Enyan Dai

CONTACT INFORMATION

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https://enyandai.github.io

RESEARCH INTERESTS

Trustworthy AI: Graph Mining, Large Language Models;
Applications: Protein Analysis, Sports Analysis

EMPLOYMENT

Hong Kong University of Science and Technology (Guangzhou)
Assistant Professor in Artificial Intelligence Thrust — Jul. 2024 – Present

EDUCATION

The Pennsylvania State University, USA — Aug. 2019 – Jun. 2024
Ph.D. in Information Sciences and Technology
Thesis: Towards Trustworthy Graph Neural Networks
Advisor: Dr. Suhang Wang

KU Leuven, Belgium — Oct. 2017 – Oct. 2018
M.S. in Artificial Intelligence (Cum Laude)
Advisor: Dr. Marie-Francine Moens

University of Science and Technology of China, China — Aug. 2012 – Jun. 2016
B.S. in Mechanical Engineering

TEACHING EXPERIENCE

Instructor, HKUST(GZ) — Spring 2025
AIAA 6011A: Trustworthy Graph Mining

Instructor, HKUST(GZ) — Fall 2024
UFUG 1601: Introduction to Computer Science

Teaching Assistant, PSU — Fall 2023
DS 402: Explainable AI and Reinforcement Learning

Teaching Assistant, PSU — Spring 2023
IST 452: Legal Environment of Privacy and Security

Teaching Assistant, PSU — Spring 2022
IST 510: Computational Foundations of Informatics

Teaching Assistant, PSU — Spring 2022
DS 310: Machine Learning and Data Analytics

Teaching Assistant, PSU — Fall 2021
DS 402: Introduction to Social Network Mining

Teaching Assistant, PSU — Fall 2020
DS 402: Introduction to Social Network Mining

STUDENTS

Ph.D. Students

Yuliang Yan, Ph.D. student, HKUST(GZ) — Aug. 2024 – Present
Referred papers [3], [1]

Shuo Yan, RA and incoming Ph.D. student, HKUST(GZ) — Aug. 2024 – Present
Referred papers [1], [2], [3]

Minghao Chen, Ph.D. student, HKUST(GZ) — May 2025 – Present
Co-advised with Prof. Hui Xiong

Chenao Li, Incoming Ph.D. student, HKUST(GZ) — Oct. 2024 – Present
Referred papers [2], [1]

Yaochi Guo, Incoming Ph.D. student, HKUST(GZ) — Oct. 2024 – Present

Yanting Li, Incoming Ph.D. student, HKUST(GZ) Jun. 2025 – Present
Co-advised with Prof. Li Liu

Undergraduate Students

Zhiwei Ma, Undergraduate student, HKUST(GZ) Oct. 2024 – Feb. 2025
Project: Football analysis benchmark
Wenyan Li, Undergraduate student, HKUST(GZ) Oct. 2025 – Jun. 2025
Project: Football analysis benchmark
Qingxuan Liu, Incoming undergraduate student, HKUST(GZ) Jul. 2025 – Present

Research Assistant and Visiting Students

Bin Ma, Research Assistant, HKUST(GZ) Aug. 2024 – Present
Referred papers [4], [1], [5]
Yuyuan Feng, Research Assistant, HKUST(GZ) Aug. 2024 – Present
Referred papers [4], [1]
Yuxiang Zhang, Research Assistant, HKUST(GZ) Aug. 2024 – Present
Referred papers [5]
Shuotong Bai, Visiting Ph.D. student, HKUST(GZ) Aug. 2024 – Jan. 2025
Referred papers [16], [6]
Co-advised with Prof. Huaxiao Liu
Haochun Tang, Visiting Master student, HKUST(GZ) Aug. 2024 – Present
Referred papers [3], [1]
Co-advised with Prof. Huaxiao Liu
Jiahua Lu, Visiting Master student, HKUST(GZ) Aug. 2024 – Present
Referred papers [6], [1]
Co-advised with Prof. Huaxiao Liu

SERVICES

- **Academic Advisor**: Dorm 5A-6F-8/10 in HKUST(GZ)
- **Program Committee Member**: AAAI (2023, 2024), KDD (2022, 2023, 2024, 2025), ASONAM (2022, 2021), WSDM (2025, 2024, 2023, 2022), CIKM (2025)
- **Reviewer**: NeurIPS (2022, 2023), ICML (2023), ICLR (2024), KDD (2021, 2020), The Web (2021, 2022), SIGIR (2021, 2022), WebSci (2020), CIKM (2022, 2022, 2023), LOG (2022), ICIG (2021, 2023), BigData (2021), TPAMI, Neurocomputing, TKDD, TNNLS, Neural Networks
- **Judge**: Mathematical Contest in Modeling (2020, 2022, 2023, 2024)

SELECTED HONORS

- PAKDD 2025 Best Paper Award
- Ph.D. Student Award for Research Excellence in College of IST

