MR. YUNFAN WANG

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EDUCATION BACKGROUND

University of Virginia, USA *Sep 2024 - Now*

- *Ph.D. in School of Computer Science*

Research Interests: Machine Learning (Graphs and LLMs), with interests in scalable and interpretable systems for deployment

Xi'an Jiaotong University, China *Sep 2021 - Jun 2024*

- *Master of Engineering in Computer Science and Technology* GPA: 3.57/4.0

Advised by Prof. Qinghua Zheng, Academician of Chinese Academy of Engineering
Research Interests: Data mining, Machine learning, Graph anomaly detection

Xi'an Jiaotong University, China *Sep 2017 - Jun 2021*

- *Bachelor of Engineering in Computer Science and Technology (Major)* GPA: 3.94/4.3, Rank: 6/150

Thesis: Detection Method for Tax Purchase and Sales Deviation Based on Anomaly Detection

- *Bachelor of Economics in Economics (Minor, Second Degree)*

Thesis: Research of the Impact of Informatization on Economic Growth

TECHNICAL SKILLS

Programming:	Python, Matlab, R, C/C++
Libraries&Software:	PyTorch, Scipy, Scikit-learn, Pandas, Networkx, MySQL
System:	Linux system administration, Server group management
Language:	English (IELTS: 7.0, Listening: 7.5, Reading: 7.0, Writing: 6.0, Speaking: 6.5)

PUBLICATIONS

Zhen Peng, Yunqi Xue, **Yunfan Wang**, Qika Lin, Chao Shen. Estimating Node Abnormalities from Imprecise Subgraph-Level Supervision. IEEE Transactions on Network Science and Engineering (2025 Accepted).

Zhen Peng, **Yunfan Wang**, Qika Lin, Bin Shi, Chen Chen, Bo Dong, and Chao Shen. End-to-End Abnormal Subgraph Detection via Subgraph-Level Contrastive Learning. IEEE Transactions on Neural Networks and Learning Systems (2025).

Zhen Peng, **Yunfan Wang**, Qika Lin, Bo Dong, and Chao Shen. When bipartite graph learning meets anomaly detection in attributed networks: Understand abnormalities from each attribute. Neural Networks (2025): 107194.

Chen Chen, **Yunfan Wang**, Gursharn Kaur, Aniruddha Adiga, Baltazar Espinoza, Srinivasan Venkatramanan, Andrew Warren et al. "Wastewater-based Epidemiology for COVID-19 Surveillance and Beyond: A Survey." Epidemics, Volume 49(2024): 100793.

Bin Shi, Bo Dong, Yiming Xu, Jiaxiang Wang, **Yunfan Wang**, and Qinghua Zheng. An edge feature aware heterogeneous graph neural network model to support tax evasion detection. Expert Systems with Applications 213 (2023): 118903.

PROJECTS

Transaction Support for Model Context Protocol(MCP) and LLM Execution Mar 2025 – Jun 2025

- Designed a two-phase commit-based framework to provide database-like transactional guarantees for LLM execution under the Model Context Protocol, including exactly-once semantics and rollback support.
- Implemented sandboxed execution using the `try` tool to enable safe speculative runs.
- Leveraged FoundationDB for logging execution traces and managing rollback metadata.

Data-driven Multi-View Brain Network Analysis for Disease Diagnosis with LLM Boost Aug 2024 - Dec 2024

- The first rotation project in the UVA Department of Computer Science.
- Developed a data-driven framework utilizing graph neural networks and LLMs for multi-view brain network analysis, addressing key challenges in disease diagnosis, including limited labeled data, biological semantics integration, class imbalance, and interpretability, with preliminary results achieved on self-supervised learning.

Towards Mechanistic Interpretability for Graph Foundation Models **Oct 2024 - Nov 2024**

- Submitted to ICDE 2025.
- Explored the mechanistic interpretability of Graph Foundation Models, focusing on identifying unified computational subnetworks and enhancing human-understandable reasoning processes.
- As the third author, participated in project inception, contributed to manuscript writing and visualizations, implemented synthetic data generation, and conducted experiments on three chemical molecular datasets.

Tax big data analysis and application **May 2023 - Dec 2023**

- State Taxation Administration of The People's Republic of China - Xi'an Jiaotong University Cooperative Project.
- A tax-payer network was constructed and the graph analysis method was used to detect anomalies among 1 million enterprises in Northwest China. Taxes of over 1 million RMB were recovered.

Research and development project on tax preference calculation and risk identification based on knowledge graph **Oct 2021 - Jul 2022**

- Servyou Software Group Co., Ltd. - Xi'an Jiaotong University Cooperative Project.
- Accessed to all tax data in China. A transaction network was constructed with sampled important enterprises. Then the anomalies were predicted by a graph neural network model.
- Applied to China's Golden Tax System, which redeems tens of millions of taxes.

Establishment of laboratory hardware environment **Jan 2022 - Dec 2022**

- Construction and administration of high-performance and highly available GPU server group with a shared storage pool for the lab.

NVRAM optimization based on LevelDB **Jul 2019 - Jul 2020**

- College student entrepreneurship and innovation provincial-level project.
- Role: project leader.

CVPR class experiment **Mar 2020 - Jul 2020**

- Morphing, Carving, Canny edge detection, Linear regression, Harris corner detection, CNN, Camera Calibration.

The 13th iCAN International Contest of Innovation **May 2019 - Nov 2019**

- A multifunctional desk lamp that integrates storage and charging capabilities.
- Role: project leader.
- Award: First Prize in the Northwest Region, Third Prize Nationwide.
- Patent: National utility model patent CN 210485397 U.

HONORS AND AWARDS

- Outstanding postgraduate Student of Xi'an Jiaotong University 2023
- The First Prize Scholarship of Academic Records 2022, 2023 (2 times)
- Outstanding postgraduate Student Leader of Xi'an Jiaotong University 2022
- Outstanding Undergraduate Student Leader of Xi'an Jiaotong University 2019, 2020, 2021(3 times)
- The First Prize Scholarship of Xi'an Jiaotong University 2020
- Academic Star of Nanyang College of Xi'an Jiaotong University 2020
- Scholarship of Shenzhen Stock Exchange 2019
- Outstanding Undergraduate Student of Xi'an Jiaotong University 2018
- The Second Prize Scholarship of Xi'an Jiaotong University 2018
- Excellent Member of Xi'an Jiaotong University Nanyang College Student Union 2018

WORK EXPERIENCE

- Teaching Assistant of The Introduction of Computer Science 2021-2022
- Member of Xi'an Jiaotong University Postgraduate Student Union 2021-2022
- Volunteer in Student Academic Tutoring Center: Tutoring others and developing tutoring materials 2019-2021
- Class Monitor of the undergraduate class 2018-2021