Haonan Wang

Email: haonan3@illinois.edu | Phone: 187-1004-7751 | Personal Page: haonan3.github.io

I have a broad interest in the practical machine learning methods and their theorical analysis. My interest spans multiple areas, including Representation Learning, Trustworthy Machine Learning, and Data-Centric AI. I am particularly interested in developing Data Optimization methods to improve the efficiency, reliability and interpretability of ML models from a data-centric view. My ultimate goal is to make machine learning techniques accessible to everyone and enhance people's lives by making it cost-efficient and trustworthy.

EDUCATION

National University of Singapore — Singapore
Graduate, Computer Science — *January 2023 – December 2026 (expected)*

University of Illinois at Urbana–Champaign — Urbana-Champaign, IL
Graduate, Information Science — *September 2020 – December 2021*

- **Advisor:** Jingrui He

University of Illinois at Urbana–Champaign — Urbana-Champaign, IL
Undergraduate, Computer Science & Statistics — *September 2017 – May 2020*

- Overall GPA:3.86 / 4.00
- **Advisor:** Jiawei Han

University of California, Los Angeles — Los Angeles, CA
Undergraduate, Independent Research Program — *May 2019 – September 2019*

- Overall GPA: 4.00/4.00
- **Advisor:** Yizhou Sun

RESEARCH EXPERIENCE

iSchool Statistical Machine Learning and Artificial Intelligence Lab, University of Illinois at Urbana-Champaign — Urbana-Champaign, IL
*Graduate Research Assistant, mentored by Prof.**Jingrui He*** — *September 2020 – December 2021*

- Controllable Gradient Item Retrieval
- Deep Active Learning by Leveraging Training Dynamics
- From Intrinsic to Counterfactual: On the Explainability of Contextualized Recommender Systems
- Training Fair Deep Neural Networks by Balancing Influence

Data Mining Group, University of Illinois at Urbana-Champaign — Urbana-Champaign, IL
*Undergraduate Research Assistant, mentored by Prof.**Jiawei Han*** — *December 2018 – May 2020*

- Relation Learning on Social Networks with Multi-Modal Graph Edge VAE
- Transfer Learning of Graph Neural Networks with Ego-graph Information Maximization

Scalable Analytics Institute, University of California, Los Angeles — Los Angeles, CA
*Summer Research Intern, mentored by Prof.**Yizhou Sun*** — *June 2019 – September 2019*

- Organic Reaction Prediction with Reinforcement Learning

- Learning To Transfer Via Modelling Multi-level Task Dependency

Secure Learning Lab, University of Illinois at Urbana-Champaign Urbana-Champaign, IL
*Undergraduate Research Assistant, mentored by Prof.**Bo Li*** *March 2019 – June 2019*

- DPgraphGen: Securely Releasing Your Networks with Differential Privacy

PUBLICATION & MANUSCRIPT

(* denotes alphabetical ordering or equal contribution)

- **Haonan Wang**, Wei Huang, Andrew Margenot, Hanghang Tong, Jingrui He: *Deep Active Learning by Leveraging Training Dynamics*. Proceedings of the Conference on Neural Information Processing Systems (**NeurIPS**), 2022.

- Jieyu Zhang*, **Haonan Wang***, Cheng-Yu Hsieh, Alexander Ratner: *Understanding Programmatic Weak Supervision via Source-aware Influence Function.* Proceedings of the Conference on Neural Information Processing Systems (**NeurIPS**), 2022.

- Yujing Wang, Yingyan Hou, **Haonan Wang**, Ziming Miao, Shibin Wu, Hao Sun, Qi Chen, Yuqing Xia, Chengmin Chi, Guoshuai Zhao, Zheng Liu, Xing Xie, Hao Sun, Weiwei Deng, Qi Zhang, Mao Yang: *A Neural Corpus Indexer for Document Retrieval.* Proceedings of the Conference on Neural Information Processing Systems (**NeurIPS**), 2022. Outstanding Paper Award (Top 7/3391)

- **Haonan Wang**, Jieyu Zhang, Qi Zhu, Wei Huang: *Augmentation-Free Graph Contrastive Learning with Performance Guarantee*. Arxiv Preprint.

- **Haonan Wang***, Ziwei Wu*, Jingrui He*: Training Fair Deep Neural Networks by Balancing Influence*. Arxiv Preprint.

- Yao Zhou*, **Haonan Wang***, Jingrui He, Haixun Wang: From Intrinsic to Counterfactual: *On the Explainability of Contextualized Recommender Systems*. Arxiv Preprint.

- Qi Zhu, Yidan Xu, **Haonan Wang**, Chao Zhang, Jiawei Han, Carl Yang: *Transfer Learning of Graph Neural Networks with Ego-graph Information Maximization*. Proceedings of the Conference on Neural Information Processing Systems (**NeurIPS**), 2021.

- Carl Yang, **Haonan Wang**, Lichao Sun and Bo Li: *Secure Network Release with Link Privacy*. Proceedings of the International Joint Conference on Artificial Intelligence (**IJCAI**), 2021.

- **Haonan Wang**, Chang Zhou, Honxia Yang, Carl Yang, Jingrui He: *Controllable Gradient Item Retrieval*. Proceedings of the International World Wide Web Conference (**WWW**), 2021.

- Carl Yang, Jieyu Zhang, **Haonan Wang**, Sha Li, Myunghwan Kim, Matthew Walker, Yiou Xiao and Jiawei Han: *Relation Learning on Social Networks with Multi-Modal Graph Edge Variational Autoencoder*. Proceedings of the ACM International Conference on Web Search and Data Mining (**WSDM**), 2020.

- Carl Yang*, Jieyu Zhang*, **Haonan Wang**, Bangzheng Li and Jiawei Han: *Neural Concept Map Generation for Effective Document Classification with Interpretable Structured Summarization*.

Proceedings of the ACM International Conference on Research and Development in Information Retrieval (**SIGIR**), 2020.

TEACHING EXPERIENCE

- UIUC IS 577, Data Mining *August 2021 – December 2021*
- UIUC ECE 490, Introduction to Optimization *January 2020 – May 2020*

PROFESSIONAL SERVICE

- Conference Reviewer: NeurIPS (2022), ICML (2022), KDD (2021), AAAI (2022), LoG (2022), WSDM(2023), PAKDD (2021), CIKM (2021), ECML-PKDD (2020)
- Workshop Reviewer: NeurIPS 2022 AI4Science, FedGraph 2022, ICML 2022 AI4Science
- Journal Reviewer: IEEE Transactions on Big Data

INDUSTRY EXPERIENCE

Microsoft Research Lab – Asia Beijing, CN

Research Intern, Supervisor: Yujing Wang February 2022 – May 2022

- Developed a training paradigm for document retrieval, which unify the learning and indexing stages with an end-to-end deep neural network.

Alibaba Group Beijing, China

Research Intern, Supervisor: Hongxia Yang *June 2020 – September 2020*

- Proposed the gradient item retrieval task and developed a weakly-supervised disentangled learning method for the item retrieval.

AWARD

- NeurIPS 2022 Scholar Award October 2022
- National University of Singapore, Graduate Research Scholarship October 2022
- Graduate College Conference Presentation Award May 2021
- The Web Conference 2021 Student Scholarship Award March 2021
- C.W. Gear Outstanding Undergraduate Student (Two Students each year) April 2020
- Honorable Mention Award, 19th Interdisciplinary Contest In Modeling (ICM) *April 2017*