MEDIA COVERAGE

- Our work about anomaly detection on power grids with graph neural networks has been reported by The Register, MIT Press, and SciTechDaily
- Our FairGNN is reported in New machine learning model could remove bias from social network connections by PSU News and republished by ACM news.
- Our survey about trustworthy graph neural networks is reported by PaperWeekly and KDnuggets

PRE-PRINTS

[1] Shuo Yan, Yuliang Yan, Bin Ma, Chenao Li, Haochun Tang, Jiahua Lu, Minhua Lin, Yuyuan Feng, Hui Xiong, **Enyan Dai**. "Protap: A Benchmark for Protein Modeling on Realistic Downstream Applications"

[2] Chenao Li, Shuo Yan, **Enyan Dai**. "UniZyme: A Unified Protein Cleavage Site Predictor Enhanced with Enzyme Active-Site Knowledge"

[3] Yuliang Yan, Haochun Tang, Shuo Yan, **Enyan Dai**. "DuFFin: A Dual-Level Fingerprinting Framework for LLMs IP Protection"

[4] Bin Ma, Yuyuan Feng, Minhua Lin, **Enyan Dai**. "How Explanations Leak the Decision Logic: Stealing Graph Neural Networks via Explanation Alignment"

[5] Yuxiang Zhang, Bin Ma, Minhua Lin, **Enyan Dai**. " A Clean-Label Backdoor Attack by Poisoning the Inner Prediction Logic of Graph Neural Networks"

[6] Jiahua Lin, Huaxiao Liu, Shuotong Bai, Renqiang Luo, Junjie Xu, **Enyan Dai**. " Let's Grow an Unbiased Community : Guiding the Fairness of Graphs via New Links"

PUBLICATIONS

[7] **Enyan Dai***, Minhua Lin*, Suhang Wang. "PreGIP: Watermarking the Pretraining of Graph Neural Networks for Deep Intellectual Property Protection." In Proceedings of the 31st ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD 2025**)

[8] Minhua Lin, **Enyan Dai**, Junjie Xu, Suhang Wang. "Stealing Training Graphs from Graph Neural Networks." In Proceedings of the 31st ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD 2025**)

[9] Minhua Lin, Zhiwei Zhang, **Enyan Dai**, Zongyu Wu, Yilong Wang, Xiang Zhang, Suhang Wang. "Are You Using Reliable Graph Prompts? Trojan Prompt Attacks on Graph Neural Networks." In Proceedings of the 31st ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD 2025**)

[10] Zhiwei Zhang, Minhua Lin, Junjie Xu, Zongyu Wu, **Enyan Dai**, Suhang Wang. "Robustness Inspired Graph Backdoor Defense." In Proceedings of the 13th International Conference on Learning Representations (**ICLR 2025 Oral**)

[11] Wenlun Zhang, **Enyan Dai**. "LiSA: Leveraging Link Recommender to Attack Graph Neural Networks via Subgraph Injection." In Proceedings of the Pacific-Asia Conference on Knowledge Discovery and Data Mining (**PAKDD 2025 Best Paper Award**)

[12] **Enyan Dai**, Suhang Wang. "Towards Prototype-Based Self-Explainable Graph Neural Network." in ACM Transactions on Knowledge Discovery from Data (**TKDD 2024**)

[13] **Enyan Dai**, Tianxiang Zhao, Huaisheng Zhu, Junjie Xu, Zhimeng Guo, Hui Liu, Jiliang Tang, and Suhang Wang. "A Comprehensive Survey on Trustworthy Graph Neural Networks: Privacy, Robustness, Fairness, and Explainability." in Machine Intelligence Research 2024

[14] Xuanhao Fan, **Enyan Dai** "Effective Clean-Label Backdoor Attacks on Graph Neural Networks." In Proceedings of the 33th ACM International Conference on Information and Knowledge Management (**CIKM 2024**).

[15] Junjie Xu, **Enyan Dai**, Dongsheng Luo, Xiang Zhang, Suhang Wang. "Shape-aware Graph Spectral Learning." In Proceedings of the 33th ACM International Conference on Information and Knowledge Management (**CIKM 2024**).

