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, and foundation models.

Education

University of Virginia
PhD in Computer Engineering

August 2020 — December 2025 (Expected)
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

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 2020 — Present
Charlottesville, Virginia, USA

- **Graph foundation models**: graph prompt tuning for graph model adaptation (ICLR 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)

- **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)

- **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 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

- **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)

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

- 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