

# Chunhui Zhang, Ph.D. student at Dartmouth

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

**Education**

<b>Dartmouth College</b>	Hanover, NH, US
Ph.D. student in Computer Science	Aug. 2023 – Present
Advisor: <a href="#">Professor Soroush Vosoughi</a>	

<b>Brandeis University</b>	Waltham, MA, US
Master of Science, Computer Science	Sep. 2021 – Jun. 2023
GSAS Fellowship	

<b>Northeastern University</b>	CN
Bachelor of Science, Computer Science	Sep. 2017 – Jun. 2021
Outstanding Honor Thesis Award	
Mentor: <a href="#">Professor Xiaoming Yuan</a>	

**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.*

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**<sup>\*</sup>, Yongyuan Liang<sup>\*</sup>, Yifan Jiang<sup>\*</sup>.

*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-LoTJ), Feb. 2022.*

Honors and  
scholarships

Graduate School of Arts and Sciences Fellowship  
GSAS Ph.D. Student Conference Award

2021 – 2023  
2023

	Travel and Research Grant	2022
	CIKM Travel Grant Award	2022
	AAAI-DCAA Best Paper Runner-up Award	2023
Teaching experience	<b>Teaching Assistant, Computer Science, Brandeis</b>	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.	
	<b>Teaching Assistant, Computer Science, Brandeis</b>	Spring & Fall 2022
	CS 165B: Deep Learning This course covers the core methods and algorithms of deep learning techniques.	
Service and outreach	<b>Program Committee/Conference Reviewer</b>	
	NeurIPS 2023, NeurIPS Datasets and Benchmarks track 2023, AAAI 2023, Learning on Graphs 2023, NeurIPS 2022, CIKM 2022, ICDM 2022, IEEE HPCC 2020	
	<b>Journal Reviewer</b>	
	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).	