

Luofeng Zhou

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Cooperative and active in academic environment, good at communication skills, open-minded

Education

Wuhan University, Economic and Management School

Sept. 2015 – Jul. 2019 (expected)

majoring in Mathematical Finance and minoring in Computer Science,

Expecting B.A. in Economics, B.S. in Mathematics, B.Eng. in Computer Science.

➤ **3.84/4.00 Overall GPA.**

Academic Projects

Innovative Entrepreneurship Program, Wuhan University

Apr. 2016 - Jul. 2018

Participated in a 2-year project focusing on the design of an APP aimed at tourism market and quantitative analysis.

- We found the potential trend of the “private tour” and favorable policies related to this emerging area, so we were trying to design a platform for matches between private tours and tourists in need.
- By using market’s and users’ data, we tried to apply AI methods such as machine learning models and NLP approaches to carry out customer analysis and develop a recommendation system to speed up the matching process. For machine learning models, they act as a predictor to summarize the characteristics which potential tourists may bear. NLP models try to attract pivot information in online remarks to identify which group of people may feel content about a tour to where and with whom.
- Contribution: Leader of the market and accounting sector; analyzed potential competitors and help form the NLP model for remarks on interest of places and travel agencies.

Interdisciplinary Research, Wuhan University

Sep. 2017 - Dec. 2017

Participated in an interdisciplinary research focusing on big data indicators for financial fraud

- We tried to use big data method to detect fraudulent financial statement of listed companies in US and China separately.
- We specified that sentimental elements gained by text mining instruments such as basic discrete bags of words model, modern Word2Vec model and Latent Dirichlet Allocation (LDA) model in annual reports (10-Ks in US) have significant indicator effect of fraudulent financial statements in the same year clustered by the same accounting firm. Plus, traditional machine learning models like SVM also perform a good predicative power.
- We also found that before and after the accounting criteria changed, the effect of fraudulent financial statements on stock prices differs drastically both in scope and in scheme.
- Contribution: Leader of financial part; applied the output which text mining or machine learning models with financial intuitions and previous researches, combined the newly formed variables with pure financial ones to conduct regressions in financial markets and compare the effects before and after these variables are added.

Financial Market Research, Wuhan University

Dec. 2017 – Jun. 2018

Led a half-year research focusing on short sellers’ possible information sources around trading halts

“Are Short Sellers Informed? Evidence from the Short-selling Activities before Stock Trading Halts”

- Informed trading appears before private information. Short-selling indicates confidence of investors stronger than normal selling actions. Abnormal short-selling then shows trades with private information, which might contribute to the market disorder and inefficiency.
- We found that the private information around trading halts explained much of the short-selling in Chinese listed company by comparing the abnormal short-selling with normal short-selling, in which information-abundant and moderate duration shows more insider trading and vice versa.
- Contribution: Second author; collected previous research to attest the contribution of the idea, did all the empirical experiments, wrote the draft paper.

Interdisciplinary Research, Wuhan University

Jun. 2018 - Sep. 2018

Participated in an interdisciplinary research focusing on a novel model in macroeconomic causal inference

“Compression and Causal Relations Around Macroeconomics: an Improved CUTE Model”

- Traditional Granger causality test preserves many demerits, so it is not always used in recent years. There are two ways to detect causality in time series data: use an appropriate instrument variable and structure equations; develop another model in detecting causality. In this project we used a newly developed model, CUTE, to do causal inference in Canadian macroeconomy.
- The original CUTE model is applied to binary time series while economic variables are multivalued. We perform a multi-value expansion to let the original one fit the macro-economy. Theoretical and robustness tests are done to show the benefits of improved CUTE model with respect to traditional Granger causality test.
- From empirical data, improved CUTE shows a somewhat different results, which may provide advises on macroeconomic policies from a different perspective.
- Contribution: Leader of the economic part; testified the contribution of the idea in macroeconomic scale, selected variables before tests are done according to previous research, drafted the paper.

Unsupervised Economics Research, Wuhan University

Jul. 2018-Sep. 2018

Participating in a research focusing on modeling the behavior of a principal-agent problem when a third party exists

“Information Disclosure and Competitive Equilibrium in Capital Market”

- Traditional principal-agent problem does not assume the existence of a third part or simply their utility to be the same

with one of the two sides. However, lots of cases tell that the third part such as sales manager play a quite important part in principal-agent problem with a unique utility function. Their most important power is to determine the degree of information asymmetric. The agent's choice has been researched under this circumstance, but the principal's best response has not been formed and so equilibrium is not been specified.

