汪磊

电话: (+86)17317617389　邮箱: wanglei123@sjtu.edu.cn

教育背景

上海交通大学（本科） ***2021.08-2025.06***

工业工程（主修）　　金融学（辅修）　　机械与动力工程学院

核心学积分：91.17/100（专业排名：2/55）　　总 GPA：3.97/4.30（专业排名：1/55）

核心课程：线性代数（98），工程统计学（95），运筹学（92），程序设计思想与方法（C++），机器学习（在修），随机模型（在修）

奖项荣誉：国家奖学金、2023 年美国大学生数学建模竞赛特等奖提名、丰田纺织一等奖学金、上海交通大学三好学生

项目经历

基于 NLP 的 Wordle Results 预测与分类（*美国大学生数模竞赛参赛论文：Joy of Wordle: Based on Arima and WordleRT*） *2023.02*

·**预测任务：**用 GESD 算法进行数据离群值处理，构造双 ARIMA 模型完成预测；

·**NLP 任务：**选择 Bert 作为预训练模型，基于得到的高维词向量，搭建全连接网络，经 KL 散度分析后得到预测结果，再通过计算 mean loss 得到结果置信度，最后通过反复更改网络结构，分析得到单词属性与难度的关系；

·**难点解决：**针对离群值问题，使用 GESD 算法检测处理；针对题目所给样本量过少问题，在模型输出层加入 MC Dropout 减少过拟合。

基于多元回归的房价影响因素探索（*用多种回归方法进行房价预测并结合现实因素解释*） *2023.03-2023.06*

·**数据处理：**基于 Kaggle 提供的开源房价数据集，涵盖共 19 个特征，对其进行基础的描述性统计与相关性分析，并使用数据分箱，用于减少观测误差，增强鲁棒性，避免过拟合问题；

·**模型建立：**结合采用调整后 R^2 与 RMSE 作为评价指标，后使用 Lasso 回归、Ridge 回归、多项式回归与 K-NN 回归等多种方式，综合结果，给出各个特征对房价重要性的量化排序并给出现实意义的解释，最终大作业获评 99 分。

N 银行运营状况仿真评估与优化（*在 Arena 软件中对现实某银行的运营现状进行仿真建模并给出优化方案*） *2023.10-2023.12*

·**背景调研：**实地调研现实中某银行后选定其为仿真对象，收集各类服务时长分布、客户到达时间分布、银行布局等信息；

·**模型搭建：**基于收集到的数据结合部分假设，在 Arena 中完成对银行运营现状的仿真建模并运行，发现现存问题；

·**优化方法：**从最小化时间和最大化效率两个维度出发建立目标函数，基于现实和部分假设给定容量和预算约束条件后进行组合优化，使用 OptQuest 软件完成求解，后进一步引入社会力模型进行模型修正与完善，并使用 Anylogic 软件完成改进后仿真的演示动画制作。

探究女性 CEO 与公司创新水平关系的实证研究（*构建固定效应模型分析面板数据并给出经济学分析*） *2023.05-2023.06*

·**文献查阅：**调研后提出两个原假设（*H1：女性 CEO 对企业创新有正向影响；H2：国企女性 CEO 推动创新的可能性低于非国企女性 CEO*），并参考文献确定控制变量（如董事会规模、研发支出、营收等）；

·**模型搭建：**基于国泰安数据库获得的上市公司公开数据，进行数据清洗与处理后，建立固定效应模型对面板数据进行分析，最后进行稳健性检验，并对模型内生性问题进行较为深入的讨论（如选择偏误、个体异质性），而多期滞后解释变量的运用部分解决了上述问题。

美国制裁对中国半导体行业的影响探究（*结合中美四家公司的财报分析行业现状并推演未来格局*） *2023.03-2023.04*

·**背景了解：**梳理美对华制裁政策与规模时间线与背景以及我国半导体行业整体技术发展现状与未来趋势；

·**报表分析：**通过从 Choice 终端上获得的公司财报，着眼于三大报表与各项关键指标，首先独立考察各家公司，并重点分析异常指标，结合搜集到的时政新闻与相关报表款项，找到异常原因，然后在各家公司间进行横向比较，得到结论。

课外活动

机械与动力工程学院　学神学霸俱乐部　成员 *2023.06-至今，上海*

安永（中国）企业咨询有限公司　企业税务部实习生 *2023.08-2023.09，上海*

机械与动力工程学院　思政办（学风建设）　学业辅导员 *2023.02-2023.06，上海*

专业技能

技能：Python、LaTeX、Stata、Minitab/Excel、PowerPoint、Word、Arena 等

语言：英语（CET4-623/710; CET6-615/710）、普通话（母语）

LEI, WANG

Cell: (+86) 17317617389 E-mail: wanglei123@sjtu.edu.cn

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: Linear Algebra (98), Engineering Statistics (95), Operations Research (92), Stochastic Models, Machine Learning (In Progress)

Awards: National Scholarship, U.S. College Mathematical Contest in Modeling Finalist Award, Excellent 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 employe 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)