Xuan(Lily) Yang

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Durham, NC, USA

Education

Duke University — Durham, NC, USA
PhD in Computer Science; ***Advisor: Dr. Jian Pei*** — *Sep 2023 – Now*

Zhejiang University — Hangzhou, China
M.S. in Computer Science; ***GPA: 3.98/4.00*** — *Sep 2020 – Mar 2023*

Zhejiang University — Hangzhou, China
B.S. in Digital Media Technology; ***GPA: 3.99/4.00*** — *Sep 2016 – June 2020*

Publications

1. **Xuan Yang**, Yang Yang, Chenhao Tan, Yinghe Lin, Zhengzhe Fu, Fei Wu, Yueting Zhuang. Unfolding and Modeling the Recovery Process after COVID Lockdowns. Scientific Reports 2023.
2. **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, doi: 10.1109/TKDE.2022.3151835, 2022
3. **Xuan Yang**, Quanjin Tao, Xiao Feng, Donghong Cai, Xiang Ren, and Yang Yang. Multimodal Learning with Graph Alignment on Social Media. Preprint.
4. Taoran Fang, Zhiqing Xiao, Chunping Wang, Jiarong Xu, **Xuan Yang**, Yang Yang. DropMessage: Unifying Random Dropping for Graph Neural Networks. **Distinguished** paper, AAAI 2023.
5. Jintao Su, Yang Yang, **Xuan Yang**, Yuxiao Dong and Chilie Tan. DeepGraphlet:Estimating Local Graphlet Frequencies with Graph Neural Networks. Under review.
6. Teng Ke, Yang Yang, Shiliang Pu, **Xuan Yang**, Quanjin Tao, Yifei Sun, Weihao Jiang, Hui Wang and Yingye Yu. Detecting Telecommunication Frauds by Human-in-the-Loop Graph Neural Networks. Under review.

Research Experience

Efficient Data Valuation for Machine Learning Models — Durham, NC
Duke University — *Apr. 2024 – Now*

- Investigated the application of Shapley values in data valuation for machine learning models, exploring "locality" to enhance computational efficiency.
- Developed a locality-based Shapley method that reduces Shapley Value computation, while preserving fairness and uniqueness properties. Designed efficient approximation algorithms.

Multimodal Learning with Graph Alignment on Social Media — Hangzhou, China
Institute for Artificial Intelligence, Zhejiang University — *June 2022 – Dec 2022*

- Incorporate social network with text and image data to enhance user representation learning and create the first large-scale multimodal social media dataset with graph information.
- Propose a multi-step graph alignment pretraining task for mutual information maximization and develop an efficient graph multimodal pretraining framework to fuse multiple modalities.

Unfolding and Modeling the Economic Recovery after COVID Lockdowns — Hangzhou, China
Institute for Artificial Intelligence, Zhejiang University — *Jun 2021 – Feb 2022*

- Propose a novel computational method based on electricity data to understant how cities bounce back from lockdown, which is critical for promoting the global economy and preparing for future pandemics.
- Quantify and model economic recovery, chain effect between sectors and support policy effects.
- Conduct a case study on Hangzhou, China that discovers diverse recovery patterns and various policy effects.

Estimating Graphlet Counts on Billion-scale Graphs Hangzhou, China

Institute for Artificial Intelligence, Zhejiang University *May 2021 – Dec 2021*

- Estimate graphlet counting (time complexity $O(n^3)$) with our DeepGraphlet with k-tuple features and multi-task.
- Achieve 60%+ improvement on the estimation accuracy on real graphs; 20x speedup on billion-scale graphs.

Alleviate Recommendation System Disequilibrium Hangzhou, China

Data and Technology Department, Alibaba *Jan 2021 – May 2021*

- Alleviate the unfair recommendation problem in online marketing by proposing the rising star problem.
- Introduce social network data to support the rising star predict. 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 item time-series data.
- Achieve 30%+ improvement in F1 score on the real-world Taocode case.

Internship Experience

Data and Technology Department, Alibaba Group Hangzhou, China

***Machine Learning Intern**, Data Assets and Algorithm team* *Oct 2020 – Dec 2021*

- Analyzed the family recommendation on Taobao (the largest e-commerce platform in China) and designed a family marketing model for enhancing family goods recommendation.
- Built the billion-scale Taocode recommendation datasets and developed an algorithm to recommend items for "Xiaoheihe" and "Taojianghu" functions on Taobao APP, boosting CTR by 2.3% compared with the baseline production strategy.

Center for Magnetic Nanotechnology, Stanford University Palo Alto, CA

***Research Assistant**, GLAM* *Jan 2019 – Mar 2019*

- Helped collect the amount of seven viruses in serum of 300 patients through GMR biosensors.
- Explored the relationship between the viruses and the liver cancer and discovered weak correlation between the viruses and the liver cancer.

Biomedical Institute for Global Health Research and Technology at NUS Singapore

***Research Assistant**, Big Brain* *June 2018 – Aug 2018*

- Helped develop a mobile app for the Taste Healthy project.
- Developed a crawler to collect food pictures from the web and trained ResNet on the collected data for food identification.

Selected Honors

Excellent Postgraduate students' award	*2023*
Graduate of Triple A graduate, Zhejiang University	*2021 - 2022*
Tencent Technology Excellence Scholarship	*2021 - 2022*
First-class Academic Prize, Zhejiang University	*2021 - 2022*
Award of Honor for Graduate, Zhejiang University	*2021 - 2022*

Selected Acitivities

Teaching Assistant, COMPSCI 316:Introduction to Database Systems 2024 FALL

- Assigned coursework, led weekly discussion sessions, held office hours, course material preparation.

Internet Association of Zhejiang University 2020-2023

- Mentored students that interested in machine learning to conduct related projects and study research topics.

The Volunteer Teaching at Aba Tibetan and Qiang Autonomous Prefecture 2018

- Teached the students at the Tibetan High School (math class) and Futian Hope Primary School (astronomy class).

Qiushichao & ZJU Student Union 2016-2018

- Organize campus sports activities and take charge of event photography, etc.

Skills

Languages: English (TOFEL 108), Chinese

Skills: Python, SQL, C++, C, PyTorch, 3D Modeling (Zbrush, Maya), VR programming (Unity; Unreal Engine), JavaScript, MongoDB

Interests: Photography (PS/ PR); Piano; Painting; Hiking; Dancing