Yu Gu

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Brief Summary

Yu Gu is a final-year Ph.D. student at The Ohio State University, working on natural language processing (NLP) and foundation models. His current research centers on language agents, a new paradigm to realize generalist agents with the power of natural language. This is guided by the belief that natural language plays a crucial role in shaping human cognition by constraining the concept space and enabling the formation of complex ideas through the composition of concepts. He envisions that the remarkable language capabilities of modern AI will unlock unprecedented possibilities for developing generalist agents that learn and reason in ways more aligned with human cognition. His research has been disseminated through esteemed conferences. Notably, he has received the **Outstanding Paper Award** at both ACL and COLING as the first author.

Education

The Ohio State University   *Columbus, USA*
Ph.D. in Computer Science   *Aug 2019 - Present*
- **Advisor:** Prof. Yu Su

Nanjing University   *Nanjing, China*
B.Sc. & M.Sc. in Computer Science   *Sep 2012 - Jun 2019*
- **Advisor:** Prof. Gong Cheng

Work Experience

OSU NLP Group, The Ohio State University   *Columbus, USA*
Research Assistant   *Aug 2019 - Present*

Microsoft Research   *Redmond, USA*
Research Intern   *May 2021 - Aug 2021*

Publications

(* indicates equal contribution)

[23] *Is Your LLM Secretly a World Model of the Internet?* Model-Based Planning for Web Agents
 Yu Gu*, Boyuan Zheng*, Boyu Gou, Kai Zhang, Cheng Chang, Sanjari Srivastava, Yanan Xie, Peng Qi, Huan Sun, Yu Su
 in submission, 2025

[22] VisualAgentBench: Towards Large Multimodal Models as Visual Foundation Agents
 Xiao Liu*, Tianjie Zhang*, **Yu Gu***, Iat Long Iong, Yifan Xu, Xixuan Song, Shudan Zhang, Hanyu Lai, Jiadai Sun, Xinyue Yang, Yu Yang, Zehan Qi, Shuntian Yao, Xueqiao Sun, Siyi Cheng, Qinkai Zheng, Hao Yu, Wenyi Hong, Ming Ding, Lihang Pan, Xiaotao Gu, Aohan Zeng, Zhengxiao Du, Chan Hee Song, Yu Su, Yuxiao Dong, Jie Tang
 ICLR, 2025

[21] HippoRAG: Neurobiologically Inspired Long-Term Memory for Large Language Models
 2,000+ Stars
 Bernal Jiménez Gutiérrez, Yiheng Shu, **Yu Gu**, Michihiro Yasunaga, Yu Su
 NeurIPS, 2024

[20] Middleware for LLMs: Tools Are Instrumental for Language Agents in Complex Environments
 Yu Gu, Yiheng Shu, Hao Yu, Xiao Liu, Yuxiao Dong, Jie Tang, Jayanth Srinivasa, Hugo Latapie, Yu Su
 EMNLP, 2024

[19] Bringing Back the Context: Camera Trap Species Identification as Link Prediction on Multimodal Knowledge Graphs
 Vardaan Pahuja, Weidi Luo, **Yu Gu**, Cheng-Hao Tu, Hong-You Chen, Tanya Berger-Wolf, Charles Stewart, Song Gao, Wei-Lun Chao Su
 CIKM, 2024

[18] A Branching Decoder for Set Generation
 Zixian Huang, Gengyang Xiao, **Yu Gu**, Gong Cheng
 ICLR, 2024

[17] FlexKBQA: A Flexible LLM-Powered Framework for Few-Shot Knowledge Base Question Answering
 Zhenyu Li, Sunqi Fan, **Yu Gu**, Xiuxing Li, Zhichao Duan, Bowen Dong, Ning Liu, Jianyong Wang

AAAI, 2024

[16] AgentBench: Evaluating LLMs as Agents
2,000+ Stars
Xiao Liu*, Hao Yu*, Hanchen Zhang, Yifan Xu, Xuanyu Lei, Hanyu Lai, **Yu Gu**, Hangliang Ding, Kaiwen Men, Kejuan Yang, Shudan Zhang, Xiang Deng, Aohan Zeng, Zhengxiao Du, Chenhui Zhang, Sheng Shen, Tianjun Zhang, Yu Su, Huan Sun, Minlie Huang, Yuxiao Dong, Jie Tang
ICLR, 2024

