Tianxin Wei | Ph.D., University of Illinois Urbana-Champaign

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Google Scholar: scholar.google.com (1414 Citations)

Research Interests

I am a fifth-year Ph.D. student at the University of Illinois Urbana-Champaign. My research focuses on advancing the **personalization** and **generalizability** of machine learning algorithms—particularly large language models—across modalities, modules, and models. I am especially interested in applying these principles to critical applications, with an emphasis on efficient generative modeling, recommender systems, and information retrieval.

Education

University of Illinois Urbana-Champaign   **Champaign, USA**
➤ *Ph.D. in Information Sciences*   *2021–2026 (exp.)*
   Advisor: Prof. Jingrui He, working with Prof. Hanghang Tong

University of Science and Technology of China   **Hefei, China**
➤ *B.S. in Computer Science*   *2016–2020*
   School of the Gifted Young, Artificial Intelligence Talent Class

Research Experience

Google DeepMind, GenAI Org   **Mountain View, CA**
Research Intern   *2025*
➤ Project: Self-improving Agents (In submission).
   Advised by Wang-Cheng Kang, Chi Wang, and Ed Chi

Meta AI, Ranking Foundational Org   **Remote**
Research Intern   *2025*
➤ Project: Hierarchical Tokenization for Generative Recommendation (In submission).

Amazon, Shopping Foundational Org   **Palo Alto, CA**
Research Intern   *2024*
➤ Project: Invisible multi-modal watermarking for generative models (in submission).
   Advised by Xianfeng Tang, and Suhang Wang

Amazon, Search Org   **Palo Alto, CA**
Research Intern   *2023*
➤ Project: Generative multimodal personalization; LLM for IR. (ICLR'24, WWW'24, ICML'24)
   Advised by Xianfeng Tang, and Suhang Wang

UT Austin, Electrical and Computer Engineering   **Remote**
Research Intern   *2020*
➤ Project: Self-supervised graph learning; fintech (NeurIPS'22).
   Advised by Prof. Zhangyang Wang

UCLA, Computer Science   **Los Angeles, CA**
Visiting Scholar   *2019*
➤ Project: Graph-based recommender systems; meta-path discovery (ICDM'20).
   Advised by Prof. Yizhou Sun

USTC, Data Science   **Hefei, China**
Research Intern   *2019–2021*
➤ Project: Robustness and bias of recommender systems (KDD'21, SIGIR'21).
   Advised by Prof. Xiangnan He

# Publications (* denotes equal contribution and † denotes supervision)

Conference Papers...

➤ **KDD 2025**

Connecting Domains and Contrasting Samples: A Ladder for Domain Generalization

Tianxin Wei*, Yifan Chen*, Xinrui He, Wenxuan Bao, Jingrui He

➤ **KDD 2025**

ResMoE: Residual Approximation for Compressing Mixture-of-Experts in Large Language Models

Mengting Ai*, **Tianxin Wei***†, Yifan Chen*, Zhichen Zeng, Ritchie Zhao, Girish Varatkar, Bita Darvish Rouhani, Xianfeng Tang, Hanghang Tong, Jingrui He

➤ **NeurIPS 2025**

CLIMB: Class-imbalanced Learning Benchmark on Tabular Data

Zhining Liu, Zihao Li, Ze Yang, **Tianxin Wei**, Jian Kang, Yada Zhu, Hendrik Hamann, Jingrui He, Hanghang Tong

➤ **ICCV 2025**

Latte: Collaborative Test-Time Adaptation of Vision-Language Models in Federated Learning

Wenxuan Bao, Ruxi Deng, Ruizhong Qiu, **Tianxin Wei**, Hanghang Tong, Jingrui He

➤ **EMNLP 2025 (Findings)**

Learning to Instruct: Fine-Tuning a Task-Aware Instruction Optimizer for Black-Box LLMs

Yunzhe Qi, Jinjin Tian, Tianci Liu, Ruirui Li, **Tianxin Wei**, Hui Liu, Xianfeng Tang, Monica Xiao Cheng, Jingrui He

➤ **CIKM 2025**

PyG-SSL: A Graph Self-Supervised Learning Toolkit

Lecheng Zheng, Baoyu Jing, Zihao Li, Zhichen Zeng, **Tianxin Wei**, Mengting Ai, Xinrui He, Lihui Liu, Dongqi Fu, Jiaxuan You, Hanghang Tong, Jingrui He

