Qianye Liu

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Research Interest

- Data Science, Big Data, Large Language Model, Efficiency Analysis, Human-Computer Interaction, AI

Education

Zhongnan University of Economics and Law, Wuhan, China   09/2022-06/2025
- *Master of Applied Economics* | **GPA: 3.64/4.00** *(Ranking top 5%)*

Hubei University, Wuhan, China   09/2018-06/2022
- *Bachelor of Applied Mathematics* | **GPA: 4.00/4.00** *(Ranking top 1%)*
- ***Core courses****: Calculus, linear algebra, Probability theory and mathematical statistics, Application of time series analysis, Python Programming, Java Application Development, Data Structure, Machine Learning and Quantitative analysis.*

Main Research and Project Experience

Big Data, Machine Learning & AI:

- **Large Language Models (LLM) Smart Q&A Robot - Prompt Engineering,** *Tianfeng Securities Co., Ltd., Data Finance Center.*
  Research Assistant   07/2024-09/2024
  - Optimized the response accuracy of the question-answering robot through prompt engineering.
  - Conducted assessments of model efficiency and performance analysis.
  - Enhanced user interaction by integrating advanced natural language processing techniques.

- **Predicting Financial Fraud with AI: A Deep Learning Approach,** *Zhongnan University of Economics and Law, National Natural Science Foundation of China Youth Preparatory Project.*
  Research Assistant   09/2021-02/2022
  - Applied conventional machine learning (ML) algorithms to predict fraudulent activities in the stock market.
  - Developed a NOVEL CNN MODEL to enhance the interpretability of ML outcomes.
  - Leveraged image data for predictive tasks, diverging from conventional numerical or textual information reliance.
  - Pioneered the EXPLORATION of ML model interpretability, addressing the early challenges in this domain.
  - Assisted in the authorship of project reports.

Efficiency Analysis, Economy & Econometric:

- **Bank ESG and Corporate Green productivity: A Decomposition Approach,** *Zhongnan University of Economics and Law, Digital Economy Research Center.*
  Project Leader   03/2024-10/2024
  - Employed Data Envelopment Analysis (DEA) to measure the green total factor productivity (GTFP) of corporations, involving extensive data processing and the application of R, MATLAB, and Python.
  - Utilized Bayesian estimation to infer the causal effects between bank ESG practices and corporate green productivity.
  - Decomposed the underlying mechanisms using a frontier analysis model.
  - Wrote a working paper.

- **Photovoltaic Industry Innovation Efficiency: Structural Equation Modeling Analysis,** *Nanjing University, Project of Social Science Foundation of Jiangsu Province.*
  Research Assistant   07/2023-07/2024
  - Facilitated the productivity methods to measure innovation efficiency within the photovoltaic industry.
  - Employed structural equation modeling for multi-path estimation and forecasting.
  - Utilized a combination of quantitative and qualitative methods to analyze the input-output effects on innovation efficiency, offering comprehensive insights into industry performance.
  - Completed a research paper.

- **Efficiency Maximization Using m-Frontier Approach,** *Zhongnan University of Economics and Law, Digital Economy Research Center.*
  Project Leader   01/2023-07/2023
  - Applied PRODUCTION FRONTIER ANALYSIS to construct an m-frontier model from a comprehensive sample set,

- assessing the efficiency of individual samples.
  - ➢ Calculated the Tornquist index in the context of agricultural productivity and climate change, focusing on the efficiency.
  - ➢ Explored methodologies for determining the OPTIMAL m-value to ensure the most accurate efficiency measurements.
  - ➢ Integrated DATA SCIENCE techniques to enhance the precision of efficiency calculations and provide actionable insights for sector improvement.
- **Patent and Corporate Performance: A PCA-Based Analysis,** *the Chinese Academy of Sciences, Information Science Research Center.*

  Research Assistant   09/2021-07/2022
  - ➢ Constructed comprehensive metrics for measuring corporate operational performance.
  - ➢ Employed Principal Component Analysis (PCA) to dimensionally reduce the dataset, enhancing clarity in performance assessment.
  - ➢ Analyzed the impact of innovative outputs on corporate success, utilizing quantitative methods for robust analysis.
  - ➢ Synthesized findings to provide insights into the value of patent innovation for business performance enhancement.
  - ➢ Completed a research paper and assisted in a project report.

Publications

In Process:

- Li X.Y., & **Liu Q.Y. [Correspondent Author]** (2023). Unlocking Value through Patents: How Innovation Drives Firm Performance. *Journal of the Knowledge Economy*. Under review.

- Li X.Y., & **Liu Q.Y. [Correspondent Author]** (2023). Measurement and mechanism analysis of innovation efficiency of the photovoltaic industry in China. *Sustainable Energy Technologies and Assessments*. Under review.

In Prep:

- **Liu Q.Y. [First Author]**, Wang C., & Feng G.H. (2022). The Effects of Chinese Carbon Emissions Trading System on Green Total Factor Productivity: A Decomposition Approach.

Working papers:

- **Liu Q.Y. [First Author]**, & Wang C. (2024). Bank ESG and Chinese manufactual firm's Green Total Factor Productivity: A Decomposition Approach.
- **Liu Q.Y.** (2021). Digital Financial Innovation: Implications for Corporate Creativity and Invention.

Conferences

The 8th annual conference of the Society for Economic Measurement (2023)   Milan, Italy

- *Oral Presentation: A Deeper Dive into the Effects of China's Emissions Trading on Green Productivity: A Decomposition-Based Study.*

The 17th international conference of the Western Economic Association International (2023)   Melbourne, Australia

- *Oral Presentation: The Effects of Chinese Carbon Emissions Trading System on Green Total Factor Productivity: A Decomposition Approach.*

Honors and Awards

- **Professional First-Class Scholarship (TOP 1%)**, *Zhongnan University of Economics and Law*   2022
- **"Top Ten Outstanding Students" and "Excellent Graduate"(only TOP 1%)**, *Hubei University*   2022
- **Bronze Award of the 7th National "Internet plus" Competition**, *Hubei University*   2021
- **CP Cup Research Proposition Excellent Paper Award**, *Chinese Society for Business Statistics*   2020
- **First Prize in the 11th National College Student Mathematics Competition**, *Chinese Mathematical Society*   2019

Skills

- **Language:** IELTS Score 6.0 (with Reading 7.0); TOEFL Score 75; Proficient in academic English writing.
- **Programming:** Proficient in PYTHON, R, MATLAB, STATA; Master the basic knowledge of JAVA and C++.
- **Certifications:** Holder of the National Professional Qualification Certificate in Market Research and Analysis.