Kangle Lyu

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EDUCATION

Tsinghua University   Sep 2021 - Present

Bachelor of *Mathematics and Physics + Civil Engineering and Systems*

GPA: 3.91/4.00 **Rank:** 7/60

Relative Coursework: Linear Algebra(A+), Elementary Probability Theory(A), Statistical Inference(A), Multivariate Statistical Analysis(A), Design and Analysis of Experiments(A), Linear Regression Analysis(A), Statistical Computing and Software(A+), Introduction to Data Science(A-), Reliability Data and Survival Analysis(A), Introduction to Bayesian Statistics(A)

RESEARCH EXPERIENCES

Joint Generalized Latent Factor Model   July 2024 - Present

Research Assistant | Supervised by: Prof. Ji Zhu   *University of Michigan, Ann Arbor*

· Proposed a joint model to deal with complete data and missing data simultaneously

· Proved the convergence of the algorithm proved theoretically

· Verified the convergence of the algorithm of separate models and joint model with initialization through simulation

· Applied this joint model to real data and compared its efficiency with other models

Projection-based Techniques for High-dimensional Optimal Transport Problems   Sep 2023 - Present

Research Assistant | Supervised by: Prof. Jingyi Zhang   *Tsinghua University, Beijing*

· Proposed a new method to solve the high dimensional optimal transport problem based on projection

· Found a suitable projection subspace to reduce dimension and do transportation through two methods

· Simulated and Confirmed that the algorithm can converge

**Research on Driver Assistance System for Novice Driver Overtaking
in Borrowed Lane Based on Simulated Driving**   Sep 2022 - June 2024

Research Assistant | Supervised by: Prof. Jing Shi   *Tsinghua University, Beijing*

· Designed a multi-factor comparison experiment to explore how various factors affect overtaking risks

· Fulfilled the simulation of this experiment's driving environment by programming in SCANeR software

· Performed the analysis through factor models based on data collected from the experiment

INTERNSHIP/TRAININGS

**Solutions to a Data-Driven Parking Lot Monthly Card Overbooking Optimization Problem &
Analysis of the Predictability of Human Parking Behavior**   June 2023 - Sep 2023

Data Analysis Intern   *Qianhai Intelligent Transport Research Institute, University of Hong Kong, Shenzhen*

· Defined the concept of parking pattern and converted parking records into time series

· Computed parking entropy of human parking behavior and Concluded a high predictability above 90%

· Modeled and Solved the monthly card overbooking optimization problem in a real scenery to make more economic and social benefits

PROJECTS

Exploring Confidence Intervals for Censored data with Bootstrap and Jackknife   *May 2024*

· Simulate to gain the confidence interval of censored data

News Classification Using Naive Bayes and Support Vector Machines   *Nov 2023 - Jan 2024*

· Utilized a variety of classification methods to classify and compare their effects

Analysis of Differences of Happiness Level and Exploration of Influencing Factors *June 2023*

- Used factor model, regression model, and clustering means to analyse real data

Predicting Parkinson Disease from Voice Recordings *April - June 2023*

- Constructed a statistical model based on voice information from Parkinson's disease patients to predict the progression of the disease
Made use of exploratory data analysis, blocking, LSD analysis, and multiple linear regression

Housing rental industry investment analysis *Oct - Dec 2022*

- Completed the benefit-cost forecast, economic effect evaluation, risk analysis and financing proposal using Monte Carlo method

Research on Representative Companies of Education and Training industry *Oct - Dec 2022*

- Computed important financial indexes of three companies according to four basic financial statements
Conducted Du Pont analysis and SWOT analysis

SCHOLARSHIPS AND AWARDS

Tsinghua Academic Excellence Scholarship(top 10%)	*Oct 2024*
2024 Honorary Camper of Tsinghua Statistics Summer Camp	*May 2024*
Excellent Award of the 29th Structural Design Competition of Tsinghua University	*Oct-Dec 2023*
First Prize of The Chinese Mathematics Competitions	*Nov 2022*
Tsinghua Comprehensive Excellence Scholarship(top 10%)	*Oct 2022*
Tsinghua Social Work Excellence Scholarship(top 5%)	*Oct 2022*
Tsinghua Outstanding Student Leader(top 2%)	*Oct 2022*

SKILLS

Language	Chinese Mandarin(Native), English(TOEFL: 105; GRE: 155+170)
Skills	R, Python, C/C++, MATLAB, Latex, Origin, SCANeR, AUTOCAD, SOLIDWORKS, ENVI, QGIS