

Tianyu Yu

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EDUCATION

Tsinghua University	Beijing, China
M.Eng. in Computer Technology	09/2021 - present
Beihang University	Beijing, China
B.Eng. in Software Engineering	09/2017 - 06/2021
GPA: 91.37 (Ranking: 1/165)	

AWARDS & HONORS

Nomination Award of Shenyuan Model, Beihang University (10/4000+).	12/2020
National Scholarship for Undergraduates (Top 1%) for Twice	11/2018 & 11/2019
Outstanding Winner of Excellent Learner Scholarship of Beihang University (Top 1) for Twice	11/2018 & 11/2019
Merit Student Award of Beihang University for Twice	11/2018 & 11/2019
1st Prize in Social Work Excellence Scholarship	11/2019

Recent Publications

Tianyu Yu, Yuan Yao, Haoye Zhang, Taiwen He, Yifeng Han, Ganqu Cui, Jinyi Hu, Zhiyuan Liu, Hai-Tao Zheng, Maosong Sun, Tat-Seng Chua. RLHF-V: Towards trustworthy MLLMs via behavior alignment from fine-grained correctional human feedback. *CVPR 2024*

Tianyu Yu, Chengyue Jiang, Chao Lou, Shen Huang, Xiaobin Wang, Wei Liu, Jiong Cai, Yangning Li, Yinghui Li, Kewei Tu, Hai-Tao Zheng, Ningyu Zhang, Pengjun Xie, Fei Huang, Yong Jiang. SeqGPT: An out-of-the-box large language model for open domain sequence understanding. *AAAI 2024*

Yuan Yao*, **Tianyu Yu***, Ao Zhang, Mengdi Li, Ruobing Xie, Cornelius Weber, Zhiyuan Liu, Haitao Zheng, Stefan Wermter, Tat-Seng Chua, Maosong Sun. Visually Grounded Commonsense Knowledge Acquisition. *AAAI 2023*

Tianyu Yu, Tianrui Hui, Zhihao Yu, Yue Liao, Sansi Yu, Faxi Zhang, Si Liu*. Cross-Modal Omni Interaction Modeling for Phrase Grounding. *ACM MM 2020*

RESEARCH EXPERIENCE

Aligning MLLMs through Open-Source AI Feedback 2024.01~2024.06

- ❖ Propose the RLAI-F-V framework to mitigate MLLM hallucination under a fully open-source setting.
- ❖ RLAI-F-V 12B achieves SOTA trustworthiness, surpassing GPT-4V by a large margin.
- ❖ The RLAI-F-V-Dataset ranks 2nd place on Hugging Face Trending.

Aligning MLLMs with Fine-grained Correctional Human Feedback 2023.07~2023.12

- ❖ Collects fine-grained correctional human feedback through identify and re-write incorrect spans in responses.
- ❖ Devise a novel Dense DPO algorithm to utilize such feedback, resulting in SOTA MLLM trustworthiness.
- ❖ Paper accepted by CVPR 2024.

Reformulating VLMs to construct MLLMs 2023.02~2023.06

- ❖ Propose to reformulate VLMs such as BEiT-3 as visual prompt generator for MLLMs.
- ❖ Construct a knowledge-intensive high-quality MLLMs instruction dataset by reformulating multiple VL datasets.
- ❖ Achieve SOTA question-answering and multimodal conversation capabilities.

Multiple Semantic Level Entity Set Expansion 2020.04~2021.11

- ❖ Introduced “negative semantic” and “negative seed entity” in entity set expansion task.
- ❖ Constructed two large entity set expansion datasets based on Wikipedia-en and *Harry Potter* series.
- ❖ Devised an algorithm to take use of negative semantic information from input, which improved the expansion accuracy on multiple semantic level.

Sentence-Level Pretraining for Document-Level RE 2020.07~2021.03

- ❖ Designed Sentence-Level ELECTRA pretraining task to learn better sentence representation from large corpus.
- ❖ Designed Entity Context Prediction pretraining task to learn better entity representation from large corpus.
- ❖ Improved F1 score on DocRED comparing to BERT-based baseline by fine-tuning using devised tasks.

Cross-Modal Omni Interaction Modeling for Phrase Grounding 2019.10~2020.07

- ❖ Addressed the phrase grounding accuracy problem as the primary researcher.
- ❖ Devised a novel model to capture complex spatial and semantic relationship among image regions and phrases through multi-level multi-modal interaction.
- ❖ The new method improved the grounding accuracy by 6.15% on Flickr30K Entities and 21.25% on ReferItGame.

Joint Extraction of Relation and Evidence for Document-Level RE 2019.10~2020.05

- ❖ Jointly extract evidence and relation in RE task to help both evidence extraction and relation extraction.
- ❖ Devised a bilinear based entity feature extraction module to improve the relation extraction performance.
- ❖ Using Deep Sets to ensure the permutation invariance of evidences and using beam search to improve efficiency.
- ❖ Improved relation extraction F1 score on DocRED using a novel evidence-guided-attention mechanism.

OTHER INFORMATION

Computer Skills: C, C++, Python, Java, SQL, Pytorch, Tensorflow, Scipy

Languages: Mandarin (Native), English (Proficient)