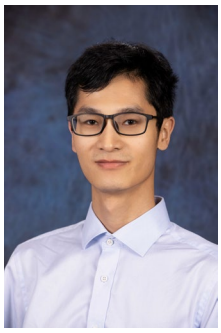

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Education

PhD, The Pennsylvania State University, US, 2022

Bachelor of Computer Science, Beihang University, China, 2017

Academic Appointments

Assistant Professor (Presidential Early Career Professorship, SMU-PEP),
School of Computing and Information Systems, Singapore Management University,
July 2026 – Present

Assistant Professor (Tenure-Track),
Knight Foundation School of Computing and Information Sciences, Florida International University
August 2022 – June 2026

Awards and Honors

TrustLOG Best Paper Award Runner-Up, WWW Conference, 2024
AI4TS Best Paper Award, IJCAI Conference, 2023
College of IST Ph.D. Award for Research Excellence, Penn State University, 2021
ICDM Best Paper Candidate, IEEE International Conference on Data Mining, 2018
WSDM CUP Runner Up – Entity Ranking Challenge, 2016

Professional Memberships

IEEE Member

RESEARCH

Research Interests

Trustworthy AI and AI for Science: Explainable AI, Robust AI, Graph Neural Networks, Time Series Analysis, Physics-Informed Neural Networks, AI for Environmental Science, AI for Healthcare

Publications

Journal Articles [Refereed]

- D. Luo, T. Zhao, W. Cheng, D. Xu, F. Han, W. Yu, X. Liu, H. Chen, X. Zhang. "Towards Inductive and Efficient Explanations for Graph Neural Networks." IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2024.
- D. Luo, Y. Bian, Y. Yan, X. Yu, J. Huan, X. Liu, X. Zhang. "Random Walk on Multiple Networks." IEEE Transactions on Knowledge and Data Engineering (TKDE), 2023.
- D. Luo, S. Ma, Y. Yan, C. Hu, X. Zhang, and J. Huai. "A Collective Approach to Scholar Name Disambiguation." IEEE Transactions on Knowledge and Data Engineering (TKDE), 2022.
- T. Zhao, D. Luo, X. Zhang, S. Wang. "Faithful and Consistent Graph Neural Network Explanations with Rationale Alignment." ACM Transactions on Intelligent Systems and Technology (TIST), 2023.
- J. Ding et al. "Large Language Multimodal Models for New-Onset Type 2 Diabetes Prediction using Five-Year Cohort Electronic Health Records." Scientific Reports, 2024.
- R. Tanvir, M. Islam, M. Sobhan, D. Luo, A. Mondal. "MOGAT: An Improved Multi-Omics Integration Framework Using Graph Attention Networks." International Journal of Molecular Sciences (IJMS), 2024.
- Y. Bian, D. Luo, Y. Yan, W. Cheng, W. Wang, and X. Zhang. "Memory-based Random Walk for Multi-Query Local Community Detection." Knowledge and Information Systems (KAIS), 2020.

Conference Proceedings

- Z. Chen, J. Ni, H. Salehi, X. Zheng, E. Schafir, F. Shirani, D. Luo. "Explanation-Preserving Augmentation for Semi-Supervised Graph Representation Learning." AAAI, 2026.
- S. Gao, X. Zheng, D. Luo, S. Di, W. Dong. "LUMOS: Democratizing SciML Workflows with L0-Regularized Learning." IPDPS, 2026.

