Zhaoxuan Tan

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Research Interests

I am broadly interested in knowledge graphs, social network analysis, natural language processing, and graph mining. My previous research includes Twitter bot detection, knowledge graph reasoning, and graph representation learning, with a special focus on knowledge base reasoning and its integration with NLP, and the human-centered AI for the common good.

Education

Xi'an Jiaotong University, Xi'an, Shaanxi, China (member of the C9 league in China) 2019.08 - present
B.E. in Computer Science and Technology
GPA: 89.1(+3)/100, top 6% [transcript]
Advisor: Prof. Minnan Luo

Publications (* indicates equal contribution)

[1] **Contrastive Learning with Graph Context Modeling for Sparse Knowledge Graph Completion.**
Zhaoxuan Tan, Zilong Chen, Shangbin Feng, Qingyue Zhang, Qinghua Zheng, Jundong Li, Minnan Luo.
arXiv preprint arXiv:2208.07622, 2022.

[2] **TwiBot-22: Towards Graph-Based Twitter Bot Detection.**
Shangbin Feng*, Zhaoxuan Tan*, Herun Wan*, Ningnan Wang*, Zilong Chen*, Binchi Zhang*, Qinghua Zheng, Wenqian Zhang, Zhenyu Lei, Shujie Yang, Xinshun Feng, Qingyue Zhang, Hongrui Wang, Yuhan Liu, Yuyang Bai, Heng Wang, Zijian Cai, Yanbo Wang, Lijing Zheng, Zihan Ma, Jundong Li, Minnan Luo.
In Proceedings of the NeurIPS, Datasets and Benchmarks Track, 2022.

[3] **PAR: Political Actor Representation Learning with Social Context and Expert Knowledge.**
Shangbin Feng, Zhaoxuan Tan, Zilong Chen, Peisheng Yu, Qinghua Zheng, Xiaojun Chang, Minnan Luo.
In Proceedings of Conference on Empirical Methods in Natural Language Processing (EMNLP), 2022.

[4] **Heterogeneity-aware Twitter Bot Detection with Relational Graph Transformers.**
Shangbin Feng, Zhaoxuan Tan, Rui Li, Minnan Luo.
In Proceedings of AAAI Conference on Artificial Intelligence (AAAI), 2022. [15% acceptance rate]

[5] **KALM: Knowledge-Aware Integration of Local, Document, and Global Contexts for Long Document Understanding.**
Shangbin Feng, Zhaoxuan Tan, Wenqian Zhang, Zhenyu Lei, Yulia Tsvetkov.
arXiv preprint arXiv:2210.04105, 2022.

[6] **AHEAD: A Triple Attention Based Heterogeneous Graph Anomaly Detection Approach.**
Shujie Yang, Binchi Zhang, Shangbin Feng, Zhaoxuan Tan, Qinghua Zheng, Ziqi Liu, Minnan Luo.
arXiv preprint arXiv:2208.08200, 2022.

Honors and Awards

Scholarship for Outstanding Students, Third Prize, Xi'an Jiaotong University	2022
AAAI Student Scholarship, Association for the Advancement of Artificial Intelligence	2022
National Second Prize, Contemporary Undergraduate Mathematical Contest in Modeling	2021
Scholarship for Outstanding Students, Second Prize, Xi'an Jiaotong University	2021

Dean's List, Xi'an Jiaotong University 2021
Top Project Runner Up, NUS SoC Summer Workshop 2021
Honorable Mentioned Prize (top 15%), Mathematical Contest in Modeling (MCM) 2021
Scholarship for Outstanding Students, Second Prize, Xi'an Jiaotong University 2020
First Prize in Shaanxi Province, Contemporary Undergraduate Mathematical Contest in Modeling 2020
Dean's List, Xi'an Jiaotong University 2020

Research Experience

Research Assistant, TsvetShop @ University of Washington 2022.10 - present

- Use machine learning algorithms to answer the ultimate question: what's the **bot percentage** on Twitter?
- Combine bot detection models with mixture of experts and train them across different datasets to enhance the generalization ability and community-level bot detection.

Advisor: Prof. Yulia Tsvetkov

Research Assistant, DISA @ National University of Singapore 2022.08 - present

- Understand how the anthropomorphic features of chatbots affect user engagement and user experience.
- Answer what conditions and anthropomorphic features affect human-chatbot interactions.

Advisor: Prof. Renwen Zhang

Research Assistant, Knowledge Engineering Group (KEG) @ Tsinghua University 2022.04 - present

- Unify knowledge graph completion and complex logical query task with pretraining-finetuning paradigm.
- Achieves SOTA, significantly outperform previous SOTA (NBFNet) by over **14.3%** relatively on WN18RR and over **5.7%** on NELL-995.
- Win the 4-th place in the OGB-LSC @ NeurIPS 2022 competition WikiKG90Mv2 track.

Advisor: Prof. Yuxiao Dong

Research Assistant, Luo lab Undergraduate Division (LUD) @ Xi'an Jiaotong University 2021.08 - present

- **Director** of the LUD lab, focusing on graph-based Twitter bot detection, knowledge graph representation learning and its applications in NLP, and promote the undergraduate research.
- Authored 1*NeurIPS'22, 1*EMNLP'22, 1*AAAI'22 papers, and 1*first-author submission to WWW'23.

Advisor: Prof. Minnan Luo

Summer Workshop, SOC @ National University of Singapore (virtual) 2021.05 - 2021.07

- Attend lectures in AI analytics and IoT, build a Twitter bot detection demo.
- Study the effect of heterogeneity in social networks.

Advisor: Dr. Lek Hsiang Hui

Services

Virtual Volunteer, EMNLP 2022
Reviewer for NeurIPS, Datasets and Benchmarks Track 2022
Reviewer for Learning on Graphs Conference 2022
Director of the LUD lab 2022

Skills

Programming Languages:

-Proficient: Python, MATLAB, C/C++

-Capable: Bash, HTML/CSS, Javascript, SQL, Verilog

Tools and Frameworks: PyTorch, LaTeX, Visual Studio, MobaXTerm, Git, ssh, Vim

Natural Languages: Mandarin (native), English (TOEFL 107: R 29, L 29, S 22, W 27), Cantonese (native)