

## Education

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### Carnegie Mellon University

*Ph.D. in Computer Science*

Aug 2020 – May 2025 (expected)

Pittsburgh, PA, USA

Co-advised by Zico Kolter and Pradeep Ravikumar

Research Focus: Representation Learning, Generalization Theory, Out-Of-Distribution Generalization

### Peking University

*Bachelor of Science (honor, double degree)*

Sep 2016 - Jul 2020

Beijing, China

Majors: Computer Science, Applied Mathematics (Double major)

Member of PKU MOE Top-Notch Undergraduate Researcher Program

Research advised by Liwei Wang

## Professional Experiences

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### Amazon Alexa AI

*Applied Scientist Intern*

May 2022 – Aug 2022

Sunnyvale, CA, USA

- Mentors: Aram Galstyan, Anoop Kumar, Stefan Schroedl
- Paper: *Online Continual Learning for Progressive Distribution Shift (OCL-PDS): A Practitioner's Perspective*

### Microsoft Research Asia (MSRA)

*Research Intern, Machine Learning Group*

Sep 2019 – Jun 2020

Beijing, China

- Mentor: Di He
- Paper: *Transferred Discrepancy: Quantifying the Difference Between Representations*

### UCLA

*Research Assistant*

Jun 2019 – Sep 2019

Los Angeles, CA, USA

- Advisor: Cho-Jui Hsieh
- Paper: *MACER: Attack-free and Scalable Robust Training via Maximizing Certified Radius*

## Publications

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### Refereed Conference and Journal Publications

- [1] **Runtian Zhai**, Chen Dan, Zico Kolter, Pradeep Ravikumar  
**Understanding Why Generalized Reweighting Does Not Improve Over ERM**  
International Conference on Learning Representations, **(ICLR 2023)**
- [2] **Runtian Zhai**, Stefan Schroedl, Aram Galstyan, Anoop Kumar, Greg Ver Steeg, Pradeep Natarajan  
**Online Continual Learning for Progressive Distribution Shift (OCL-PDS): A Practitioner's Perspective**  
International Conference on Learning Representations Workshop on Domain Generalization, **(ICLR 2023 DG Workshop)**
- [3] Yuzhe Lu, Zhenlin Wang, **Runtian Zhai**, Soheil Kolouri, Joseph Campbell, Katia P. Sycara  
**Predicting Out-of-Distribution Error with Confidence Optimal Transport**  
International Conference on Learning Representations Workshop on Trustworthy Machine Learning, **(ICLR 2023 Trustworthy ML Workshop)**
- [4] **Runtian Zhai**, Chen Dan, Arun Sai Suggala, Zico Kolter, Pradeep Ravikumar  
**Boosted CVaR Classification**  
Neural Information Processing Systems, **(NeurIPS 2021)**
- [5] **Runtian Zhai\***, Chen Dan\*, Zico Kolter, Pradeep Ravikumar  
**DORO: Distributional and Outlier Robust Optimization**  
International Conference on Machine Learning, **(ICML 2021)**

- [6] **Runtian Zhai\***, Chen Dan\*, Di He\*, Huan Zhang, Liwei Wang, Pradeep Ravikumar, Boqing Gong, Cho-Jui Hsieh  
**MACER: Attack-free and Scalable Robust Training via Maximizing Certified Radius**  
International Conference on Learning Representations, **(ICLR 2020)**

## Preprints

- [1] **Runtian Zhai**, Bingbin Liu, Andrej Risteski, Zico Kolter, Pradeep Ravikumar  
**Understanding Augmentation-based Self-Supervised Representation Learning via RKHS Approximation**  
arXiv preprint, arXiv:2306.00788
- [2] Yunzhen Feng\*, **Runtian Zhai\***, Di He, Liwei Wang, Bin Dong  
**Transferred Discrepancy: Quantifying the Difference Between Representations**  
arXiv preprint, arXiv:2007.12446
- [3] **Runtian Zhai\***, Tianle Cai\*, Di He\*, Chen Dan, Kun He, John E. Hopcroft, Liwei Wang  
**Adversarially Robust Generalization Just Requires More Unlabeled Data**  
arXiv preprint, arXiv:1906.00555

## Honors and Awards

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- MOE Top-Notch Undergraduate Researcher Program, Peking University (20 students each year)** 2019  
**Changfei Scholarship for Outstanding Students, Peking University (top 5%)** 2017

## Teaching

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**CMU 10-701: Introduction to Machine Learning** *Fall 2022*

- **Head TA:** Assignments, recitals and exams preparation, project mentoring, office hours
- One mentored project converted into a workshop publication [3]

## Professional Activities

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### Conference Reviewer

- Neural Information Processing Systems (NeurIPS) 2022-2023
- International Conference on Machine Learning (ICML) 2022-2023
- International Conference on Learning Representations (ICLR) 2023
- International Conference on Computer Vision (ICCV) 2023
- International Conference on Artificial Intelligence and Statistics (AISTATS) 2023
- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining 2023

### Journal Reviewer

- Journal of Machine Learning Research (JMLR)