Yuyang Bai

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Research Interests

My research interests include interpreting and enhancing the knowledge & reasoning ability of Large Language Models, as well as NLP & social network analysis for fairness and common good.

Education

Xi'an Jiaotong University, Xi'an, Shaanxi, China (member of the C9 league in China)   2021.09 - present
Artificial Intelligence Experimental Class
Advisor: Prof. Minnan Luo

University of Notre Dame, Notre Dame, IN, United States   2023.08 - 2023.12
Non-degree Undergraduate (Exchange Student)
Advisor: Prof. Meng Jiang

Publications (* indicates equal contribution)

1. **KGQuiz: Evaluating the Generalization of Encoded Knowledge in Large Language Models**
   Yuyang Bai*, Shangbin Feng*, Vidhisha Balachandran, Zhaoxuan Tan, Shiqi Lou, Tianxing He, Yulia Tsvetkov
   In Proceedings of TheWebConf(WWW), 2024 **(oral)**

2. **Chain-of-Layer: Iteratively Prompting Large Language Models for Taxonomy Induction from Limited Examples**
   Qingkai Zeng*, Yuyang Bai*, Zhaoxuan Tan, Shangbin Feng, Zhenwen Liang, Zhihan Zhang, Meng Jiang
   In Proceedings of CIKM, 2024

3. **CodeTaxo: Enhancing Taxonomy Expansion with Limited Examples via Code Language Prompts**
   Qingkai Zeng*, Yuyang Bai, Zhaoxuan Tan, Zhenyu Wu, Shangbin Feng, Meng Jiang
   Arxiv preprint, 2024

4. **Knowledge Card: Filling LLMs' Knowledge Gaps with Plug-in Specialized Language Models**
   Shangbin Feng, Weijia Shi, Yuyang Bai, Vidhisha Balachandran, Tianxing He, Yulia Tsvetkov.
   In Proceedings of ICLR, 2024 **(oral)**

5. **FactKB: Generalizable Factuality Evaluation using Language Models Enhanced with Factual Knowledge**
   Shangbin Feng, Vidhisha Balachandran, Yuyang Bai, Yulia Tsvetkov.
   In *Proceedings of EMNLP, 2023*

6. **Detecting Spoilers in Movie Reviews with External Movie Knowledge and User Networks**
   Heng Wang, Wenqian Zhang, Yuyang Bai, Zhaoxuan Tan, Shangbin Feng, Qinghua Zheng, Minnan Luo.
   In *Proceedings of EMNLP, 2023*

7. **TwiBot-22: Towards Graph-Based Twitter Bot Detection.**
   Shangbin Feng, ... Yuyang Bai, ... Minnan Luo.
   In *Proceedings of the NeurIPS, Datasets and Benchmarks Track, 2022.*

Research Experience

Research Assistant, Luo lab Undergraduate Division (LUD) @ Xi'an Jiaotong University   2022.02 - present

- Worked on addressing the challenges in Twitter bot detection, by introducing a new, comprehensive graph-based benchmark.
- Worked on improving spoiler detection in online movie reviews by integrating external movie knowledge and user behavior.
- Authored 1*_NeurIPS'22_, 1*_EMNLP'23_.

Advisor: Prof. Minnan Luo

Research Assistant, TsvetShop @ University of Washington   2022.10 - present

- Worked on evaluating the factual consistency of summaries generated by automatic summarization systems, focusing on improving the ability to detect erroneous entities and relations.
- Worked on enhancing large language models with current, domain-specific knowledge without the need for frequent retraining.
- Worked on evaluating the knowledge generalization abilities of large language models across various domains and task complexities.
- Authored 1*_EMNLP'23_, 1*_ICLR'24_, 1*_WWW'24_.

Advisor: Ph.D. student Shangbin Feng, Prof. Yulia Tsvetkov

Research Assistant, DM^2 Lab @ University of Notre Dame   2023.8 - present

- Worked on designing an iterative prompting framework that also includes a ranking filter to induce taxonomies from limited examples and reduce hallucinations in the output taxonomies.
- Worked on crafting an iterative taxonomy expansion framework, CodeTaxo, using code language prompts and a similarity-based filter to integrate emerging concepts into existing taxonomies.
- Authored 1*_CIKM'24_, 1*preprint.

Advisor: Ph.D. student Qingkai Zeng, Prof. Meng Jiang

Research Assistant, OSU NLP group @ Ohio State University   2024.6 - present

- Working on creating a new long-context LLM QA benchmark, introducing new types of questions.

Advisor: Ph.D. student Bernal Jiménez Gutiérrez, Prof. Yu Su

Services

- Reviewer for ACL   from 2024
- Reviewer for COLM   from 2024
- Reviewer for EMNLP   from 2023
- Reviewer for KDD   from 2024
- Reviewer for TheWebConf   from 2024
- Co-Director of the LUD lab   2024-2025

Skills

- Programming Skills: C/C++, Python, PyTorch, MATLAB, LaTeX, Git
- Language Skills: Mandarin (native), English (TOFEL 109: R 30, L 29, S 23, W 27)