

ZAISHUO XIA

 GitHub  xiazaishuo@gmail.com

EDUCATION

Renmin University of China (RUC), Beijing, China

2020 – Present

Bachelor of Science, School of Statistics, Major in Data Science

- **About RUC:** I gained admission to RUC with a ranking in the top 0.1% in the national college entrance examination (Gaokao).
- **GPA:** 3.62/4.00 **WES GPA:** 3.82/4.00
Junior Year GPA: 3.84 (Ranked Top 1 in Major)
- **Maths and Stats Courses:** Convex Optimization(96), Computational Statistics(95), Mathematical Analysis III(92), Probability Theory(89), Stochastic Processes(86), Regression Analysis(86)
- **CS Courses:** C Programming (94), Python Programming(90), Data Structure and Algorithm(90), Parallel Computing(91), Blockchain(95)

SCHOLARLY WORKS

- **Zaishuo Xia**, Han Yang, Binghui Wang and Jinyuan Jia. GraphGuard: Provably Robust Graph Classification against Adversarial Attacks. Submitted to *ICLR*, 2024. [\[OpenReview Link\]](#)
**Reviews' Ratings: 5, 6, 8*
- **Zaishuo Xia**, Yanbing Bai, Bolin Zhang, Shubo Zeng, Zhe Liu, Ziyue Zhang, and Xuxin Mao. Weakly Supervised Deep Learning for Fine-grained Socioeconomic Development Index Inference Based on Satellite Imagery. Submitted to *SCI journal*, 2023. [\[Paper Link\]](#)
- **Zaishuo Xia**, Zelin Li, Yanbing Bai, Jinze Yu, and Bruno Adriano. Self-Supervised Learning for Building Damage Assessment from Large-scale xBD Satellite Imagery Benchmark Datasets. In *International Conference on Database and Expert Systems Applications (DEXA)*, 2022. [\[Paper Link\]](#)

RESEARCH EXPERIENCE

Research Intern, The Pennsylvania State University

2023

- Project: Trustworthy Machine Learning for Graph Neural Network
- Build a graph classifier whose predictions are provably robust under bounded perturbations.
- Compared with other provably robust approaches, such as Random Ablation and Random Smoothing.
- Evaluated the defensive capabilities of the classifier against adversarial attack.
- **Innovation:** Created a novel method to eliminate randomness, establishing deterministic lower bounds in mathematics, as opposed to relying on probabilistic lower bounds in past research. This innovation led to state-of-the-art results, and significantly improved computational efficiency.

Research Assistant, SCHOOL OF INTERDISCIPLINARY, Renmin University of China

2022

- Project: Case Analysis on Blockchain and Big Data
- Conducted data visualization and report writing for blockchain-related case analysis.
- Engaged in the Research Program and presented a report on the intersection of big data and the economy.

Research Assistant, Renmin University of China

2021

- Contributed as a teaching assistant in preparing a course on parallel computing.
- Project 1: Self-Supervised Learning for BDA from xBD Datasets
 - Area: Computer Vision, Self-Supervised Learning.
 - Designed self-supervised learning network for remote sensing images and applied it to semantic segmentation tasks.
- Project 2: Weakly Supervised Deep Learning for Socioeconomic Development Index Inference
 - Area: Computer Vision, Representation Learning, Metric Learning.
 - Utilized representation learning to extract economic development indices from remote sensing images.

COMPETITIONS

ECV2022 Computer Vision Developer Competition (Top 1 in 500, Award \$1000)

[Link to My Solution](#)

2022

- Area: Computer vision, object detection
- Awarded Champion in the "Hanging Clothes along the Street" group (with over 500+ participants).
- Mainly used Yolo v5 and tensorrt for deployment.
- The trained model was adopted by the Qingdao City Government, and I was awarded ¥7000 in the competition.

Kaggle UW-Madison GI Tract Image Segmentation (Top 8%)

2022

- Area: Deep learning, medical imaging, semantic segmentation
- Achieved 0.868 in the competition evaluation metric of 0.4 Dice metric and 0.6 Hausdorff distance, compared to the highest score of 0.885.

Kaggle Gold Notebook [Link to the Notebook](#)

2022

- Area: Machine Learning, Bioinformatics
- Predicted how DNA, RNA & protein measurements co-vary in single cells using machine learning methods.

TEACHING ASSISTANT

**I have undertaken these Teaching Assistant roles in response to the professors' invitations. I attended the professors' classes, and they recognized my abilities.*

Parallel Computing

2023

Data Mining

2023

HONORS AND AWARDS

"JD Cup" Student "Entrepreneurial Star" Competition Champion, Team of 5. **Award of 150,000 CNY**

2023

Academic Progress Second Class Scholarship, Renmin University of China

2022

First Prize in Chinese Mathematics Competitions, Team of 3 (Top 8%)

2021

CO-CURRICULAR AND EXTRA-CURRICULAR LEARNING

- **Conference:** Attended the 2022 International Conference on Database and Expert Systems Applications and presented our paper orally.
- **Volunteering:** Remote volunteer math teacher of 7th graders in Yuji Middle School, Liaocheng, Shandong, China.
- **Association:** Participated in the development of the RUC 70th Anniversary Celebration WeChat Mini Program. The mini program was widely used by alumni.

SKILLS

Python (PyTorch, Scikit-learn, etc.), LaTeX, R, Linux, Git

MY STRENGTHS

- I am self-motivated and have an inherent drive and interest in research. I enjoy exploring cutting-edge technologies and am always willing to try new and interesting things.
- I possess excellent practical skills and enjoy experimenting with various applications on the internet, which is exemplified by my work in developing several telegram bots.
- I am a rationalist who enjoys using mathematical tools to construct a purely rational representation of the world. I frequently browse math blogs and frequently discuss mathematical problems with my classmates.