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Research interests Large Foundation Model, Efficient AI, Trustworthy Machine Learning

Education

Dartmouth College

Ph.D. student in Computer Science

Advisor: [Professor Soroush Vosoughi](#)

Hanover, NH, US

Aug. 2023 – Present

Brandeis University

Master of Science, Computer Science

GSAS Fellowship

Waltham, MA, US

Sep. 2021 – Jun. 2023

Northeastern University

Bachelor of Science, Computer Science

Outstanding Honor Thesis Award

Mentor: [Professor Xiaoming Yuan](#)

CN

Sep. 2017 – Jun. 2021

Papers

Efficient and Effective Training with Redundancy Reduction: Visual Conditioned Language Generation by LLM [\[PDF\]](#) [\[code\]](#)

Chunhui Zhang et al. *In Submission.*

achieved 6× training speed improvement for SOTA multi-modal generative model with 7 Billion parameters, cutting training time from 100 to 16 GPU hours through efficient visual redundancy reduction.

Scaling Cognitive Limits: Enhancing Reasoning in LLMs through Working Memory Insights [\[PDF\]](#)

Preprint

Chunhui Zhang, Yiren Jian, Soroush Vosoughi

Aligning Relational Learning with Lipschitz Fairness

{Yaning Jia, **Chunhui Zhang**}, Soroush Vosoughi.

International Conference on Learning Representations (ICLR), 2024.

Note: Co-first author Jia (in alphabetical order) is a master student who was mentored by me and I contribute to the base code, idea, analysis, and writing. Thanks Jia for this pleasant mentoring experience.

Mitigating Emergent Robustness Degradation on Graphs while Scaling-up

{Xiangchi Yuan, **Chunhui Zhang**}, Yijun Tian, Yanfang Ye, et al.

International Conference on Learning Representations (ICLR), 2024.

Note: Co-first author Yuan (in alphabetical order) is a master student who was mentored by me and I contribute to the base code, idea, analysis, and writing. Thanks Yuan for this pleasant mentoring experience.

GCVR: Reconstruction from Cross-View Enable Sufficient and Robust Graph Contrastive Learning

Qianlong Wen, Zhongyu Ouyang, **Chunhui Zhang**, Yiyue Qian, Chuxu Zhang, Yanfang Ye

The Conference on Uncertainty in Artificial Intelligence (UAI), 2024.

How to Improve Representation Alignment and Uniformity in Graph-based Collaborative Filtering?

Zhongyu Ouyang, **Chunhui Zhang**, Shifu Hou, Chuxu Zhang, Yanfang Ye

International AAAI Conference on Web and Social Media (ICWSM), 2024.

Breaking the Trilemma of Privacy, Utility, and Efficiency via Controllable Machine Unlearning

{Zheyuan Liu, Guangyao Dou}, Yijun Tian, **Chunhui Zhang**, Eli Chien, Ziwei Zhu

ACM International World Wide Web Conference (WWW/TheWebConf), 2024.

How to Improve Representation Alignment and Uniformity in RecSys?

Zhongyu Ouyang, Shifu Hou, **Chunhui Zhang**, et al.

Under review; initially appeared on ICML-MFPL workshop, 2023.

When Sparsity Meets Contrastive Models: Less Data Can Bring Better Class-Balanced Representations

Chunhui Zhang, Chao Huang, Yijun Tian, Qianlong Wen, et al.

International Conference on Machine Learning (ICML), 2023.

Chasing All-Round Graph Representation Robustness: Model, Training, and Optimization

Chunhui Zhang, Yijun Tian, Mingxuan Ju, Zheyuan Liu, et al.

International Conference on Learning Representations (ICLR), 2023.

Mind the Gap: Mitigating the Distribution Gap in Graph Few-shot Learning

Chunhui Zhang, Hongfu Liu, Jundong Li, Yanfang Ye, et al.

Transactions on Machine Learning Research (TMLR), 2023.

Fair Graph Representation Learning via Diverse Mixture-of-Experts
{Zheyuan Liu, **Chunhui Zhang**}, Yijun Tian, Erchi Zhang, et al.

ACM International World Wide Web Conference (WWW/TheWebConf), 2023.

Note: Co-first author Liu (in alphabetical order) was an undergraduate who was mentored by me and I contribute to the idea, analysis, and writing. Thanks Liu for this pleasant mentoring experience.

Prompt Learning Unlocked for App Promotion in the Wild

Zhongyu Ouyang, Shifu Hou, Shang Ma, Chaoran Chen, **Chunhui Zhang**, Toby Li, Xusheng Xiao, et al.

NeurIPS 2023 GLFrontiers Workshop.