➤ **ACL 2025 (Main)**

SelfElicit: Your Language Model Secretly Knows Where is the Relevant Evidence

Zhining Liu, Rana Ali Amjad, Ravinarayana Adkathim, **Tianxin Wei**, Hanghang Tong

➤ **ACL 2025 (Findings)**

LLM-Forest: Ensemble Learning of LLMs with Graph-Augmented Prompts for Data Imputation

Xinrui He, Yikun Ban, Jiaru Zou, **Tianxin Wei**, Curtiss Cook, Jingrui He

➤ **UAI 2025**

i^{2}VAE: Interest Information Augmentation with Variational Regularizers for Cross-Domain Sequential Recommendation

Xuying Ning, Wujiang Xu, **Tianxin Wei**, Xiaolei Liu

➤ **ICML 2025**

Graph4MM: Weaving Multimodal Learning with Structural Information

Xinrui He, Yikun Ban, Dongqi Fu, **Tianxin Wei**, Wujiang Xu, Jingrui He

➤ **ICML 2025**

Breaking Silos: Adaptive Model Fusion Unlocks Better Time Series Forecasting

Zhining Liu, Ze Yang, Xiao Lin, Ruizhong Qiu, **Tianxin Wei**, Yada Zhu, Hendrik Hamann, Jingrui He, Hanghang Tong

➤ **ICLR 2024**

Towards Unified Multi-Modal Personalization: Large Vision-Language Models for Generative Recommendation and Beyond

Tianxin Wei, Bowen Jin, Ruirui Li, Hansi Zeng, Zhengyang Wang, Jianhui Sun, Qingyu Yin, Hanqing Lu, Suhang Wang, Jingrui He, Xianfeng Tang

➤ **KDD 2024**

Neural Collaborative Filtering Bandits via Meta Learning

Yikun Ban, Yunzhe Qi, **Tianxin Wei**, Lihui Liu, Jingrui He

➤ **AAAI 2024**

TAU: Trajectory Data Augmentation with Uncertainty for Next POI Recommendation

Zhuang Zhuang, **Tianxin Wei**, Lingbo Liu, Heng Qi, Yanming Shen, Baocai Yin

➤ **ICML 2024**

Graph Mixup on Approximate Gromov–Wasserstein Geodesics

Zhichen Zeng, Ruizhong Qiu, Zhe Xu, Zhining Liu, Yuchen Yan, **Tianxin Wei**, Lei Ying, Jingrui He, Hanghang Tong

➢ **ICML 2024**

Language Models as Semantic Indexers
Bowen Jin, Hansi Zeng, Guoyin Wang, Xiusi Chen, **Tianxin Wei**, Ruirui Li, Zhengyang Wang, Zheng Li, Yang Li, Hanqing Lu, Suhang Wang, Jiawei Han, Xianfeng Tang

➢ **WWW 2024**

Scalable and Effective Generative Information Retrieval
Hansi Zeng, Chen Luo, Bowen Jin, Sheikh Muhammad Sarwar, **Tianxin Wei**, Hamed Zamani

➢ **ICML 2023**

NTK-approximating MLP Fusion for Efficient Language Model Fine-tuning
Tianxin Wei*†, Zeming Guo*, Yifan Chen*, Jingrui He

➢ **NeurIPS 2023**

Adaptive Test-Time Personalization for Federated Learning
Wenxuan Bao*, **Tianxin Wei***, Haohan Wang, Jingrui He

➢ **CIKM 2023**

Robust Basket Recommendation via Noise-tolerated Graph Contrastive Learning
Xinrui He*, **Tianxin Wei***, Jingrui He

➢ **NeurIPS 2023**

Meta-Learning with Neural Bandit Scheduling
Yunzhe Qi, Yikun Ban, **Tianxin Wei**, Jiaru Zou, Huaxiu Yao, Jinrui He

➢ **NeurIPS 2022**

Augmentations in Hypergraph Contrastive Learning: Fabricated and Generative
Tianxin Wei*, Yuning You*, Tianlong Chen, Yang Shen, Jingrui He, Zhangyang Wang

➢ **KDD 2022**

Comprehensive Fair Meta-learned Recommender System
Tianxin Wei, Jingrui He

➢ **KDD 2021**

Model-Agnostic Counterfactual Reasoning for Eliminating Popularity Bias in Recommender System
Tianxin Wei, Fuli Feng, Jiawei Chen, Ziwei Wu, Jinfeng Yi, Xiangnan He

