

Xingbo Fu

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Research Interests

My research interests are generally in machine learning and data mining, with a particular focus on graph machine learning, trustworthy machine learning, GraphRAG, and foundation models.

Education

University of Virginia <i>PhD in Computer Engineering</i>	August 2020 – December 2025 (Expected) Charlottesville, Virginia, USA
Xi'an Jiaotong University <i>Master in Control Science and Engineering</i>	September 2017 – June 2020 Xi'an, Shaanxi, China
Xi'an Jiaotong University <i>Bachelor in Automation</i>	September 2013 – June 2017 Xi'an, Shaanxi, China

Experience

Netflix <i>Machine Learning Research Intern</i>	June 2025 – Present Los Gatos, California, USA
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- **Knowledge graph-enhanced retrieval-augmented generation (RAG)**

Amazon <i>Applied Scientist Intern</i>	May 2024 – August 2024 Seattle, Washington, USA
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- **Morel pre-training and fine-tuning:** temporal graph foundation model pre-training via link prediction and fine-tuning for fraud detection on Amazon marketplace data
- **Algorithmic design:** edge type-wise graph prompting for temporal graph foundation model adaptation
- **Performance evaluation:** empirical validation of graph prompting on production data for fraud detection, achieving 2.84% performance improvement

University of Virginia <i>Research Assistant</i>	August 2021 – Present Charlottesville, Virginia, USA
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- **Graph foundation models:** graph prompt tuning for graph model adaptation (ICLR 2025, KDD 2025)
- **Federated graph learning:** collaborative training of graph models over heterogeneous graph data (AAAI 2025, KDD 2024, TMLR 2024, arXiv 2024, KDD 2023, KDD Explorations 2022)
- **AI for science:** spatial-temporal learning in healthcare (ICHI 2023)

Publications

- **Edge Prompt Tuning for Graph Neural Networks**
Xingbo Fu, Yinhan He, Jundong Li
The 13th International Conference on Learning Representations (ICLR 2025)
- **Graph Prompting for Graph Learning Models: Recent Advances and Future Directions**
Xingbo Fu, Zehong Wang, Zihan Chen, Jiazheng Li, Yaochen Zhu, Zhenyu Lei, Cong Shen, Yanfang Ye, Chuxu Zhang, Jundong Li
The 31st ACM SIGKDD Conference on Knowledge Discovery & Data Mining (KDD 2025)
- **Virtual Nodes Can Help: Tackling Distribution Shifts in Federated Graph Learning**
Xingbo Fu, Zihan Chen, Yinhan He, Song Wang, Binchi Zhang, Chen Chen, Jundong Li
The 39th Annual AAAI Conference on Artificial Intelligence (AAAI 2025)

