# Siqi (Cindy) Zeng

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## EDUCATION

**University of Illinois Urbana-Champaign,** Urbana, IL                                     Aug 2023-Present
- Ph.D. in Computer Science (Artificial Intelligence Track)
- Advisor: Prof. Han Zhao

**Carnegie Mellon University,** Pittsburgh, PA                                     Sep 2019-May 2023
- Bachelor of Science in Mathematical Sciences (Statistics)

## RESEARCH INTERESTS

I currently focus on **model merging** of foundational models (Large Vision/Language Models) for my research. Previously, I have explored diverse areas in Machine Learning and representation learning, including **hierarchical learning** with a focus on non-Euclidean geometries, out-of-distribution detection, optimal transport methods, as well as applications in **AI for social good**.

## PUBLICATIONS

[1] Efficient Model Merging with Task Vectors: A Theoretical Framework and Scalable Approach. [Paper]

**Siqi Zeng**, Yifei He, Weiqiu You, Yifan Hao, Yao-Hung Hubert Tsai, Makoto Yamada, Han Zhao.

Under Submission.

[2] Learning Structured Representations by Embedding Class Hierarchy with Optimal Transport. [Paper]

**Siqi Zeng**, Sixian Du, Makoto Yamada, Han Zhao.

In Proceedings of the 13th International Conference on Learning Representations (ICLR 2025)

[3] Learning Structured Representations with Hyperbolic Embeddings. [Paper] [Code]

Aditya Sinha*, **Siqi Zeng***, Makoto Yamada, Han Zhao.

In Proceedings of the 38th Advances in Neural Information Processing Systems (NeurIPS 2024)

[4] Learning Structured Representations by Embedding Class Hierarchy. [Paper] [Code] [Video]

**Siqi Zeng**, Remi Tachet des Combes, Han Zhao.

In Proceedings of the 11th International Conference on Learning Representations (ICLR 2023)

[5] RELand: Risk Estimation of Landmines via Interpretable Invariant Risk Minimization. [Paper] [Code]

Mateo Dulce Rubio**, **Siqi Zeng***, Qi Wang, Didier Alvarado, Francisco Moreno, Hoda Heidari, Fei Fang.

ACM Journal on Computing and Sustainable Societies (February 2024)

[6] Predicting and Presenting Task Difficulty for Crowdsourcing Food Rescue Platforms. [Paper]

Zheyuan Ryan Shi, Jiayin Zhi, **Siqi Zeng**, Ameesh Kapoor, Sean Hudson, Hong Shen, Fei Fang.

WWW-24: The 2024 ACM Web Conference

## PROFESSIONAL EXPERIENCES

**Visiting Research Student, Okinawa Institute of Science and Technology**

*Host: Prof. Makoto Yamada*                                     May 2024-Aug 2024

**Visiting Graduate Student, Simons Institute for the Theory of Computing**

*Host Program: Modern Paradigms in Generalization*                                     Sep 2024-Dec 2024

**Reviewer**

*ICLR 25*                                     Sep 2024-Present

## AWARDS

NeurIPS 2024, Travel Award                                     Oct 2024
Carnegie Mellon University, University Honor and College Honor                                     May 2023
Putnam Mathematical Competition, Top 500                                     Dec 2019

## SELECTED TALKS

**Model Merging and Mode Connectivity** [Slide]
*Pretraining Reading Group, Simons Institute*                                                    Nov 2024
**Learning Structured Representations by Embedding Class Hierarchy**
*MLDS Unit Seminar, Okinawa Institute of Science and Technology*                                  Jul 2024
**Challenge of Continual Learning on Real-World Imagery** [Slide] [Video]
*CVPR 2022 VPLOW Workshop, New Orleans*                                                          June 2022

## TEACHING EXPERIENCES
Modern Regression (CMU 36401)                                                                   Fall 2022
Multivariate Analysis (CMU 21256)                                                 Spring 2022, Fall 2021
Introduction to Stastical Inference (CMU 36226)                                             Summer 2021
Introduction to Probability Theory (CMU 36225)                                              Summer 2021

## SKILLS
Programming: Python (Pytorch), R, SQL, Matlab