Zhaoxuan Tan

Address: Room 206, Pengkang Building, No. 28, West Xianning Road, Xi'an, China

Email: tanzx9@gmail.com, tanzhaoxuan@stu.xjtu.edu.cn,

Homepage: zhaoxuan.info

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 **social network analysis 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: 89.05 (+3)/100, top 6% [transcript]
Thesis 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.
To appear at The Web Conference (WWW), 2023.

[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   2022.09 - 2023.01
- Using machine learning algorithms to answer what percentage of users on Twitter are bots.
- Worked on KALM, a knowledge-aware language model that jointly incorporates external local, document-level, and global context knowledge for long document understanding.

Advisor: Prof. Yulia Tsvetkov

Virtual Collaboration, CNM @ National University of Singapore   2022.08 - present
- Seeking to understand how the anthropomorphic features of chatbots affect human-chatbot interactions, user engagement, and user experience.
- Crawled data with Twitter API and applied language models to analyze human-chatbot conversations.

Advisor: Prof. Renwen Zhang

Research Assistant, Knowledge Engineering Group (KEG) @ Tsinghua University   2022.04 - 2022.11
- Worked on kgTransformer v2: Unifying Architecture and Pre-training for Knowledge Graph Reasoning.
- Achieved SOTA; significantly outperforms previous SOTA (NBFNet) by over 14.3% relatively on WN18RR and over 5.7% on NELL-995.
- Won 4th place in the OGB-LSC@NeurIPS 2022 competition WikiKG90Mv2 track (CogDL-kgTransformer).

Advisor: Prof. Yuxiao Dong

Research Assistant, Luo lab Undergraduate Division (LUD) @ Xi'an Jiaotong University
- **Member:** Worked on graph-based Twitter bot detection, knowledge graph representation learning, political actor representation learning, and heterogeneous graph anomaly detection.   2021.08 - 2022.06
- Authored 1*NeurIPS'22, 1*EMNLP'22, 1*AAAI'22 papers, and 1*first-author submission to WWW'23.
- **Director**: Promoting undergraduate research by leading a 17-person undergraduate group, and mentoring 9 schoolmates alongside the other senior students.   2022.06 - present

Advisor: Prof. Minnan Luo

Summer Workshop, SoC @ National University of Singapore (virtual)   2021.05 - 2021.07
- Attended lectures in AI analytics and IoT and built a Twitter bot detection demo.
- Studied 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
Web Chair, CSUC21@XJTU	2021

Skills

- Programming Skills: Python, PyTorch, MATLAB, C/C++, bash, HTML/CSS, SQL, LATEX, Git, ssh
- Language Skills: Mandarin (native), English (TOEFL 107: R 29, L 29, S 22, W 27), Cantonese (native)