- M. Akewar, S. Madireddy, D. Luo, J. Bhimani. "KORAL: Knowledge Graph Guided LLM Reasoning for SSD Operational Analysis." IPDPS, 2026.
- A. Ma, D. Luo, and M. Sha. "MMFNet: Multi-Scale Frequency Masking Neural Network for Multivariate Time Series Forecasting." SAC, 2026.
- X. Zheng, F. Shirani, Z. Chen, C. Lin, W. Cheng, W. Guo, D. Luo. "F-Fidelity: A Robust Framework for Faithfulness Evaluation of Explainable AI." ICLR, 2025.
- G. Li, J. Yang, S. Liang, and D. Luo. "Elevating Spectral GNNs through Enhanced Band-pass Filter Approximation." WWW, 2025.
- H. Hsu et al. "MedPlan: A Two-Stage RAG-Based System for Personalized Medical Plan Generation." ACL, 2025.
- C. Shen, Z. Chen, D. Luo, D. Xu, H. Chen, J. Ni. "Exploring Multi-Modal Integration with Tool-Augmented LLM Agents for Precise Causal Discovery." ACL Findings, 2025.
- J. Zhang, X. Liu, D. Luo, H. Wei. "Is Your Explanation Reliable: Confidence-Aware Explanation on Graph Neural Networks." SIGKDD, 2025.
- X. Liu, D. Luo, W. Gao, Y. Liu. "3DGraphX: Explaining 3D Molecular Graph Models via Incorporating Chemical Priors." SIGKDD, 2025.
- J. Ding, D. Luo, A. Zilverstand, F. Liu. "NeuroTree: Hierarchical Functional Brain Pathway Decoding for Mental Health Disorders." ICML, 2025.
- J. Ni et al. "Harnessing Vision Models for Time Series Analysis: A Survey." IJCAI Survey Track, 2025.
- D. Luo et al. "GitTemporalAI: Leveraging Temporal Knowledge Graphs and LLMs for Multi-Agent Repository Intelligence." MARW Workshop at AAAI, 2025.
- A. Ma, J. Rodriguez, M. Sha, D. Luo. "Sensorless Air Temperature Sensing Using LoRa Link Characteristics." DCOSS-IoT, 2025.
- Z. Chen, J. Zhang, J. Ni, X. Li, Y. Bian, et al. "Generating In-Distribution Proxy Graphs for Explaining Graph Neural Networks." ICML, 2024.
- Z. Liu, T. Wang, J. Shi, X. Zheng, Z. Chen, et al. "TimeX++: Learning Time-Series Explanations with Information Bottleneck." ICML, 2024.
- X. Zheng, T. Wang, W. Cheng, A. Ma, H. Chen, M. Sha, D. Luo. "Parametric Augmentation for Time Series Contrastive Learning." ICLR, 2024.
- X. Zheng, F. Shirani, T. Wang, W. Cheng, Z. Chen, H. Chen, H. Wei, D. Luo. "Towards Robust Fidelity for Evaluating Explainability of Graph Neural Networks." ICLR, 2024.
- R. Huang, F. Shirani, D. Luo. "Factorized Explainer for Graph Neural Networks." AAAI, 2024.
- J. Zhang, Z. Chen, H. Mei, D. Luo, H. Wei. "RegExplainer: Generating Explanations for Graph Neural Networks in Regression Task." NeurIPS, 2024.
- Q. Ren, D. Luo, D. Song. "Rank Supervised Contrastive Learning for Time Series Classification." ICDM, 2024.
- J. Xu, E. Dai, D. Luo, X. Zhang, S. Wang. "Shape-aware Graph Spectral Learning." CIKM, 2024.
- T. Zhao, D. Luo, X. Zhang, S. Wang. "Multisource Unsupervised Domain Adaptation on Graphs with Transferability Modeling." SIGKDD, 2024.
- Z. Liu et al. "Explaining Time Series via Contrastive and Locally Sparse Perturbations." ICLR, 2024.
- B. Ousat, D. Luo, A. Kharraz. "Breaking the Bot Barrier: Evaluating the Effectiveness of Adversarial AI Techniques Against Multi-Modal Defense Models." WWW (Short Paper), 2024.
- J. Zhang, D. Luo, H. Wei. "MixupExplainer: Generalizing Explanations for Graph Neural Networks with Data Augmentation." SIGKDD, 2023.
- D. Luo, W. Cheng, Y. Wang, D. Xu, J. Ni, W. Yu, X. Zhang, Y. Liu, Y. Chen, H. Chen, X. Zhang. "Time Series Contrastive Learning with Information-Aware Augmentations." AAAI, 2023.
- H. Xuanyuan, T. Zhao, and D. Luo. "Shedding Light on Random Dropping and Oversmoothing." NeurIPS Workshop: New Frontiers in Graph Learning, 2023.
- M. Lin, M. Cheng, D. Luo, Y. Chen. "CLExtract: Recovering Highly Corrupted DVB/GSE Satellite Stream with Contrastive Learning." SpaceSec@NDSS, 2023.
- X. Zheng, T. Wang, S. Chowdhury, R. Sun, D. Luo. "Unsafe Behavior Detection with Adaptive Contrastive Learning in Industrial Control Systems." EuroS&PW, 2023.
- T. Zhao, D. Luo, X. Zhang, S. Wang. "Towards Faithful and Consistent Explanations for Graph Neural Networks." WSDM, 2023.
- T. Wang, W. Cheng, D. Luo, W. Yu, J. Ni, L. Tong, H. Chen, X. Zhang. "Personalized federated learning via heterogeneous modular networks." ICDM, 2022.