Boosting Graph Neural Networks via Adaptive Knowledge Distillation

Zhichun Guo, **Chunhui Zhang**, Yujie Fan, Yijun Tian, et al.

AAAI Conference on Artificial Intelligence (AAAI), 2023.

Heterogeneous Graph Masked Autoencoders

Yijun Tian, Kaiwen Dong, **Chunhui Zhang**, et al.

AAAI Conference on Artificial Intelligence (AAAI), 2023.

Heterogeneous Temporal Graph Neural Network Explainer

Jiazheng Li, **Chunhui Zhang**, Chuxu Zhang.

ACM International Conference on Information and Knowledge Management (CIKM), 2023.

Label-invariant Augmentation for Semi-Supervised Graph Classification

Han Yue, **Chunhui Zhang**, Chuxu Zhang, and Hongfu Liu.

Conference on Neural Information Processing Systems (NeurIPS), 2022.

Co-Modality Imbalanced Graph Contrastive Learning

Yiyue Qian, **Chunhui Zhang**, Yiming Zhang, Qianlong Wen, Yanfang Ye, et al.

Conference on Neural Information Processing Systems (NeurIPS), 2022.

Look Twice as Much as You Say: Scene Graph Contrastive Learning for Self-Supervised Image Caption Generation

Chunhui Zhang, Chao Huang, Youhuan Li, Xiangliang Zhang, Yanfang Ye, et al.

ACM International Conference on Information and Knowledge Management (CIKM), 2022.

GraphBERT: Bridging Graph and Text for Malicious Behavior Detection on Social Media

Jiele Wu, **Chunhui Zhang**, Zheyuan Liu, Erchi Zhang, Steven Wilson, et al.

IEEE International Conference on Data Mining (ICDM), 2022.

Diving into Unified Data-Model Sparsity for Class-Imbalanced Graph Representation Learning

Chunhui Zhang, Chao Huang, Yijun Tian, Qianlong Wen, Zhongyu Ouyang, Youhuan Li, Yanfang Ye, et al.

Thirty-sixth Conference on Neural Information Processing Systems-New Frontiers in Graph Learning Workshop (NeurIPS GLFrontiers Workshop), 2022

37th AAAI Conference on Artificial Intelligence-Workshop on DL-Hardware Co-Design for AI Acceleration (AAAI DCAA workshop), 2023

Best Paper Runner-up Award

Adversarial Cross-View Disentangled Graph Contrastive Learning

Qianlong Wen, Zhongyu Ouyang, **Chunhui Zhang**, Yiyue Qian, Yanfang Ye, et al.

Thirty-sixth Conference on Neural Information Processing Systems-New Frontiers in Graph Learning Workshop (NeurIPS GLFrontiers Workshop), 2022

AdaSearch: Many-to-One Unified Neural Architecture Search via A Smooth Curriculum

Chunhui Zhang*, Yongyuan Liang*, Yifan Jiang*.

AAAI-22 Workshop: Learning Network Architecture During Training.

Towards Tailored Models on Private AIoT Devices: Federated Direct Neural Architecture Search

Chunhui Zhang, Xiaoming Yuan, Qianyun Zhang, Guangxu Zhu, Lei Cheng, and Ning Zhang.

*IEEE Internet of Things Journal (IEEE-**IoTJ**)*, Feb. 2022.

Honors and
scholarships

Graduate School of Arts and Sciences Fellowship	2021 – 2023
GSAS Ph.D. Student Conference Award	2023
Travel and Research Grant	2022
CIKM Travel Grant Award	2022
AAAI-DCAA Best Paper Runner-up Award	2023

Teaching experience

Teaching Assistant, Computer Science, Brandeis Fall 2021 & Spring 2023

CS 133A: Graph Mining

Graphs are capable of modeling complex social, technological, and biological systems. This course covers the core concepts, models, and algorithms of graph mining.

Teaching Assistant, Computer Science, Brandeis Spring & Fall 2022

CS 165B: Deep Learning

This course covers the core methods and algorithms of deep learning techniques.

Service and outreach

Program Committee/Conference Reviewer

NeurIPS 2023, NeurIPS Datasets and Benchmarks track 2023, AAAI 2023, Learning on Graphs 2023, NeurIPS 2022, CIKM 2022, ICDM 2022, IEEE HPCC 2020

Journal Reviewer

IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Network Science and Engineering, ACM Transactions on Intelligent Systems and Technology, Neurocomputing, Big Data

Other interests

Racing – a happy part of my life. I particularly enjoy go-karting and circuit racing (some fun facts: 1st and 2nd place at Supercharged). But there is one type of racing that I have yet to try - my favorite rally driving (My favorite rally driver is Han Han).