- In this paper, we tried to form theoretical explanation of the mechanism where a third party with unique utility function is involved and then characterize the behavior boundaries through Monte Carlo simulation and numerical specification for the final equilibrium.
- Contribution: Second author; derived part of the theoretical proof and did all the empirical tests, drafted the paper.

Data Mining Research, Wuhan University

Sep. 2018- Feb. 2019

Leading a data mining research focusing on causal inference from the perspective of information theory

"DISC: Causal Discovery from Continuous Time Series by Compression"

- In general, Granger causality test needs a predetermined vector autoregressive (VAR) model to infer potential causality. If the VAR model is badly specified, the outcomes can be misleading. In this paper, we proposed DISC model which used another prediction strategy, namely sequential normalized maximum likelihood (sNML), to substitute VAR under the framework of Granger causality and tried to explain predictability from the perspective of information compression.
- Drawn by compression theory, the past information is utilized in a selective way for prediction, which is more flexible than a given specification in VAR pattern. Both experimental and empirical evidence show that DISC outperforms Granger causality test embedded in VAR specification.
- Contribution: First author and the leader of the whole research group; formed the idea and drafted the paper; designed the algorithms and proved the theorems used in this paper.

Interdisciplinary Research, Wuhan University

Ongoing

Leading an interdisciplinary research focusing on high frequency causality in foreign exchange markets

"Free Temporal Causality from Market Microstructure Noise in Foreign Exchange Markets"

- Granger causality test in vector autoregression model performs poor when using high frequency data because of the existence of market micro-structure noise. Previous theoretical studies tried to model the microstructure noise through stochastic analysis. We are trying to use EM algorithm to form an implicit projection from low frequency data to high frequency data generating process and distributions of noise.
- Contribution: Leader of the whole research group; formed the idea and testified the contribution; wrote the proposal.

Interdisciplinary Research, Wuhan University

Ongoing

Leading an interdisciplinary research focusing on causal inference in financial data by using modified DTW algorithm

"From Similarity to Causality: DTW Explanation and Modification"

- When modeling complex time series like financial data, it is common that causal influences may changes in volume while the pattern is unchanged, or the pattern is changing, which could not be dealt with by traditional models.
- Dynamic Time Warping (DTW) is an algorithm widely used in speech recognition. DTW gives another measurement of distance between two curves instead of Euclidian distance. It finds similar subsequences by dynamic programming and links points between each time series. If the linking line is paralleled, it could be deduced that there may exist causality. Also, it could determine whether pattern is changing over time. It performs well in simulated data.
- Contribution: Leader of the whole research group; formed the idea and testified the contribution, wrote the proposal.

Internship Experience

Changjiang Securities, Wuhan, China

Jul. 2016 - Aug. 2016

Quant Intern, Department of Asset Management

- Researched on the traditional multi-factored model in security selection and its performance especially in Chinese pharmaceuticals industry during the past few years.
- Researched on three biggest Chinese listed companies in pharmaceuticals industry.
- Assessed the whole pharmaceuticals industry by analyzing information from sentiments of media and investor.
- Armed traditional multifactor model with sentimental factors obtained by big data method to adapt to Chinese market.

China Universal Asset Management Co., Ltd, Shanghai, China

Jul. 2017 - Aug. 2017

Customer Analysis Intern, Department of Wealth Management

- Wrote a report about what high net worth clients (HNW clients) concern during the past decade, the development of private banking service in Chinese market and the planning scheme to establish private banking group.
- Formed a modified multi-factored model by including special characteristics of HNW clients' concern and their changes to provide more favorable portfolios.

Panda Capital, Beijing, China

Jul. 2018 - Aug. 2018

Investing Intern, Department of Investment

- Investigated a series of entrepreneurship programs around AI and medical care.
- Parsed sales and remark data from e-commercial platforms in objective fields.
- Summarized founders' past experience of venture capital program to help decision making for a new program.

Miscellaneous

- **Language:** Mandarin (native), English (proficient), TOEFL: 106/120.
- **Programming skills:** proficient in MATLAB, R, STATA, JAVA, PYTHON, SQL.
- **Hobbies:** Table tennis and singing.

(Last revised: Feb. 8th, 2019)