- T. Zhao, D. Luo, X. Zhang, S. Wang. "TopoImb: Toward Topology-level Imbalance in Learning from Graphs." LOG, 2022.
- D. Luo, W. Cheng, W. Yu, B. Zong, J. Ni, H. Chen, X. Zhang. "Learning to Drop: Robust Graph Neural Network via Topological Denoising." WSDM, 2021.
- D. Xu, W. Cheng, D. Luo, H. Chen, X. Zhang. "InfoGCL: Information-aware Graph Contrastive Learning." NeurIPS, 2021.
- D. Xu, W. Cheng, J. Ni, D. Luo, et al. "Deep Multi-Instance Contrastive Learning with Dual Attention for Anomaly Precursor Detection." SDM, 2021.
- D. Luo, Y. Bian, X. Zhang, J. Huan. "Attentive Social Recommendation: Towards User and Item Diversities." DLG-AAAI Workshop, 2021.
- D. Luo, W. Cheng, D. Xu, W. Yu, B. Zong, H. Chen, X. Zhang. "Parameterized Explainer for Graph Neural Network." NeurIPS, 2020. (900+ citations)
- D. Luo, Y. Bian, Y. Yan, X. Liu, J. Huan, X. Zhang. "Local Community Detection in Multiple Networks." SIGKDD, 2020.
- D. Luo, J. Ni, S. Wang, Y. Bian, X. Yu, X. Zhang. "Deep Multi-Graph Clustering via Attentive Cross-Graph Association." WSDM, 2020.
- D. Xu, W. Cheng, D. Luo, X. Zhang. "Adaptive Neural Network for Node Classification in Dynamic Networks." ICDM, 2019.
- D. Xu, W. Cheng, D. Luo, X. Zhang. "Spatio-Temporal Attentive RNN for Node Classification in Temporal Attributed Graphs." IJCAI, 2019.
- Y. Yan, Y. Bian, D. Luo, D. Lee, X. Zhang. "Constrained Local Graph Clustering by Colored Random Walk." WWW, 2019.
- Y. Bian, Y. Yan, W. Cheng, W. Wang, D. Luo, X. Zhang. "On Multi-Query Local Community Detection." ICDM, 2018.
- S. Ma, C. Gong, R. Hu, D. Luo, C. Hu, J. Huai. "Query Independent Scholarly Article Ranking." ICDE, 2018.
- Y. Yan, D. Luo, J. Ni, H. Fei, W. Fan, X. Yu, J. Yen, X. Zhang. "Local Graph Clustering by Multi-Network Random Walk with Restart." PAKDD, 2018.
- D. Luo, C. Gong, R. Hu, L. Duan, and S. Ma. "Ensemble Enabled Weighted PageRank." WSDM CUP, 2016.

Research Grants

1. NSF Core IIS (Award #2529283), Lead-PI. "An Information-Theoretic Framework for Explainable and Explanation-Assisted Machine Learning." Co-PIs: F. Shirani, X. Zhang. Total: $500,000 (FIU Share: $333,000).

2. NSF-CCF (Award #2241057), Lead-PI. "Collaborative Research: CIF: Small: A New Paradigm for Distributed Information Processing, Simulation and Inference in Networks." Total: $249,962. Sep 2022 – Nov 2025.

3. NSF-ECCS (Award #2242700), PI. "Collaborative Research: CCSS: Towards Energy-Efficient Millimeter Wave Wireless Networks." Total: $250,000. Sep 2023 – Aug 2026.

4. CAHSI-Google, Lead-PI. "AI-Driven Compound Flood Forecasting and Reasoning for Gulf Coast Regions." Co-PI: Q. Zhu. Total: $90,000 (FIU Share: $50,000). Sep 2025 – Sep 2026.

TEACHING

Teaching Areas

Data Mining, Machine Learning, Data Science, Explainable AI

EXTERNAL SERVICE – PROFESSIONAL

Grant Review Panels: Swiss National Science Foundation Reviewer, 2025 U.S. DOE Panelist, 2024 U.S. NSF Panelist (SaTC), 2023 U.S. NSF Panelist (III), 2022

Area Chair / Senior Program Committee: Area Chair, ICLR, 2026 Area Chair, NeurIPS, 2025 Senior PC, AAAI, 2024, 2025, 2026 Senior PC, IJCAI, 2025 Senior PC, PAKDD, 2025

Program Committee / Reviewer: ICML 2023, 2024, 2025; NeurIPS 2022, 2023, 2024; ICLR 2024, 2025; SIGKDD 2024; WWW 2024, 2025; WSDM 2023, 2024; IJCAI 2024; ICDM 2022, 2024; SDM 2024; ICASSP 2024; WACV 2025; AISTATS 2025; NAACL 2025

Journal Reviewer: IEEE TPAMI, 2023, 2025; IEEE TKDE, 2022–2025; ACM TKDD, 2022–2024