

□ (+1) 734-968-8570 | **>** pycai@umich.edu | **□** Peiyao Cai

Education

University of Michigan, Ann Arbor

Ann Arbor, MI, 48105

2021 - 2023

M.S. IN STATISTICS & DUAL M.S IN MATHEMATICS(GPA:3.98/4) **Peking University**

Beijing, China, 100871

B.S. IN FINANCE (CORE GPA: 3.76/4)

2017 - 2021

Northeastern University

Boston, MA, 02115

EXCHANGE STUDENT IN FINANCE

2019 - 2019

Academical Experience

University of Michigan, Ann Arbor

Ann Arbor, MI, 48105

RESEARCH ASSISTANT (SUPERVISOR: KEAN MING TAN)

Mar 2022 - Present

- Proposed a novel estimator for statistical inference of differential edge parameter between 2 independent probabilistic graphical models. This
 estimator applies to general exponential families distribution under the high dimensional setting.
- Proved the asymptotically distribution and upper limit of error bound of the estimator.
- Made further simultaneous inference of the estimator based on Gaussian multiplier bootstrap and conducted numerical simulations.

Peking University

No.5 Yiheyuan Rd, Beijing, CHN,

100871

RESEARCH ASSISTANT (SUPERVISOR: CHENXU LI)

Apr 2021 - Present

- · Worked with Professor Li to use high frequency trading data from 44 DJI index companies to construct 19 variables for further use.
- Combined the high frequency return time series and company-related news from Thomson Reuters News Database together to detect abnormal return residuals and their characteristics
- Set different truncation cutoff to determine high frequency price jumps for companies, and ran further probit regressions to detect variables' abilities to predict news related jumps.

Peking University

No.5 Yiheyuan Rd, Beijing, CHN,

100871

RESEARCH ASSISTANT (SUPERVISOR: LI-AN ZHOU)

March 2021 - May 2021

- Worked with Professor Zhou to conducted a DID based method to evaluate the Tournament Promotion Model in China's prefecture-level cities.
- Established database of government annual report at the level of different prefecture-level city throughout the whole country

Peking University & University of Utah

No.5 Yiheyuan Rd, Beijing, CHN,

100871

RESEARCH ASSISTANT (SUPERVISOR: JIACUI LI, YINGGUANG ZHANG)

Jul 2020 - Nov 2020

- Used Python to assist professors to pre-process datasets containing million of observations, including labeling each observation with right signs, selecting useful datasets and construct important statistical variables.
- Used R to run various tests and regressions with multiple fixed effects to detect and verify seasonalities in US stock return, insider trading, net trading etc.

Peking University

No.5 Yiheyuan Rd, Beijing, CHN,

100871

RESEARCH ASSISTANT (SUPERVISOR: YINGGUANG ZHANG)

Apr 2020 - Nov 2020

• Assisted professor to construct 3 different Change-of -Forecast Variables to examine whether the earnings announcement return cycle can accord with the cycle of analysts change their forecast.

Professional Experience _

Northeast Security

Beijing,China

EQUITY CAPITAL MARKET INTERN

Aug 2020 - Nov 2020

- Responsible for updating weekly capital market database and writing weekly reports. Designed a Python Crawler program to help collect important data on website automatically.
- Participated in a directional private placement project of a domestic investment bank with a volume of 6 billion RMB, and was responsible for
 writing and checking important compliance documents.

PricewaterhouseCoopers Business Consulting Services Limited

Qianhai, Shenzhen, China

Data Analytics Intern

Jan 2020 - Mar 2020

- Extracted financial data of Chinese enterprises from the data of the past 12 years with the volume of millions, Constructed the corresponding factors according to the Beneish model.
- Applied basic model including logit regression to advanced algorithm including random forest classification and xgb regressor to quantify the probabilities of degrading of Chinese bonds.
- Constructed 27 different factors that could influence the probability of bond degrading. Constructed ROC curve to detect the goodness of fit of the machine learning model and the AUC area came to 0.92, which meant the model was highly precise and well-developed.
- The simulation results helped the department better design trading algorithms.

New China Fund Ltd

Beijing,China

INDUSTRY RESEARCH INTERN

June 2019 - Aug 2019

- According to daily condition of A shares market and fluctuations of specific indexes, composed the daily news report about the industry of wind
 power and new energy.
- · Participated in various of strategy meetings, analysed the potential investment opportunities toward wind power industry.
- Carried out the industrial research in wind power independently. According to the combination between marco politics and the business model of specific corporation, I wrote research report to facilitate the department to choose the investment object.

Skills_

Python, R, LaTeX, Linux, MySQL, Microsoft Office, Bloomberg, Wind.