Yun Dou

TEL: +1 312-468-2405| Email: ydou1@uchicago.edu

EDUCATION

-ShanDong University Jinan, China

Bachelor of Economics, National Top-tier Economics Student Training Base *June 2025*

- ***Score:*** 91.70 / 100
- ***Relevant Courses:*** Mathematical Analysis II (94), Linear Algebra (95), Probability and Mathematical Statistics (98), Ordinary Differential Equations (96), Intermediate Microeconomics (97), Intermediate Macroeconomics (93), Econometrics (93), Applied Econometrics (97), Game Theory (94), Big Data Analysis and Application (98).

-University of Chicago Chicago, IL

Master of Arts in Economics *Expected June 2026*

- ***Relevant Courses***: Price Theory, Introduction to Advanced Macroeconomic Analysis, Introduction to Empirical Analysis.

RESEARCH EXPERIENCE

Economics-Informed Machine Learning **Dec. 2024 – May 2025**

Institution: MIT(Prof. Hui Chen)and Shandong University.
Undergraduate Research Assistant Advised by Asst. Prof. Yuhan Cheng

- Developed two Transfer Learning frameworks --- Pretrain-Finetune Neural Network & Adaptive Transfer Gaussian Process(ATGP), to get the nonlinear predictive power without overfitting when the data is scarce.
- Evaluate the out-of-sample macroeconomic indicator prediction performance of **transfer learning** versus traditional machine learning and VAR models.
- Enhanced ATGP's kernel functions by integrating deep learning techniques, developing a Deep Kernel ATGP framework to boost nonlinear modeling and prediction capabilities for Macroeconomic data.
- Contributed to drafting the initial manuscript, and revised the draft iteratively under advisor guidance to refine theoretical framework descriptions, empirical result analyses, and methodological rigor.

Teaching Economics to the Machine (Presented at NBER and AFA) **Dec. 2024**

Institution: MIT(Prof. Hui Chen), Tsinghua University and Shandong University.
Undergraduate Research Assistant Advised by Asst. Prof. Yuhan Cheng

- Created a visual flowchart of the paper's core framework using Visio.
- Wrote the conclusion section in the final version of the paper.
- Participated in the review and proofreading process before submission.

Large Language Factor Pricing Model **Mar. 2025 – May 2025**

(under 3rd-round review at Journal of Management Science and Engineering)
Institution: Tsinghua University and Shandong University
Undergraduate Research Assistant Advised by Asst. Prof. Yuhan Cheng

- Investigated the comparative advantages of LLM-generated pricing factors over traditional machine learning (ML)-based asset pricing methodologies, highlighting LLM's unique value in financial factor construction.
- Decomposed prediction error differences between LLM and ML via the KIA (Knowledge/Information Advantage), Bias, and Noise framework to quantify LLM's incremental information contribution.
- Evaluated the performance of LLM-factor-based asset pricing approaches and benchmarked them against LLM-multimodal (text/image)-integrated pricing methods.
- Implemented Python for comprehensive data analysis, including performance backtesting, and visualizations (word clouds, time-series plots, feature importance charts) to validate findings.

Can "Tax-Credit" Policy Reduce Tax Avoidance of Small and Micro Enterprises? **May 2024 – Dec. 2024**

Institution: MIT(Prof. Hui Chen)and Shandong University
Undergraduate Research Assistant Advised by Asst. Prof. Yuhan Cheng and Assoc. Prof. Jie Zou

- Pioneered a data-driven profit-prediction model using deep learning to construct reliable proxies for firms' true

profits, thus improving the estimation of tax avoidance.

- Trained profit-prediction models on large-scale Chinese firm-level data, demonstrating superior out-of-sample performance compared to benchmark and uncovering systematic underreporting due to tax avoidance.
- Validated the effectiveness of DL-based tax avoidance measures through rigorous econometric tests across six firm- and industry-level dimensions using Stata, establishing robustness and theoretical consistency.

Macroeconomic Risk Measurement Research Based on Large Language Models **Nov. 2023 - April 2024**

Institution: Shandong University
Undergraduate Research Assistant , Advised by Asst. Prof. Yuhan Cheng

- Developed an original framework to quantify macroeconomic risk that is prompting Large language Models to measure the macroeconomic risk based on Stock market news.
- Demonstrating the explanatory and predictive power of the macroeconomic risk scores for stock markets volatility and monetary policy changes, using Python.

The Application of Artificial Intelligence in the Research of Economics and Finance **July 2024 - Aug. 2024**

Institution: Peking University and Shandong University
Undergraduate Research Assistant Advised by Asst. Prof. Yuhan Cheng and Assoc. Prof. Jie Zou

- Synthesized cutting-edge machine learning and econometric paradigms to articulate their methodological contrasts and complementarities in economic and financial research
- Formulated the "three key tools" framework—high-dimensional prediction, alternative data processing, and feature importance identification—that has shaped AI's application in economics.
- Demonstrated how artificial intelligence advances variable prediction, alternative data construction, and causal inference, while **diagnosing** challenges of interpretability, bias, and data quality

Portfolio Overlap Across Machine Learning Models and Hyperparameters **Oct 2024 – Present**

Undergraduate Research Assistant Advised by Asst. Prof. Yuhan Cheng

- Designed and executed an empirical study on portfolio overlap across machine learning models, leveraging A-share market data (2014–2016).
- Implemented a suite of predictive models (OLS, tree-based, deep neural networks, RNN, LSTM) with. hyperparameter search and robustness checks across random seeds.
- Constructed long–short portfolios and systematically quantified overlap, revealing that hyperparameter variation. induces higher overlap than model heterogeneity, and that neural networks generate more similar portfolios than tree-based methods.

Other Research Assistant Work Advised by Asst. Prof. Yuhan Cheng of Shandong University

- Applied the Kolmogorov–Arnold Networks (KAN) and multimodal asset pricing methods to predict futures returns, and conducted backtests to evaluate the performance of long–short portfolios based on the predictions.
- Used supervised learning techniques in Python to identify corporate misconduct.
- Incorporated climate-related features into machine learning models to improve the accuracy of futures return prediction and portfolio performance, and calculated feature importance and partial dependence.
- Experimented with AI agent workflows to construct asset pricing factors aimed at generating excess returns in the stock market, though the attempt was unsuccessful.

REWARDS

• **Mathematical Contest in Modeling(MCM)**	**The Finalist Award (Top 1%)**	**May 2024**
• China Undergraduate Mathematical Contest in Modeling	The Second Prize	Sep. 2023
• Shandong University Academic Scholarship	The Second Prize	Sep. 2023
• National College Data Statistics and Survey Analysis Challenge	The Second Prize	Aug. 2023
• The Chinese Mathematics Competitions	The Second Prize	Nov. 2022

OTHER EXPERIENCE

- **2000 km Cycling Expedition (Yinchuan－Lanzhou－Xi'an－Wuhan)** **Team Member** **July 2022**
- **2000 km Cycling Challenge Across the Qinghai-Tibet Plateau (Dali－Shangri-La－Lhasa)** **Team Leader** **July 2023**
- Shandong University Cycling Association (Top 10 Student Organizations of SDU) Vice President Mar. 2023 - Mar. 2024
- Academic English Pre-matriculation Program (AEPP) run by the English Language Institute August 2025