

Runtian Zhai

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA, USA

Ph.D. Student at Computer Science Department

Aug 2020 - May 2025 (expected)

- Co-advised by Zico Kolter and Pradeep Ravikumar.
- Research focus: Distributional shift in machine learning, learning with class imbalance, algorithmic fairness, domain adaptation/generalization, optimization and generalization theory.

Peking University, Beijing, China

Bachelor of Science (honor, double degree)

Sep 2016 - Jul 2020

- Major in Computer Science. Major GPA: 3.75/4.0
- Double major in Applied Mathematics. Major GPA: 3.57/4.0

SKILLS

- Over 200k lines of code in Python and PyTorch. Also familiar with Tensorflow and Keras.
- Programming Languages: Python, C/C++, MATLAB, HTML/CSS/JS, PHP.

SELECTED PUBLICATIONS AND PREPRINTS

R. Zhai, C. Dan, J.Z. Kolter, P. Ravikumar. *Understanding Why Generalized Reweighting Does Not Improve Over ERM*. Preprint, arXiv: 2201.12293.

R. Zhai, C. Dan, A.S. Sugala, J.Z. Kolter, P. Ravikumar. *Boosted CVaR Classification*. NeurIPS 2021.

R. Zhai*, C. Dan*, J.Z. Kolter, P. Ravikumar. *DORO: Distributional and Outlier Robust Optimization*. ICML 2021.

R. Zhai*, C. Dan*, D. He*, H. Zhang, L. Wang, P. Ravikumar, B. Gong, C.J. Hsieh. *MACER: Attack-free and Scalable Robust Training via Maximizing Certified Radius*. ICLR 2020.

R. Zhai*, T. Cai*, D. He*, C. Dan, K. He, J.E. Hopcroft, L. Wang. *Adversarially Robust Generalization Just Requires More Unlabeled Data*. Preprint, arXiv: 1906.00555.

EMPLOYMENT

Amazon Alexa AI

Applied Scientist Intern. Managers: Stefan Schroedl, Pradeep Natarajan.

May 2022 - Present

- Studying how to deal with distribution shift in natural language understanding systems.

Microsoft Research Asia (MSRA)

Research Intern in Machine Learning (ML) Group. Mentor: Di He.

Sep 2019 - Jun 2020

- Conducted research on adversarial robustness, semi-supervised learning and transfer learning.

RESEARCH EXPERIENCE

Peking University

Research Assistant. Advisor: Professor Liwei Wang.

Jul 2018 - Jun 2020

- Studied adversarial training in the semi-supervised setting. Proposed a robust training algorithm that learns with unlabeled data.

University of California, Los Angeles

Research Assistant. Advisor: Professor Cho-Jui Hsieh.

Feb 2019 - Sep 2019

- Studied adversarial robustness certification of neural networks. Proposed MACER, an attack-free and scalable provable adversarial defense that trains provable l_2 -robust models.

HONORS AND AWARDS

- Member of PKU MOE Top-Notch Undergraduate Program (20/350 students a year) *May 2019*
- Changfei Scholarship for Outstanding Students at PKU (top 5%) *Sep 2017*