➢ **SIGIR 2021**

Causal Intervention for Leveraging Popularity Bias in Recommendation
Yang Zhang, Fuli Feng, Xiangnan He, **Tianxin Wei**, Chonggang Song, Guohui Ling, Yongdong Zhang
Best Paper Honorable Mention

➢ **DASFAA 2021**

Unpaired Multimodal Neural Machine Translation via Reinforcement Learning
Yijun Wang*, **Tianxin Wei***, Qi Liu, Enhong Chen

➢ **AAAI 2021 Workshop**

AR-Stock: Deep Augmented Relational Stock Prediction
Tianxin Wei, Yuning You, Tianlong Chen
Oral

➢ **ICDM 2020**

Fast Adaptation for Cold-start Collaborative Filtering with Meta-learning
Tianxin Wei, Ziwei Wu, Ruirui Li, Ziniu Hu, Fuli Feng, Xiangnan He, Yizhou Sun, Wei Wang

Journal Articles..

➢ **IEEE Data Engineering Bulletin**

Graph Contrastive Learning: An Odyssey towards Generalizable, Scalable and Principled Representation Learning on Graphs
Yan Han, Yuning You, Wenqing Zheng, Scott Hoang, **Tianxin Wei**, Majdi Hassan, Tianlong Chen, Ying Ding, Yang Shen, Zhangyang Wang

In Submission..

2025

➢ **SELF-Bench: Benchmarking and Improving LLM Agent Test-time Learning via Self-Evolving Memory**
Tianxin Wei, Noveen Sachdeva, Benjamin Coleman, Zhankui He, Yuanchen Bei, Xuying Ning, Mengting Ai, Yunzhe Li, Jingrui He, Ed H. Chi, Chi Wang, Wang-Cheng Kang, Derek Zhiyuan Cheng

➢ **CoFiRec: Structuring Token Granularity for Generative Recommendation**
Tianxin Wei*, Xuying Ning*, Xuxing Chen, Yan Xie, Ruizhong Qiu, Zhigang Hua, Jingrui He

➢ **Inference Scaling of LLM Ensembling: Bridging Token Spaces with Token Translation**
Tianxin Wei, Zhichen Zeng, Ruizhong Qiu, Zhining Liu, Xuying Ning, Xinrui He, Wenxuan Bao, Qi He, Xianfeng Tang, Hanghang Tong, Jingrui He

➢ **DiffKGW: Stealthy and Robust Diffusion Model Watermarking**
Tianxin Wei, Ruizhong Qiu, Yifan Chen, Yunzhe Qi, Jiacheng Lin, Wenju Xu, Sreyashi Nag, Ruirui Li, Hanqing Lu, Zhengyang Wang, Chen Luo, Hui Liu, Suhang Wang, Jingrui He, Qi He, Xianfeng Tang

➢ **LexiFuse: Word-Level Ensemble Decoding for Large Language Models**
Chengming Cui*, **Tianxin Wei***, Ziyi Chen, Ruizhong Qiu, Zhichen Zeng, Zhining Liu, Xuying Ning, Jingrui He

➢ **MLP Fusion: Towards Efficient Fine-tuning of Dense and Mixture-of-Experts Language Models**
Mengting Ai*, **Tianxin Wei***, Yifan Chen*, Zeming Guo, Jingrui He

➢ **A Survey on Agentic Reasoning**
Tianxin Wei, etc.

➢ **NIRVANA: Structured Pruning Reimagined for Large Language Models Compression**
Mengting Ai, **Tianxin Wei**, Sirui Chen, Jingrui He

➢ **CATS: Mitigating Correlation Shift for Multivariate Time Series Classification**
Xiao Lin, Zhichen Zeng, **Tianxin Wei**, Zhining Liu, Yuzhong Chen, Hanghang Tong

➢ **Pave Your Own Path: Graph Gradual Domain Adaptation on Fused Gromov–Wasserstein Geodesics**
Zhichen Zeng, Ruizhong Qiu, Wenxuan Bao, **Tianxin Wei**, Xiao Lin, Yuchen Yan, Tarek F. Abdelzaher, Jiawei Han, Hanghang Tong

➢ **Saffron-1: Towards an Inference Scaling Paradigm for LLM Safety Assurance**
Ruizhong Qiu, Gaotang Li, **Tianxin Wei**, Jingrui He, Hanghang Tong

➢ **FeDecider: Personalized Federated Fine-tuning for Cross-Domain Recommendation**
Xinrui He, Ting-Wei Li, **Tianxin Wei**, Xuying Ning, Xinyu He, Hanghang Tong, Jingrui He

