Zhen Zhou

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Address: Liyang County, Jiangsu Province

EDUCATION

Wuhan University of Technology (Wuhan, Hubei)
Bachelor of Science in Information & Computing Science *09/2017-06/2021*
Core courses: Comprehensive Experiment of Computer Foundation and C Programming, Mathematical Analysis, Mathematical Modeling, Ordinary Differential Equations, Data Structure & Algorithms, Design of Modeling and Numeric Simulation, Probability and Mathematics Statistic, Mathematical Model, Pattern Recognition
Awards: Junheng Lizhi Scholarship (2019), Outstanding Student Leader (2019), Junheng Lizhi Scholarship (2020)
Grade: 3.34/5

University of California, Riverside (Riverside, California) *12/2019-06/2020*
Courses: Automata and Formal Languages (A+), Intro to Numerical Analysis (A+), Optimization (A+), Intro Mach Learning & Data Mining (A), Decision Analysis & MGMT Science (A-)
Grade: 3.945/4

University of Illinois, Urbana-Champaign (Champaign, Illinois) *08/2021-08/2022*
Master of Statistics
Courses: Mathematical Statistics, Time Series Analysis, Statistical Data Management, Advanced Data Analysis, Statistical Learning, Computational Statistics, Data Science Foundations, Statistical Consulting
Grade: 3.89/4

Georgia Institute of Technology (Atlanta, Georgia) *08/2022-08/2023*
Master of Computer Science (online)
Specialization: Computational Perception and Robotics
Courses: Artificial Intelligence, Computer Vision, Cyber Physical Design and Analysis, Artificial Intelligence Techniques for Robotics, Introduction to Graduate Algorithms

Southeast University (Nanjing, China) *03/2023-*
PhD Student in Transportation Science
Advisor: Zhiyuan Liu

PUBLICATION

- **Zhen Zhou**, Yi Zhao*, Minghao Li, Yuyang Bao, A causal inference based speed control framework for discretionary lane-changing process, *Journal of Transportation Engineering, Part A: Systems* (accepted)
- Yi Zhao, **Zhen Zhou*,** Qilong Pan, Tianhua Zhou, "G/M/N Queuing Model-Based Research on the Parking Spaces for Primary and Secondary School", *Discrete Dynamics in Nature and Society*, vol. 2020, Article ID 8870862, 7 pages, 2020. https://doi.org/10.1155/2020/8870862 (SCI, Corresponding Author)
- **Z. Zhou**, X. Zou, Y. Wang*. A study on the method of determining the number of doctors based on fatigue and numerical fitting[J]. *China Health Industry*, 2020,17(13):180-183.
- (Preprint) Zou, Xitian, **Zhou, Zhen***, Wang, Yinghua and Jiang, Liping, How the Second Child and Immigration Policies Affect the Population Structure: An Example from a City in Jiangsu in the Context of Aging. (May 1, 2020). Available at SSRN: https://ssrn.com/abstract=3614069 or http://dx.doi.org/10.2139/ssrn.3614069

INTERNSHIP

Intern Data Analyst at Donghai Securities *07/2020-08/2020*
- Used TuShare to crawl the historical data of stocks, preprocessed and analyzed the data
- A BP neural network is constructed to forecast the stock market and recommend better stock codes based on the three indicators of MACD，KDJ-K，and KDJ-D

Technology Department at Zhongjing Technology Corp., Shenzhen *01/2020-09/2020*
Supervisor: Bu Youjun

- Participated in insurance technology project related to IoT, I responsible for the Bluetooth module of the electric toothbrush, including connecting the data of the electric toothbrush with the wechat official account. Explored the application of sensors in electric toothbrushes, including temperature, force angle, strength. I attempt to detect and classify teeth based on paddlepaddle
- Explored the relationship between technology and business models and how to meet the demand of different stakeholders, including suppliers, outsourcers, customers and third-parties

Intern Researcher at Jiangsu Provincial Hospital of Traditional Chinese Medicine (Liyang) *09/2018-09/2019*

- Researched the medical record data of Liyang County from 2016 to 2019 and explored how to commercialize digital medical records
- Predicted the future population structure under existing conditions based on Leslie model and predicted the future population structure by using modified Leslie model with two parameters of second child policy and immigration policy added
- Completed the thesis "How the second child and immigration policies affect the population structure: an example from a city in Jiangsu in the context of aging" (Corresponding author)

ACADEMIC RESEARCH

Causal Inference in traffic Flow at UIUC *12/2021-08/2022*

- Constructed a model of vehicle lane change behavior in local traffic flow based on causal inference, including the construction of causal diagrams, calculation of causal effects, placebo treatments effects, etc.
- A causal inference-based control model for lane change is established

Web APP by Using shiny at UIUC *10/2021-05/2022*

- Used shiny to model a dice game and complete the auxiliary system of the dice game
- Sentiment analysis of movie reviews, build a binary classification model to predict the sentiment of movie reviews, use the text2vec function to create a word list, build a DT matrix, use ridge regression for prediction, and finally build a movie recommendation based on the model using shiny 's webpage
- Participated in building an interactive web page with functions for data set display and preprocessing, also using shiny, responsible for the \data cleaning function and response variables
- Commissioned by a music industry company to build an interactive web page for data pre-processing and data prediction using shiny. As the person in charge, I completed the construction of the interactive web page framework and was also responsible for the code of the clustering plus XGBoost model

Graduation Project at WHUT: Dynamic Real-time Vehicle Detection Based on yolo *12/2020-06/2021*
Advisor: Prof. Zan Jinpeng

- Implement vehicle target detection algorithm on PaddlePaddle deep learning framework based on Yolo-v3 algorithm using vehicle data set in COCO dataset
- Implemented Deepsort algorithms on target tracking module, and propose Cross-SORT algorithm mainly for cross-level matching module
- Completed the paper "Dynamic real-time vehicle motion trajectory detection and target tracking based on yolo"

The Allocation Method of Shuttle Parking Spaces Near the Junior High School Building *06/2019-12/2019*
Advisor: Prof. Zhao Yi at Nanjing Forestry University

- Collected the monitoring video data near a primary school and studied its parking space arrangement
- Built a vehicle queuing model based on G/M/N, and applied MATLAB to simulate the queuing model to obtain a reasonable parking space allocation scale drop off
- Proposed an optimization model for parking spaces to assure optimal usage
- Responsible for data collection, model establishment, code implementation and so on, wrote the thesis "Research on the allocation method of parking spaces near primary and secondary schools based on G/M/N queuing model" (Corresponding author and 2rd author)

Innovative Program at WHUT: Data Mining of Medical Records Based on PCA *01/2019-09/2019*
Advisor: Prof. Zhu Huaping

- Distributed 200 questionnaires in a hospital in Jiangsu Province and analyzed the feedback data
- Applied AHP to rank the fatigue degree of doctors in different departments, adjusted the workload variables of each department, and utilized the fitting method to calculate the daily average number of inpatients in the future
- Completed the paper "A study on the method of determining the number of doctors based on fatigue and numerical fitting" as the first author

ADDITIONS

Skills: Skilled in R, C++, Matlab, SQL and Python; Competent in thesis writing with Latex
Certifications: CET-4, CET-6, TOEFL