- **A Survey of Scaling in Large Language Model Reasoning**
Zihan Chen, Song Wang, Zhen Tan, **Xingbo Fu**, Zhenyu Lei, Peng Wang, Huan Liu, Cong Shen, Jundong Li
arXiv preprint arXiv:2504.02181 (2025)
- **Federated Graph Learning with Structure Proxy Alignment**
Xingbo Fu, Zihan Chen, Binchi Zhang, Chen Chen, Jundong Li
The 30th ACM SIGKDD Conference on Knowledge Discovery & Data Mining (KDD 2024)
- **Federated Graph Learning with Graphless Clients**
Xingbo Fu, Song Wang, Yushun Dong, Binchi Zhang, Chen Chen, Jundong Li
Transactions on Machine Learning Research (TMLR 2024)
- **Safety in Graph Machine Learning: Threats and Safeguards**
Song Wang, Yushun Dong, Binchi Zhang, Zihan Chen, **Xingbo Fu**, Yinhan He, Cong Shen, Chuxu Zhang, Nitesh V. Chawla, and Jundong Li
arXiv preprint arXiv:2405.11034 (2024)
- **Federated Few-Shot Learning**
Song Wang, **Xingbo Fu**, Kaize Ding, Chen Chen, Huiyuan Chen, Jundong Li
The 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2023)
- **Spatial-Temporal Networks for Antibioqram Pattern Prediction**
Xingbo Fu, Chen Chen, Yushun Dong, Anil Vullikanti, Eili Klein, Gregory Madden, Jundong Li
The 11th IEEE International Conference on Healthcare Informatics (IEEE ICHI 2023)
- **Federated Graph Machine Learning: A Survey of Concepts, Techniques, and Applications**
Xingbo Fu, Binchi Zhang, Yushun Dong, Chen Chen, Jundong Li
ACM SIGKDD Explorations Newsletter 2022
- **Online Clustering based Fault Data Detection Method for Distributed PV Sites**
Shujie Wang, Feng Gao, Jiang Wu, Chao Zheng, **Xingbo Fu**, and Fangwei Duan
The 39th Chinese Control Conference (CCC 2020)
- **Spatiotemporal Attention Networks for Wind Power Forecasting**
Xingbo Fu, Feng Gao, Jiang Wu, Xinyu Wei, Fangwei Duan
International Conference on Data Mining Workshops (ICDMW 2019)
- **A Simulation Approach to Multi-Station Solar Irradiance Data Considering Temporal Correlations**
Xingbo Fu, Feng Gao, Jiang Wu, Ruanming Huang, Yichao Huang, Fei Fei
The 8th IEEE Innovative Smart Grid Technologies - Asia (ISGT Asia 2019)
- **Wind Power Capacity Planning in Enterprise's Microgrid based on Approximation Expectation of Operation Cost**
Yuzhou Zhou, Qiaozhu Zhai, **Xingbo Fu**, Xiaohong Gaun, Feng Gao, Jiang Wu
The 2019 IEEE Power & Energy Society General Meeting (PESGM 2019)
- **A Simulation Method of Solar Irradiance Data Based on Feature Clustering and Markov Transition Probability Matrix**
Xingbo Fu, Feng Gao, Jiang Wu, Xiaohong Gaun, Xuan Li, Pengyuan Liu
The 13th World Congress on Intelligent Control and Automation (WCICA 2018)
- **Hybrid Features based K-means Clustering Algorithm for use in Electricity Customer Load Pattern Analysis**
Pengyuan Liu, Chenye Yang, Jiang Wu, **Xingbo Fu**, Ruanming Huang, Fei Fei
The 37th Chinese Control Conference (CCC 2018)

Tutorials

- **Graph Prompting for Graph Learning Models: Recent Advances and Future Directions**
Xingbo Fu, Zehong Wang, Zihan Chen, Jiazheng Li, Yaochen Zhu, Zhenyu Lei, Cong Shen, Yanfang Ye, Chuxu Zhang, Jundong Li
The 31st ACM SIGKDD Conference on Knowledge Discovery & Data Mining (KDD 2025)
- **Federated Graph Learning: Recent Advances and Future Directions**
Xingbo Fu, Zihan Chen, Binchi Zhang, Chen Chen, Jundong Li
SIAM International Conference on Data Mining (SDM 2025)

Teaching

- Teaching assistant, Probability (APMA 3100), Spring 2023
- Teaching assistant, Geometry of Data (ECE/CS 6501), Fall 2022
- Teaching assistant, Applied Statistics and Probability (APMA 3110), Spring 2022

Awards

- SDM Best Doctoral Forum Poster Award (runner-up), 2025
- SDM Student Travel Award, 2025
- KDD Student Travel Award, 2024
- iPRIME Fellowship Award, 2024
- SDM Student Travel Award, 2023
- Graduate with Honor (10%) (Xi'an Jiaotong University), 2020
- Outstanding Graduate Student (Xi'an Jiaotong University), 2019
- Graduate with Honor (10%) (Xi'an Jiaotong University), 2017

Technical Skills

- **Languages:** Python, Matlab, Bash, Java, Latex
- **Operating systems:** Windows, UNIX/Linux
- **Technologies:** PyTorch, PyTorch Geometric, TensorFlow, Transformers, NetworkX, DGL, Torchvision, NumPy, Pandas, Scikit-Learn, Matplotlib