➢ **TRQA: Time Series Reasoning Question And Answering Benchmark**
Baoyu Jing, Sanchen Chen, Lecheng Zheng, Boyu Liu, Zihao Li, Jiaru Zou, **Tianxin Wei**, Zhining Liu, Zhichen Zeng, Ruizhong Qiu, Xiao Lin, Yuchen Yan, Qi Yu, Dongqi Fu, Jingrui He, Hanghang Tong

➢ **Flow Matching Meets Biology and Life Science: A Survey**
Zihao Li, Zhichen Zeng, Xiao Lin, Feihao Fang, Yanru Qu, Zhe Xu, Zhining Liu, Xuying Ning, **Tianxin Wei**, Ge Liu, Hanghang Tong, Jingrui He

➢ **MC-Search: Evaluating and Enhancing Multimodal Agentic Search with Structured Long Reasoning Chains**
Xuying Ning*, Dongqi Fu*, **Tianxin Wei***, Mengting Ai, Jiaru Zou, Ting-Wei Li, Hanghang Tong, Yada Zhu, Hendrik Hamann, Jingrui He

➢ **Seeing but Not Believing: Probing the Disconnect Between Visual Attention and Answer Correctness in VLMs**
Zhining Liu, Ziyi Chen, Hui Liu, Chen Luo, Xianfeng Tang, Suhang Wang, Jingying Zeng, Zhenwei Dai, Zhan Shi, **Tianxin Wei**, Hanqing Lu, Benoit Dumoulin, Hanghang Tong

➢ **Geometri-Disentanglement Unlearning**
Duo Zhou, Yuji Zhang, **Tianxin Wei**, Ruizhong Qiu, Ke Yang, Xiao Lin, Cheng Qian, Jingrui He, Hanghang Tong, Heng Ji, Huan Zhang

➢ **WAPITI: A Watermark for Finetuned Open-Source LLMs**
Lingjie Chen, Ruizhong Qiu, Siyu Yuan, Zhining Liu, **Tianxin Wei**, Hyunsik Yoo, Zhichen Zeng, Deqing Yang

➢ **ReMix: Reinforcement Routing for Mixtures of LoRAs in LLM Finetuning**
Ruizhong Qiu, Hanqing Zeng, Yinglong Xia, Yiwen Meng, Ren Chen, Jiarui Feng, Dongqi Fu, Qifan Wang, Jiayi Liu, Jun Xiao, Xiangjun Fan, Benyu Zhang, Hong Li, Zhining Liu, Hyunsik Yoo, Zhichen Zeng, **Tianxin Wei**, Hanghang Tong

➢ **Panda: Test-Time Adaptation with Negative Data Augmentation**
Ruxi Deng, Wenxuan Bao, **Tianxin Wei**, Jingrui He

➢ **Simple is Better than Complex: A Representation-centric Perspective for Prompt-based Vision-Language Fusion**
Jinhong Ni, Renjie Wu, Yujia Yin, **Tianxin Wei**, Zhongli Li, Yifan Chen

➢ **GT2Vec: Large Language Models as Multi-Modal Encoders for Text and Graph-Structured Data**
Jiacheng Lin, Kun Qian, Haoyu Han, Nurendra Choudhary, **Tianxin Wei**, Zhongruo Wang, Sahika Genc, Edward W Huang, Sheng Wang, Karthik Subbian, Danai Koutra, Jimeng Sun

Before
➢ **Information Retrieval in Finance**
Fuli Feng*, **Tianxin Wei***, Xiangnan He, Cheng Luo, Tat-seng Chua

Community Service

PC/Reviewer: CIKM 2021–2024, ICML 2022–2025, NeurIPS 2022–2025, AAAI 2023–2025, ICLR 2023–2026, KDD 2023–2026, ACL 2023, EMNLP 2023, LoG 2022, WSDM 2023

Journal Reviewer: TOIS, Machine Learning, TKDE, DMKD, Information Fusion, TMLR, TKDD

Subreviewer: WWW 2020, SIGIR 2021–2022, KDD 2022

Awards

2025: KDD Outstanding Reviewer

2024: Amazon Internship Fellowship ($40k)

2024: University Nomination (Top 3) for Apple Scholars in AI/ML

2023: NeurIPS Scholar Award

2022: NeurIPS Scholar Award

2023: ICML Grant Award

2023: UIUC Conference Presentation Award

2021: Best Paper Honorable Mention, SIGIR

2017–2020: USTC Outstanding Undergraduate Scholarship

2016: USTC Freshman Undergraduate Scholarship