Jiawei Liu

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https://scholar.google.com/citations?user=ufius3MAAAAJ&hl=zh-CN
2000-01 Male

Research interests

Graph Machine Learning (16 papers), AI for EDA (8 papers, AIG learning*3, IR drop prediction*3, SAT*2)

Education

Beijing University of Posts and Telecommunications 2020.09 - 2025.07

Computer Science and Technology, PhD Beijing

Beijing University of Posts and Telecommunications 2016.08 - 2020.05

Computer Science and Technology (Experimental Class), Bachelor Beijing

Internship Experience

Department of Computer Science and Engineering, The Chinese University of Hong Kong 2024.09 - Present

HongKong

Research Assistant

Leader: Bei Yu

Main work: Lead the research on GNN-based sequential circuit representation learning.
Outcome:

- Submitted a first-authored paper to IJCAI 2025.

Large Circuit Model Group, National Center of Technology Innovation for EDA 2024.07 - 2024.09

Research Intern Nanjing

Leader: Qiang Xu

Main work: Lead the research on GNN-based combinational circuit representation learning.

Outcome:

- Achieved a 43.01% improvement in Recall for subcircuit output boundary prediction, with a reduction of 94.74% in training time.
- Published a first-authored paper on DATE 2025.

Honors & Awards

The first prize of Integrated Circuit EDA Elite Challenge 2023 (Top 3/80) 2023.12

Beijing Outstanding Graduate 2020.06

National second prize of China Undergraduate Mathematical Contest in Modeling 2018.10

Recent Publications

WideGate: Beyond Directed Acyclic Graph Learning in Subcircuit Boundary Prediction

Jiawei Liu, Zhiyan Liu, Xun He, Jianwang Zhai, Zhengyuan Shi, Qiang Xu, Bei Yu, Chuan Shi. (DATE 2025, CCF-B)

PolarGate: Breaking the Functionality Representation Bottleneck of And-Inverter Graph Neural Network

Jiawei Liu, Jianwang Zhai, Mingyu Zhao, Zhe Lin, Bei Yu, Chuan Shi. (ICCAD 2024, CCF-B)

PGAU: Static IR Drop Analysis for Power Grid using Attention U-Net Architecture and Label Distribution Smoothing

Feng Guo*, **Jiawei Liu***, Jianwang Zhai, Jingyu Jia, Kang Zhao, Chuan Shi. (GLSVLSI 2024)

SATGL: an Open-source Graph Learning Toolkit for Boolean Satisfiability

Hongtao Cheng*, **Jiawei Liu***, Jianwang Zhai, Mingyu Zhao, Cheng Yang, Chuan Shi. (ISEDA 2024)

Graph Neural Network based Time Estimator for SAT Solver

Jiawei Liu, Wenyi Xiao, Hongtao Cheng, Chuan Shi. (International Journal of Machine Learning and Cybernetics, JCR Q2)

Towards Graph Foundation Models: A Survey and Beyond.

Jiawei Liu*, Cheng Yang*, Zhiyuan Lu, Junze Chen, Yibo Li, Mengmei Zhang, Ting Bai, Yuan Fang, Lichao Sun, Philip S. Yu, Chuan Shi. (Submitted to TPAMI, arXiv avaliable)

Heterogeneous Spatio-temporal Graph Contrastive Learning for Point-of-Interest Recommendation

Jiawei Liu, Haihan Gao, Cheng Yang, Chuan Shi, Tianchi Yang, Hongtao Cheng, Qianlong Xie, Xingxing Wang, Dong Wang. (Tsinghua Science and Technology, JCR Q1)

Other Publications

IRGNN: A Graph-based Framework Integrating Numerical Solution and Point Cloud for Static IR Drop Prediction.

Feng Guo, Yueyue Xi, Jianwang Zhai, Jingyu Jia, **Jiawei Liu**, Kang Zhao, Chuan Shi. (DAC 2025, CCF-A)

IR-Fusion: A Fusion Framework for Static IR Drop Analysis Combining Mathematical Solutions and Machine Learning

Feng Guo, Jianwang Zhai, Jingyu Jia, **Jiawei Liu**, Kang Zhao, Bei Yu, Chuan Shi. (DATE 2025, CCF-B)

Graph Foundation Model

Chuan Shi, Junze Chen, **Jiawei Liu**, Cheng Yang. (Frontiers of Computer Science, JCR Q1)

Endowing Pre-trained Graph Models with Provable Fairness

Zhongjian Zhang, Mengmei Zhang, Yue Yu, Cheng Yang, **Jiawei Liu**, Chuan Shi. (WWW 2024, CCF-A)

Abnormal Event Detection via Hypergraph Contrastive Learning

Bo Yan, Cheng Yang, Chuan Shi, **Jiawei Liu**, Xiaochen Wang. (SDM 2023, CCF-B)

Learning to Distill Graph Neural Networks

Cheng Yang, Yuxin Guo, Yao Xu, Chuan Shi, **Jiawei Liu**, Chunchen Wang, Xin Li, Ning Guo, Hongzhi Yin. (WSDM 2023, CCF-B)

A survey on heterogeneous information network based recommender systems: Concepts, methods, applications and resources.

Jiawei Liu, Chuan Shi, Cheng Yang, Zhiyuan Lu, Philip S.Yu. (AI Open)

Extract the Knowledge of Graph Neural Networks and Go Beyond it: An Effective Knowledge Distillation Framework

Cheng Yang, **Jiawei Liu**, Chuan Shi. (WWW2021, CCF-A)

Decorrelated Clustering with Data Selection Bias

Xiao Wang, Shaohua Fan, Kun Kuang, Chuan Shi, **Jiawei Liu**, Bai Wang. (IJCAI 2020, CCF-A)