



LEI, WANG

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EDUCATION

SHANGHAI JIAO TONG UNIVERSITY (*Bachelor*)

Aug.2021-Jun.2025 (*expected*)

Major: Industrial Engineering (Total GPA: 3.97/4.30, Ranking: 1/55) **Minor:** Finance

Core Courseworks: Stochastic Models(100), Linear Algebra (98), Engineering Statistics (95), Operations Research (92)

Awards: National Scholarship, U.S. College Mathematical Contest in Modeling Finalist Award, Merit Student of Shanghai Jiao Tong University

SELECTED RESEARCH EXPERIENCE

Wordle Results Prediction and Classification Based on NLP (*Thesis name: Joy of Wordle: Based on Arima and WordleRT*)

Feb.2023

- **Prediction Task:** Employ the GESD algorithm for data outlier handling and construct a dual ARIMA model for forecasting;
- **NLP Task:** Utilize the high-dim word-vectors processed by Bert to pass through a fully connected network, and conduct KL divergence analysis to obtain prediction results, calculating mean loss for prediction confidence, and iteratively adjust network structures for further analysis;
- **Challenges Addressed:** Implement the GESD algorithm found in the literature to detect and handle outliers; to mitigate the problem of a small sample size provided in the dataset, incorporate the MC Dropout Layer at the model output to reduce overfitting.

Exploration of Factors Influencing Housing Prices Based on Multiple Regression

Mar. 2023-Jun.2023

- **Data Exploration:** Utilize an open-source housing price dataset, and conduct fundamental descriptive statistics and correlation analysis and then employ data-binning techniques, which reduce observational errors, enhance robustness, and mitigate overfitting issues;
- **Model Establishment:** Use both adjusted R^2 and RMSE as evaluation metrics, and then implement various regression methods including Lasso, Ridge, Polynomial regression, and K-NN regression, and then synthesize the results to provide a quantified ranking of each feature's importance.

Simulation Evaluation and Optimization of N Bank's Operational Status

Oct.2023-Dec.2023

Simulate and model the operational status of a real bank in Arena software, and provide optimization solutions

- **Background Research:** Conduct on-site research on a selected bank to gather information such as service duration distribution;
- **Model Construction:** Utilize the collected data and make certain assumptions to create a simulation model of the bank's operational status using Arena, and then execute the model to identify existing issues;
- **Optimization Approach:** Establish objective functions from the perspectives of minimizing service-time and maximizing efficiency, then a combinatorial optimization is conducted based on real-world considerations and certain assumptions under given capacity and budget constraints, and then the OptQuest software is employed to solve the optimization problem, with a social force model introduced to refine the model.

Empirical Study on the Relationship Between Female CEOs and Corporate Innovation Levels

May 2023-Jun.2023

Construct a fixed effects model to analyze panel data and provide an economic analysis

- **Literature Review:** After research, propose two null hypotheses ($H1$: Female CEOs have a positive impact on corporate innovation; $H2$: The likelihood of innovation being driven by female CEOs in state-owned enterprises is lower than that in non-state-owned enterprises) and determine the control variables such as board size, R&D, and revenue with reference to the literature;
- **Model Establishment:** Utilize public data from CSMAR, and after data processing, establish a fixed-effects model for panel data analysis, and finally conduct robustness analysis and engage in a comprehensive discussion on endogeneity issues within the model (such as selection bias and individual heterogeneity), and the utilization of multi-period lagged explanatory variables partially address the aforementioned concerns.

Exploration of the Impact of U.S. Sanctions on the Chinese Semiconductor Industry

Mar.2023-Apr.2023

- **Background Research:** Analyze the Timeline, Scale, Background, and Implications of U.S. Sanctions Against China;
- **Statement analysis:** Under the background of U.S. sanctions against China, analyze the current state of the industry by examining financial reports of four companies from China and the United States, and projecting the future patterns.

LEADERSHIP & ACTIVITIES

A+ Club of ME Core Member

Jun.2023-Present

Ernst & Young (China) Advisory Limited Intern of the Corporate Tax Department

Aug.2023- Sep.2023

Civic and Political Affairs Office of ME Academic Counselor

Feb.2023- Jun.2023

SKILLS

Computer Skills: Python, LaTeX, Stata, Minitab/Excel, PowerPoint, Word, Arena

Language: Fluent in English (CET4-623/710; CET6-615/710) and Mandarin (Mother Language)