

# Chunhui Zhang, Ph.D. student at Dartmouth

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

## Education

### Dartmouth College

Hanover, NH, US

Ph.D. student in Computer Science

Aug. 2023 – Present

Advisor: [Professor Soroush Vosoughi](#)

### Brandeis University

Waltham, MA, US

Master of Science, Computer Science

Sep. 2021 – Jun. 2023

GSAS Fellowship

### Northeastern University

CN

Bachelor of Science, Computer Science

Sep. 2017 – Jun. 2021

Outstanding Honor Thesis Award

Mentor: [Professor Xiaoming Yuan](#)

## 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.*

Aligning Relational Learning with Lipschitz Fairness

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

*International Conference on Learning Representations (ICLR), 2024.*

*Note: Co-first author Jia is a master student who was mentored by me.*

*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 is a master student who was mentored by me.  
Thanks Yuan for this pleasant mentoring experience.*

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

**Chunhui Zhang**, Chao Huang, Yijun Tian, Qianlong Wen, Zhongyu Ouyang, Youhuan Li, Yanfang Ye, 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, Yanfang Ye, Nitesh Chawla, and Chuxu Zhang.

*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, Chao Huang, Yanfang Ye and Chuxu Zhang.

*International World Wide Web Conference (WWW / The Web Conf.), 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, and Chuxu Zhang.  
*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, and Chuxu Zhang.  
*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.

3D Enhanced Multi-scale Network For Thoracic Organs Segmentation

Qin Wang, Weibing Zhao, **Chunhui Zhang**, Liyue Zhang, Changmiao Wang, Zhen Li, Shuguang Cui, Guanbin Li.

*IEEE International Symposium on Biomedical Imaging Challenge (ISBI-W)*, 2019

## 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

## Research experience

**Research Assistant** Nov. 2018-Aug. 2021

**The Chinese University of Hong Kong, China**

Shenzhen Research Institute of Big Data (SRIBD)

Mentors: [Professor Lei Cheng](#), [Professor Zhen Li](#)

Developed a differentiable method for neural architecture search that significantly reduced GPU hours (80% computational cost/1,000 GPU hours reduction) on ImageNet.

## 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 out-reach

**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).