for Energy Transition Studies International Conference (ISETS2025), Member of the Organizing Committee
- 2025 International Conference on Climate and Finance (ICEF2025), Parallel Session Chair
- The 22nd Chinese Finance Annual Meeting (CFAM2025), Parallel Session Reporter
- The International Society of Science and Applied Technologies International Conference on Data Science in Business, Finance and Industry (DSBFI2025), Parallel Session Reporter
- The 7th Edition of the Ethical Finance and Sustainbility Conference (EFS2024), Parallel Session Reporter
- Founding Team Member of the ISETS Energy Finance Network (IEFN)