

# Zilong Zhang

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## Education

### Georgia State University

Atlanta, USA

Ph.D. student in Machine Learning & Data Science/ Department of Mathematics & Statistics

Aug 2025-Present

- **Courses:** Computing Method of Statistics, Linear Statistical Analysis, Sample Survey and more.

### Michigan State University

East Lansing, USA

Master in (Regular) Statistics / Department of Statistics and Probability / College of Natural Science

Aug 2023-May 2025

- **Courses:** Statistical Method, Statistical Computing, Advanced Theory of Probability and Statistics, Multivariate Analysis, Statistical Genetics, Stochastic Processes and more.

### University of International Business and Economics

Beijing, China

Financial Mathematics/ Undergraduate/ School of Statistics

Sep 2019-Jul 2023

- **Courses:** Mathematical Analysis, Advanced Algebra, Financial Mathematics, Probability Theory, Mathematical Statistics, Time series analysis, Data mining and statistical computation, Risk models and applications, Microeconomics, Macroeconomics, C++Programming, Interest Theory, Corporate Finance and more.

## Publication

**SIGKDD  
2023**

Xuan Kan, Zimu Li, Hejie Cui, Yue Yu, Ran Xu, Shaojun Yu, **Zilong Zhang**, Ying Guo, Carl Yang. "R-Mixup: Riemannian Mixup for Biological Networks", Proceedings of SIGKDD Conference on Knowledge Discovery and Data Mining 2023, **SIGKDD 2023**  
<https://arxiv.org/abs/2306.02532>

Jun 2023

**NeurIPS  
2022**

Xuan Kan, Wei Dai, Hejie Cui, **Zilong Zhang**, Ying Guo, Carl Yang. "Brain Network Transformer", Proceedings of the Conference on Neural Information Processing Systems 2022, **NeurIPS 2022** <https://arxiv.org/abs/2210.06681>

Sep 2022

**ICML-IMLH  
2022**

"Brain Network Transformer", is also presented in ICML 2022 Workshop for Interpretable Machine Learning in Healthcare 2022, **ICML-IMLH 2022** (Oral, no proceedings)

Jul 2022

## Projects

### mRNA to Protein Prediction based on Transformer and GNN

East Lansing, USA

Michigan State University

Jan 2024 - Present

- Developed a novel predictive model based on Transformer and Graph Neural Networks (GNN) to accurately predict protein expression from single-cell RNA data
- **Project Leaders:** Dr. Yuying Xie (Michigan State University) and Dr. Lulu Shang (MD Anderson Cancer Center)

### CRIC Study: Genome-Wide Association of Apparent Treatment-Resistant Hypertension in CKD and ARTH Patients

East Lansing, USA

Michigan State University

Sept 2024 - Dec 2024

- Analyzed high-dimensional genetic data to identify key genetic variants that contribute to treatment-resistant hypertension in CKD patients, providing potential targets for therapeutic intervention.
- **Project leader:** Dr. Ling Wang (Michigan State University) and Dr. Yuehua Cui (Michigan State University)

### Theoretical Research and Application of High Dimensional Variable Screening

Beijing, China

University of International Business and Economics

Oct 2022 - May 2023

- Combined the application of high-dimensional point map mapping in brain map neural network, to find the most efficient dimensionality reduction method in a specific neural networks situation according to univariate analysis screening method and multivariate analysis screening method.
- **Project leader:** Dr Wei Xiong (University of International Business and Economics)

### R-Mixup: Riemannian Mixup for Biological Networks

Atlanta, USA

Emory University

Jun 2022 - Mar 2023

- Participated in designing our optimization model in neural network, and Complete the regression analysis part of the generalization of a specific model of neural network to Riemannian manifolds
- **Project leader:** Dr Carl Yang (Emory University)

### Brain Network Transformer

Atlanta, USA

Emory University

Jan 2022 - Sep 2022

- Considered process samples by a general nonlinear regression with cluster centers as variables, compared the coefficient of determination between the orthonormal and nonorthonormal cases using the concept of Regression Analysis, and assured the conclusion through the innovational use of significance level in hypothesis testing.
- **Project leader:** Dr Carl Yang (Emory University)

# Experience

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<b>China Securities Co., Ltd.</b> Intern Investment Manager <ul style="list-style-type: none"><li>Assisted in listing work of Beijing Tianzhihang Medical Technology Co., LTD and Golden Sun Grain and Oil Co., LTD.</li><li>Prepared listing application materials, such as industry survey reports and risk assessment reports.</li><li>Planned and executed fundraising activities.</li><li>Composed market research reports and other review materials.</li></ul>	Beijing, China Jul 2021-Nov 2021
<b>Chuzhou Longyun Financial Consulting Co. Ltd.</b> General Manager Assistant <ul style="list-style-type: none"><li>Provided regular financial audit and accounting services to clients.</li><li>Conducted corporate financial audit and due diligence for the corporate.</li></ul>	Chuzhou, China Mar 2021-Jun 2021
<b>Bank of Communications Chuzhou Branch</b> Intern Account Manager <ul style="list-style-type: none"><li>Identified, managed and mitigated accounting risk.</li><li>Set up and maintained credit databases to carry out related creditability assessments and analysis reports.</li></ul>	Chuzhou, China Dec 2020-Feb 2021