Yifei Wang

Beijing, China
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EDUCATION

Peking University, School of Mathematical Sciences **09 2017 – 07 2023 (expected)**
Ph.D. Candidate in Applied Mathematics *Beijing, China*
Member of ZERO Lab. *Advisors:* Yisen Wang, Jiansheng Yang, Zhouchen Lin

Peking University, School of Mathematical Sciences **09 2013 – 07 2017**
Bachelor of Science *Beijing, China*

Peking University, Department of Philosophy **09 2014 – 07 2017**
Bachelor of Art *Beijing, China*

RESEARCH INTERESTS

- Self-Supervised Learning
- Robust Representation Learning
- Graph Representation Learning

SELECTED HONORS AND AWARDS

- **National Scholarship**, Ministry of Education of China, 2021, 2022 (**Top 1%**)
- **Principal Scholarship**, Peking University, 2022 (**Top 1%**)
- **Academic Innovation Award**, Peking University, 2022 (**Top 1%**)
- **Best Machine Learning Paper Award**, ECML-PKDD, 2021 (**1/685**)
- **Silver Best Paper Award**, ICML AML workshop, 2021
- **Meritorious Winner** (**First Prize**), Mathematical Contest in Modeling, 2016
- **Yizheng Scholarship**, Peking University, 2016

PUBLICATIONS (* marks equal contribution)

I. Self-Supervised Learning

Chaos is a Ladder: A New Theoretical Understanding of Contrastive Learning via Augmentation Overlap
- **Yifei Wang***, Qi Zhang*, Yisen Wang, Jiansheng Yang, Zhouchen Lin
- Tenth International Conference on Learning Representations (**ICLR 2022**)

How Mask Matters: Towards Theoretical Understandings of Masked Autoencoders
- Qi Zhang*, **Yifei Wang***, Yisen Wang
- Thirty-sixth Conference on Neural Information Processing Systems (**NeurIPS 2022 Spotlight**)

Residual Relaxation for Multi-view Representation Learning
- **Yifei Wang**, Zhengyang Geng, Feng Jiang, Chuming Li, Yisen Wang, Jiansheng Yang, Zhouchen Lin
- Thirty-fifth Conference on Neural Information Processing Systems (**NeurIPS 2021**)

A Unified Contrastive Energy-based Model for Understanding the Generative Ability of Adversarial Training
- **Yifei Wang**, Yisen Wang, Jiansheng Yang, Zhouchen Lin
- Tenth International Conference on Learning Representations (**ICLR 2022**)
- **Silver Best Paper Award** at ICML 2021 AML Workshop

Reparameterized Sampling for Generative Adversarial Networks
- **Yifei Wang**, Yisen Wang, Jiansheng Yang, Zhouchen Lin
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (**ECML-PKDD 2021**)
- **Best Machine Learning Paper Award** (**1/685**). Invited to **Machine Learning** Journal

II. Robust Representation Learning

Improving Out-of-distribution Robustness by Adversarial Training with Structured Priors

- Qixun Wang*, **Yifei Wang***, Hong Zhu, Yisen Wang
- Thirty-sixth Conference on Neural Information Processing Systems (**NeurIPS 2022 Spotlight**)

Domain-wise Adversarial Training Helps Out-of-Distribution Generalization

- Shiji Xin, **Yifei Wang**, Jingtong Su, Yisen Wang
- Thirty-seventh AAAI Conference on Artificial Intelligence (**AAAI 2023**)

When Adversarial Training Meets Vision Transformers: Recipes from Training to Architecture

- Yichuan Mo, Dongxian Wu, **Yifei Wang**, Yiwen Guo, Yisen Wang
- Thirty-sixth Conference on Neural Information Processing Systems (**NeurIPS 2022 Spotlight**)

III. Graph Representation Learning

Dissecting the Diffusion Process in Linear Graph Convolutional Networks

- **Yifei Wang**, Yisen Wang, Jiansheng Yang, Zhouchen Lin
- Thirty-fifth Conference on Neural Information Processing Systems (**NeurIPS 2021**)

Optimization-induced Graph Implicit Nonlinear Diffusion

- Qi Chen, **Yifei Wang**, Yisen Wang, Zhouchen Lin
- International Conference on Machine Learning (**ICML 2022**)

G^2CN: Graph Gaussian Convolution Networks with Concentrated Graph Filters

- Mingjie Li, Xiaojun Guo, **Yifei Wang**, Yisen Wang, Zhouchen Lin
- International Conference on Machine Learning (**ICML 2022**)

TEACHING

TA, **Machine Learning**, 2017. Instructor: Tong Lin.

TA, **Optimization Methods in Machine Learning**, 2018. Instructor: Zhouchen Lin.

TA, **Advanced Mathematics**, 2019. Instructor: Chao Wang.

TA, **Introduction to Artificial Intelligence** (**Trustworthy ML class**), 2020, 2022. Instructor: Yisen Wang.

TA, **Frontiers of Machine Learning**, 2022. Instructor: Yisen Wang.

INTERNSHIP

Huawei Noah's Arch Lab **09 2021 – 03 2022**
Research Intern *Beijing, China*

- Research on the theory and algorithm design of Self-supervised Learning.

Huawei Noah's Arch Lab **09 2019 – 03 2020**
Research Intern *Beijing, China*

- Research on representation disentanglement of robust and non-robust features.

Baidu's Phoenix Nest **09 2018 – 03 2019**
Research Intern *Beijing, China*

- Research on end-to-end AD selection with Reinforcement Learning.

TECHNICAL SKILLS

Languages: Chinese (Native). English (Fluent).
Frameworks: Python, MATLAB, C, R, STATA. Toolkits: PyTorch, JAX, TensorFlow, Linux, Git, LaTeX