Jifan Zhang

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EDUCATION

Northwestern University **Evanston, US**
PhD Candidate in Statistics and Data Science *Advisor: Miklos Racz* Sep 2021 – Jul 2026(Expected)
Cumulative GPA: 3.95

Tsinghua University **Beijing, China**
Bachelor of Science in Mathematics Sep 2017 – Jul 2021
Major GPA: 3.79

- Major Courses: Advanced Algebra I, II (4.0,4.0), Probability Theory I, II(4.0,4.0), Statistical Computing (4.0), Discrete Mathematical Method (4.0), Linear Regression (4.0)

RESEARCH EXPERIENCE

Research on random graph's local neighbourhoods' isomorphism Apr 2023 – Sep 2023
Advisor: Professor Miklos Racz

- Study the problem when 1-neighbourhoods become distinct in an Erd'os–R´enyi random graph.
- Prove a phase transition when the 1-neighborhoods become all distinct. Look at the subgraph introduced by the 1-neighbourhood and analyze the problem in two different situations: the subgraph consists of small components and the subgraph has a big main component. The critical regime of phase transition is such that the induced subgraph on the neighbors of a typical vertex contains copies of all trees on at most eight vertices but does not contain trees on nine vertices.

Research on Generative Adversarial Networks of galaxy images Jul 2020 – Sep 2020
Advisor: Professor Mark Vogelsberger, Massachusetts Institute of Technology

- Constructed Progressive GANs model and chose proper loss function, WGAN-GP, to generate the first synthetic galaxy pictures of high resolution (512*512) for data augmentation in astronomy.
- Evaluated astronomical distribution properties and calculated Frechet Inception Distance score of the generated and real cosmological pictures.

Research on predicting user behavior on TikTok Sep 2020 – Nov 2020
Advisor: Professor Qian Lin, Tsinghua University

- Analyzed 100,000 TikTok users' behavior data across 3 years to predict the daily user online behavior. Applied logistic regression and ran simulations to explore the bounds of correlation and mean square error of the real value and the fitted value.
- Used clustering method, variable selection and Linear Discriminant Analysis to categorize the users into groups and applied random forests and catboost, which revealed the distinguishing features of users and reduced the mean square error by 20%.

Internship in Huatai Securities Research Institute Dec 2019 – Mar 2020

- Developed models for market timing. Based on data of past 30 days, simulated the different paths of stock price by applying Monte Carlo method, calculated maximum withdrawal rate. Chose the buy-in strategy that limited the maximum withdrawal rate. Attained satisfying Sharp Ratio

TEACHING EXPERIENCE

- TA for STAT 357(Introduction to Bayesian Statistics), STAT 330 (Applied Statistics for Research 1) 2022
- TA for STAT 457(Applied Bayesian Inference) 2023

SKILLS

- **Programming:** Python, R, Matlab, Latex; **Language:** GRE: 157+170+3.5, TOFEL: 107

HONORS AND AWARDS

- President of Student Science Association of Tsinghua Mathematic Department 2019 – 2020

- The First Prize of China undergraduate Mathematical Contest in Modelling, Beijing 2019
- Merit for outstanding student leader in Tsinghua University 2020
- Scholarship for Comprehensive Excellence, Tsinghua University Mathematics Department 2018