Xingbo Fu

PhD in Computer Engineering
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Research Interests

My research interests are generally in machine learning and data mining, with a particular focus on agentic AI, retrieval-augmented generation (RAG), LLM fine-tuning, and graph learning.

Education

University of Virginia
PhD in Computer Engineering

August 2020 — December 2025
Charlottesville, Virginia, USA

Xi'an Jiaotong University
Master in Control Science and Engineering

September 2017 — June 2020
Xi'an, Shaanxi, China

Xi'an Jiaotong University
Bachelor in Automation

September 2013 — June 2017
Xi'an, Shaanxi, China

Experience

Netflix
Machine Learning Research Intern

June 2025 — September 2025
Los Gatos, California, USA

- **Pipeline design**: chat agent design for question answering based on Netflix Content Knowledge Graph
- **Application development**: GraphRAG-enhanced AI agent development using LangChain and fine-tuned LLMs
- **Performance evaluation**: dataset construction and metric design for Text2Cypher evaluation, achieving the SOTA performance against five methods

Amazon
Applied Scientist Intern

May 2024 — August 2024
Seattle, Washington, USA

- **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
Research Assistant

August 2021 — December 2025
Charlottesville, Virginia, USA

- **Graph foundation models**: graph prompt tuning for graph model adaptation
- **Federated graph learning**: collaborative training of graph models over heterogeneous graph data
- **AI for science**: spatial-temporal learning in antibiogram pattern prediction

Selected Publications

- **GraphTOP: Graph Topology-Oriented Prompting for Graph Neural Networks**
  Xingbo Fu, Zhenyu Lei, Zihan Chen, Binchi Zhang, Chuxu Zhang, Jundong Li
  The 39th Annual Conference on Neural Information Processing Systems (NeurIPS 2025)

- **From Cross-Task Examples to In-Task Prompts: A Graph-Based Pseudo-Labeling Framework for In-context Learning**
  Zihan Chen, Song Wang, *Xingbo Fu*, Chengshuai Shi, Zhenyu Lei, Cong Shen, Jundong Li
  The 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP 2025 Findings)

- **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)

- **FedHERO: A Federated Learning Approach for Node Classification Task on Heterophilic Graphs**
  Zihan Chen, Xingbo Fu, Yushun Dong, Jundong Li, Cong Shen
  Transactions on Machine Learning Research (TMLR 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)

- **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 Antibiogram 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

- **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)

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

Technical Skills

- **Languages**: Python, Matlab, Bash, Java, Latex
- **Operating systems**: Windows, UNIX/Linux
- **Technologies**: PyTorch, PyTorch Geometric, LangChain, Streamlit, Neo4j, TensorFlow, Transformers, NetworkX, DGL, Torchvision, NumPy, Pandas, Scikit-Learn, Matplotlib