[16] Shuotong Bai, Huaxiao Liu, **Enyan Dai**, Liu Lei. "Improving Issue-PR Link Prediction via Knowledge-aware Heterogeneous Graph Learning." Published in IEEE Transactions on Software Engineering (**TSE 2024**)

[17] Zhiwei Zhang, Minhua Lin, **Enyan Dai**, Suhang Wang. "Rethinking Graph Backdoor Attacks: A Distribution-Preserving Perspective." In Proceedings of the 30th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (**KDD 2024**)

[18] **Enyan Dai**, Limeng Cui, Zhengyang Wang, Xianfeng Tang, Yinhan Wang, Monica Chen, Bing Yin, Suhang Wang. "A Unified Framework of Graph Information Bottleneck for Robustness and Membership Privacy." In Proceedings of 29th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (**KDD 2023**)

[19] **Enyan Dai***, Minhua Lin*, Xiang Zhang, Suhang Wang. "Unnoticeable Backdoor Attacks on Graph Neural Networks." In Proceedings of The Web Conference 2023 (**WWW 2023**)

[20] Minhua Lin, Teng Xiao, **Enyan Dai**, Suhang Wang. "Certifiably Robust Graph Contrastive Learning." In Proceedings of 37th Conference on Neural Information Processing Systems (**NeurIPS 2023**)

[21] **Enyan Dai**, and Jie Chen. "Graph-Augmented Normalizing Flows for Anomaly Detection of Multiple Time Series." **Spotlight paper** in Proceedings of International Conference on Learning Representations (**ICLR 2022**)

[22] **Enyan Dai**, Shijie Zhou, Zhimeng Guo, and Suhang Wang. "Label-Wise Graph Convolutional Network for Heterophilic Graphs." In Proceedings of Learning On Graphs (**LOG 2022**)

[23] **Enyan Dai**, Suhang Wang. "Learning Fair Graph Neural Networks with Limited and Private Sensitive Attribute Information." In IEEE Transactions on Knowledge and Data Engineering (**TKDE**)

[24] **Enyan Dai**, Jie Wei, Hui Liu, and Suhang Wang. "Towards Robust Graph Neural Networks for Noisy Graphs with Sparse Labels." **Oral paper** In Proceedings of 15th ACM International Conference on Web Search and Data Mining (**WSDM 2022**)

[25] Junjie Xu, **Enyan Dai**, Xiang Zhang, Suhang Wang. "HP-GMN:Graph Memory Networks for Heterophilous Graphs" In Proceedings of The IEEE International Conference on Data Mining (**ICDM 2022**)

[26] Tianxiang Zhao, **Enyan Dai**, Kai Shu, and Suhang Wang. "Towards Fair Classifiers Without Sensitive Attributes: Exploring Biases in Related Features. " In Proceedings of 15th ACM International Conference on Web Search and Data Mining (**WSDM 2022**)

[27] Huaisheng Zhu, **Enyan Dai**, Hui Liu, Suhang Wang. "Learning Fair Models without Sensitive Attributes: A Generative Approach." In Neurocomputing

[28] **Enyan Dai**, Charu Aggarwal, and Suhang Wang. "NRGNN: Learning a Label Noise-Resistant Graph Neural Network on Sparsely and Noisily Labeled Graphs." In Proceedings of 27th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (**KDD 2021**)

[29] **Enyan Dai**, Kai Shu, Yiwei Sun, and Suhang Wang. "Labeled Data Generation with Inexact Supervision." In Proceedings of 27th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (**KDD 2021**)

[30] **Enyan Dai**, and Suhang Wang. "Towards Self-Explainable Graph Neural Network." In Proceedings of International Conference on Information and Knowledge Management (**CIKM 2021**)

[31] **Enyan Dai**, and Suhang Wang. "Say No to the Discrimination: Learning Fair Graph Neural Networks with Limited Sensitive Attribute Information." In Proceedings of 14th ACM International Conference on Web Search and Data Mining (**WSDM 2021**)

[32] **Enyan Dai**, Yiwei Sun and Suhang Wang. "Ginger Cannot Cure Cancer: Battling Fake Health News with a Comprehensive Data Repository." In Proceedings of International AAAI Conference on Web and Social Media (**ICWSM 2020**)

[33] Chacha, Chen, Chieh-Yang Huang, Yaqi Hou, Yang Shi, **Enyan Dai**, and Jiaqi Wang. "TEST POSITIVE at W-NUT 2020 Shared Task-3: Cross-task modeling." In Proceedings of the Sixth Workshop on Noisy User-generated Text (**WNUT 2020**)

[34] **Enyan Dai**, Shuaijun Chen, Zhen Han, Xu Jia, Ziluan Liu, Liu Xing, Xueyi Zou, Chunjing Xu, Jianzhuang Liu, and Qi Tian. "Unsupervised image super-resolution with an indirect supervised path." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (**CVPR Workshops**)

[35] Yuqing Hu, Xiaoyuan Cheng, Suhang Wang, Jianli Chen, Tianxiang Zhao, and **Enyan Dai**. "Times series forecasting for urban building energy consumption based on graph convolutional network." In **Applied Energy**

[36] Xiaoyuan Cheng, Yuqing Hu, Jianxiang Huang, Suhang Wang, Tianxiang Zhao, and **Enyan Dai**. "Urban Building Energy Modeling: A Time-Series Building Energy Consumption Use Simulation Prediction Tool Based on Graph Neural Network." In **Computing in Civil Engineering**