ZHIYUAN CHEN

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EDUCATION

University of Chicago *2023 - Present*
M.Sc in Statistics Advisor: *Prof. Frederic Koehler* and *Prof. Wei Biao Wu*

Beijing Normal University *2019 - 2023*
B.Sc in Statistics Advisor: *Prof. Gaorong Li*

RESEARCH EXPERIENCE

Tight bound of Gaussian Interpolators: l_1, l_2 and General Norm
Jun 2024 - Present *Research Assistant* Advisor:*Frederic Koehler*

· Investigating possible overfitting phenomena in SURE estimators through extensive simulations.
· Applying l_1 norm's tight bound technique developed by G.Wang et al. to general norm interpolator.
· Conducting a thorough literature review on CGMT, uniform convergence, and effective rank.

Parallel Inference for Quantile Regression Using Stochastic Subgradient Descent
Jun 2024 - Present *Master's Thesis* Advisor:*Prof. Wei Biao Wu*

· Introduced a parallel inference framework for quantile regression using stochastic subgradient descent.
· The method addresses large-scale quantile regression by distributing computations across multiple processors and constructs confidence intervals for coefficients through averaging parallel runs, leveraging asymptotic theory.

Detoxification: Self Supervisor, External Monitor And Adversarial Trained System Prompt
Mar 2024 - Jun 2024 *Course Project* Advisor: *Prof. Bo Li*

· Developed three methods for large language models (LLMs) to prevent toxic content generation: Self Supervisor, External Monitor and Adversarial Trained System Prompt.
· Testing on the global dataset demonstrate the effectiveness of our methods in significantly reducing toxic outputs across various LLMs, including GPT-3.5-turbo, GPT-4o, Llama-3-8b, and Vicuna-1.5-7b.

Doubly Debiased Lasso in Partially Linear Model Under Hidden Confounding
Sep 2022 - May 2023 *Undergraduate Dissertation* Advisor: *Prof. Gaorong Li*

· Combined the Doubly Debiased Lasso and Partially Linear Models to extend the former model to the nonlinear situation.
· The new model has both linear and nonlinear parts and can simultaneously remove the bias caused by Lasso in high-dimensional cases and hidden confounding of data itself.

WORKING EXPERIENCE

China Construction Bank, Beijing Branch Jul 2021 - Aug 2021
Financial Technology Intern

· Participated in a risk prediction project using public news.
· Identified public information from listed companies, cleaned data by clustering, converted textual data into structured data using TF-IDF.
· classified credit labels using SVM, visualized results by confusion matrix and predicted risk by our trained model.

SELECTED COURSES

Master's Courses

Matrix Computation(Ph.D. level), Mathematical Statistics-1(Ph.D. level), Convex Optimization(Ph.D. level), Generalized Linear Models, Generative Deep Learning, Trustworthy Machine Learning, Modern Methods in Applied Statistics, Algorithm for Massive Datasets, High-Dimensional Probability

Undergraduate Courses

Applied Multivariate Statistical Analysis, Applied Stochastic Processes, Linear Model, Statistical Learning, Statistical Computation, Statistical Asymptotic Theory, High-Dimensional Statistics and Big Data Problem, Data Mining

AWARDS AND HONORS

Beijing Normal University "Moon Cup" Basketball Competition (2nd Place, 2020)

Merit Student (2021)

Jingshi Scholarship (2nd Award, 2021)

Mathematics Competition of Chinese College Students (2nd Prize, 2021)

SKILLS

Programming	R, Python, LaTeX, MySQL
IELTS	7.5 (7.5/9.0/6.0/6.5)
GRE	324 (154/170/3.0)
Developer Tools	VS Code, Github, RStudio
Sports	Basketball