

# YIFEI SUN

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## EDUCATION

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**Ph.D. in Computer Science**, Zhejiang University Sept. 2019 - Present  
Supervisor: Prof. Yang Yang

**Bachelor of Computer Science and Technology**, Dalian University of Technology Sept. 2014 - June. 2019

**Bachelor of Japanese**, Dalian University of Technology Sept. 2014 - June. 2019

## RESEARCH INTERESTS

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My research interests lie primarily in the area of *Machine Learning and Data Mining on Graphs*, including but not limited to breaking the limitations of GNNs, graph pre-training, and real-world applications on graph.

## SELECTED PUBLICATIONS

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### Conference Papers:

**Yifei Sun**, Haoran Deng, Yang Yang, Chunping Wang, Jiarong Xu, Renhong Huang, Linfeng Cao, Yang Wang, and Lei Chen. Beyond Homophily: Structure-aware Path Aggregation Graph Neural Network. In Proceedings of the 31st International Joint Conference on Artificial Intelligence (IJCAI'22), 2022. [\[pdf\]](#)

Ziwei Chai, Yang Yang, Jiawang Dan, Sheng Tian, Changhua Meng, Weiqiang Wang, and **Yifei Sun**. Towards Learning to Discover Money Laundering Sub-network in Massive Transaction Network. In Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI'23), 2023. [\[PDF\]](#)

### Journal Paper:

Xuan Yang, Yang Yang, Jintao Su, **Yifei Sun**, Shen Fan, Zhongyao Wang, Jun Zhan, and Jingmin Chen. Who's Next: Rising Star Prediction via Diffusion of User Interest in Social Networks. In IEEE Transaction on Knowledge and Data Engineering (TKDE), 2022. [\[PDF\]](#)

## RESEARCH EXPERIENCE

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**Narrow the Gap Between Graph Pre-training and Fine-tuning.** July 2022 - Present  
Institute for Artificial Intelligence, Zhejiang University *Hangzhou, China*

- Proposed to preserve the generative patterns of downstream graphs to narrow the gap between pre-training and fine-tuning.
- Designed a general self-supervised fine-tuning strategy by the graphon reconstruction based on theoretical analysis, and empirically proved its effectiveness on fourteen datasets of two settings.

**Backflow Prediction in Mobile Games.** March 2022 - June 2022  
Institute for Artificial Intelligence, Zhejiang University *Hangzhou, China*

- Proposed to study a novel and valuable problem: backflow prediction which is to predict the return probability of churn users rather than the churn probability.
- Conducted a study of community influence on churn users of a large-scale FPS mobile game dataset from a team-level perspective.
- Designed CoInfNet to jointly model the explicit invitation influence and implicit diffusion process.

**Break the Homophily Limitation of GNNs.** July 2021 - Jan. 2022  
Institute for Artificial Intelligence, Zhejiang University *Hangzhou, China*

- Proposed a novel path aggregation paradigm to capture the structure context information in both homophily and heterophily graphs.

- Designed an end-to-end model PathNet which leverages order and distance information of path to encode complex semantic information in graphs.
- PathNet achieved superior accuracy by up to 10.08% on node classification benchmarks.

### **Alleviate Recommendation System Disequilibrium.**

Institute for Artificial Intelligence, Zhejiang University

Jan 2021 - May 2021

*Hangzhou, China*

- Proposed to address the unfair recommendation problem in online marketing by analyzing the rising star problem.
- Designed a RiseNet with a novel GNN module to quantify the user interest in dynamic user-sharing networks and a coupled mechanism to capture the interaction between the user graph data and the item time-series data.
- RiseNet achieved up to 7.24% improvement in F1 score on the real-world Taocode.

## **SELECTED ACTIVITIES**

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### **Assistance in Managing AINet Group.**

July. 2021 - Present

- Organized weekly paper sharing and course study sessions with a total accumulation of 100+ papers and 2 courses.
- Responsible for server security and resource allocation as an administrator.

### **Mentorship in InterNet Association (INA) of Zhejiang University.**

Nov. 2020 - Present

- Mentored two junior students of machine learning group to conduct their interested projects on topics like graph mining and time series modeling.

## **SELECTED HONORS**

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- Excellent graduate student, Zhejiang University. 2020 - 2021, 2021 - 2022
- Merit graduate student, Zhejiang University. 2020 - 2021
- Second-class Academic Scholarship, Dalian University of Technology. 2017 - 2018

## **SKILLS**

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- **Programming:** Python (PyTorch, PyG, DGL), C++, C, MySQL.
- **Natural Languages:** Mandarin Chinese (Native), English (Proficient), Japanese (N1)