



LEI, WANG

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EDUCATION

SHANGHAI JIAO TONG UNIVERSITY (*Bachelor*)

Aug. 2021 - Jun. 2025 (expected)

Major: Industrial Engineering (Core GPA: 3.99/4.30, Ranking: 1/55) **Minor:** Finance

Core Courses: 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

Sentiment Explorational Analysis Based on DOUBAN Movie Reviews

Apr. 2024 - Jun. 2024

Analyze Chinese movie reviews using machine learning algorithms.

- **Sentiment Classification:** Explored various methods to construct sentiment analysis models, such as relatively traditional dictionary-based tokenization methods and more advanced word embedding techniques, with Baidu's open-source Senta model as the baseline.
- **Further Exploration:** Took the Potential Film Score Manipulation into consideration, using t-tests and K-means clustering to detect self-boosting activity. Developed a movie search engine that allows users to search for open-ended paragraph statements.

Autonomous Driving Algorithm Development

Mar. 2024 - May 2024

Fine-tune the ResNet-18 to achieve lane detection, integrating lidar-based obstacle avoidance, and traffic light recognition.

- **Model Construction:** Collected and labeled lane-line image data from a specific track, fine-tuned a pre-trained ResNet-18 model, and incorporated lidar-based obstacle avoidance and traffic light recognition features.
- **Results Presentation:** Achieved first place in the class racing competition through continuous improvement.

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

Feb. 2023

- **Prediction Task:** Employed the GESD algorithm for data outlier handling and constructed a dual ARIMA model for forecasting.
- **NLP Task:** Utilized high-dimensional word vectors processed by BERT, passing through a fully connected network to KL divergence analysis, obtaining prediction results, calculating mean loss for prediction confidence, and iteratively adjusting network structures for further analysis.
- **Challenges Addressed:** Implemented 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, incorporated the MC Dropout Layer at the model output to reduce overfitting.

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.

- **Model Construction:** Conducted on-site research at a selected bank, utilized the collected data and made certain assumptions to create a simulation model of the bank's operational status using Arena, and then executed the model to identify existing issues.
- **Optimization Approach:** Established objective functions to minimize service time and maximize efficiency. Conducted combinatorial optimization based on real-world considerations and certain assumptions under given capacity and budget constraints. Employed OptQuest software 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:** Proposed two null hypotheses ($H1$: Female CEOs positively impact corporate innovation; $H2$: The likelihood of innovation driven by female CEOs in state-owned enterprises is lower than that in non-state-owned enterprises) and determined the control variables such as board size, R&D, and revenue with reference to literature.
- **Model Establishment:** Utilized public data from CSMAR, preprocessed the data, and established a fixed-effects model for panel data analysis. Conducted robustness analysis, discussed endogeneity issues (e.g., selection bias and individual heterogeneity), and used multi-period lagged explanatory variables to partially address the aforementioned concerns.

LEADERSHIP & ACTIVITIES

A+ Club of ME Core Member & Academic Counselor

Jun. 2023 - Present

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

Aug. 2023 - Sep. 2023

SKILLS

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

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