Tianbao Xie

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Research Focus Areas

My research focuses on developing **embodied AI agents** that can effectively ground natural language and multimodal perception into executable actions across digital and physical environments. These agents aim to assist in computer operation, data analysis, human-robot collaboration, while helping people with disabilities and liberating human labor through AI automation.

Education

The University of Hong Kong • Hong Kong   Aug. 2022 – Present
Ph.D. • Advisor: Tao Yu

Harbin Institute of Technology • Harbin   Aug. 2018 – Jun. 2022
Bachelor of Engineering • *Computer Science* • *Honors School*

Projects & Publications (Selected) [full list]

OSWorld: Benchmarking Multimodal Agents for Open-Ended Tasks in Real Computer Environments

Tianbao Xie, Danyang Zhang, Jixuan Chen, Xiaochuan Li, Siheng Zhao, Ruisheng Cao, Toh Jing Hua, Zhoujun Cheng, Dongchan Shin, Fangyu Lei, Yitao Liu, Yiheng Xu, Shuyan Zhou, Silvio Savarese, Caiming Xiong, Victor Zhong, Tao Yu

NeurIPS 2024 D&B track, *>1.5k Github stars, used by OpenAI and Anthropic*

OpenAgents: An Open Platform for Language Agents in the Wild

Tianbao Xie*, Fan Zhou*, Zhoujun Cheng*, Peng Shi*, Luoxuan Weng*, Yitao Liu*, Toh Jing Hua, Junning Zhao, Qian Liu, Che Liu, Leo Z. Liu, Yiheng Xu, Hongjin Su, Dongchan Shin, Caiming Xiong, Tao Yu

COLM 2024, *>4k GitHub stars*

Text2Reward: Automated Dense Reward Function Generation for Reinforcement Learning

Tianbao Xie*, Siheng Zhao*, Chen Henry Wu, Yitao Liu, Qian Luo, Victor Zhong, Yanchao Yang, Tao Yu
ICLR 2024, *Spotlight*

Binding Language Models in Symbolic Languages

Zhoujun Cheng*, **Tianbao Xie***, Peng Shi, Chengzu Li, Rahul Nadkarni, Yushi Hu, Caiming Xiong, Dragomir Radev, Mari Ostendorf, Luke Zettlemoyer, Noah A. Smith, Tao Yu
ICLR 2023, *Spotlight*

UnifiedSKG: Unifying and Multi-Tasking Structured Knowledge Grounding with Text-to-Text Language Models

Tianbao Xie*, Chen Henry Wu*, Peng Shi, Ruiqi Zhong, Torsten Scholak, Michihiro Yasunaga, Chien-Sheng Wu, Ming Zhong, Pengcheng Yin, Sida I. Wang, Victor Zhong, Bailin Wang, Chengzu Li, Connor Boyle, Ansong Ni, Ziyu Yao, Dragomir Radev, Caiming Xiong, Lingpeng Kong, Rui Zhang, Noah A. Smith, Luke Zettlemoyer, Tao Yu
EMNLP 2022, *Oral*

Industrial Experience

Alibaba Qwen   Nov. 2024 – Present
Research Intern • with Binyuan Hui
- Member of Qwen-VL team, enhancing computer use capabilities for Qwen2.5-VL

Salesforce Research   May 2024 – Nov. 2024
Research Intern • with Caiming Xiong
- Led research on improving multimodal models' computer use grounding capabilities
- Optimized efficiency in computer operation understanding and execution

Honors (Selected)

Hong Kong PhD Fellowship   UGC, Hong Kong, Apr. 2022

Kwang-Hua Scholarship   Kwang-Hua Education Foundation, China, Nov. 2021

National Scholarship, twice   Ministry of Education, China, Oct. 2020, Oct. 2019

MCM, Meritorious Winner   Consortium for Mathematics and Its Application, America, Apr. 2020

Community Work

Reviewer ICLR, ACL, EMNLP, ACL Rolling Review

Others OpenAgents (over 4k stars), Chain-of-ThoughtsPapers (over 1.5k stars), etc

Technical Skills

- Programming Languages: Python (Advanced), SQL, Java, C/C++ (Intermediate)
- AI/ML Frameworks:
  - Primary: PyTorch, OpenAI APIs
  - LLM Training & Inference: Transformers, vLLM, Megatron-LM, OpenRLHF
  - RL/Robotics: stable-baselines3, gym
- Development Tools: Flask, Git, Bash, Markdown, LaTeX
- Domain Expertise: NLP (LLMs, semantic parsing), Multimodal Learning, Robotics, Reinforcement Learning
- Computer Use Agent Infra:
  - Environment: OSWorld framework, automated GUI testing, RPA basics
  - Virtualization: Docker, VNC, virtual display management, screen control