[15] KoLA: Carefully Benchmarking World Knowledge of Large Language Models
Jifan Yu, Xiaozhi Wang, Shangqing Tu, Shulin Cao, Daniel Zhang-Li, Xin Lv, Hao Peng, Zijun Yao, Xiaohan Zhang, Hanming Li, Chunyang Li, Zheyuan Zhang, Yushi Bai, Yantao Liu, Amy Xin, Nianyi Lin, Kaifeng Yun, Linlu Gong, Jianhui Chen, Zhili Wu, Yunjia Qi, Weikai Li, Yong Guan, Kaisheng Zeng, Ji Qi, Hailong Jin, Jinxin Liu, **Yu Gu**, Yuan Yao, Ning Ding, Lei Hou, Zhiyuan Liu, Bin Xu, Jie Tang, Juanzi Li
ICLR, 2024

[14] CompleQA: Benchmarking the Impacts of Knowledge Graph Completion Methods on Question Answering
Donghan Yu, **Yu Gu**, Chenyan Xiong, Yiming Yang
EMNLP (Findings), 2023

[13] Mind2Web: Towards a Generalist Agent for the Web
Xiang Deng, **Yu Gu**, Boyuan Zheng, Shijie Chen, Samuel Stevens, Boshi Wang, Huan Sun, Yu Su
NeurIPS, 2023

[12] Few-shot In-context Learning for Knowledge Base Question Answering
Tianle Li, Xueguang Ma, Alex Zhuang, **Yu Gu**, Yu Su, Wenhu Chen
ACL, 2023

[11] *Don't Generate, Discriminate*: A Proposal for Grounding Language Models to Real-World Environments
Outstanding Paper Award
Yu Gu, Xiang Deng, Yu Su
ACL, 2023

[10] TRAVERS: A Diversity-Based Dynamic Approach to Iterative Relevance Search over Knowledge Graphs
Ziyang Li, **Yu Gu**, Yulin Shen, Wei Hu, Gong Cheng
WWW, 2023

[9] Knowledge Base Question Answering: A Semantic Parsing Perspective
Yu Gu, Vardaan Pahuja, Gong Cheng, Yu Su
AKBC, 2022

[8] ArcaneQA: Dynamic Program Induction and Contextualized Encoding for Knowledge Base Question Answering
Outstanding Paper Award
Yu Gu, Yu Su
COLING, 2022

[7] Clues Before Answers: Generation-Enhanced Multiple-Choice QA
Zixian Huang, Ao Wu, Jiaying Zhou, **Yu Gu**, Yue Zhao, Gong Cheng
NAACL, 2022

[6] ACORDAR: A Test Collection for Ad Hoc Content-Based (RDF) Dataset Retrieval
Tengteng Lin, Qiaosheng Chen, Gong Cheng, Ahmet Soylu, Basil Ell, Ruoqi Zhao, Qing Shi, Xiaxia Wang, **Yu Gu**, Evgeny Kharlamov
SIGIR, 2022

[5] A Systematic Investigation of KB-Text Embedding Alignment at Scale
Vardaan Pahuja, **Yu Gu**, Yu Su
ACL, 2021

[4] Beyond I.I.D.: Three Levels of Generalization for Question Answering on Knowledge Bases
6,000+ Downloads
Yu Gu, Sue Kase, Michelle Vanni, Brian Sadler, Percy Liang, Xifeng Yan, Yu Su
WWW, 2021

[3] Relevance Search over Schema-Rich Knowledge Graphs
Yu Gu, Tianshuo Zhou, Gong Cheng, Ziyang Li, Jeff Z Pan, Yuzhong Qu
WSDM, 2019

[2] Local ABox Consistency Prediction with Transparent TBoxes Using Gated Graph Neural Networks
Yu Gu, Jeff Pan, Gong Cheng, Heiko Paulheim, Giorgos Stoilos
NeSy@IJCAI, 2019

[1] Diversified and Verbalized Result Summarization for Semantic Association Search
Yu Gu, Yue Liang, Gong Cheng, Daxin Liu, Ruidi Wei, Yuzhong Qu
WISE, 2018

Awards

2024	**Outstanding Reviewer**, EMNLP
2023	**Outstanding Paper Award**, ACL
2022	**Outstanding Paper Award**, COLING
2021	**Student Travel Grant**, WWW
2017-2019	**Merit-based Scholarship (Graduate)**, Nanjing University
2013-2016	**Merit-based Scholarship (Undergraduate)**, Nanjing University
2015	**Meritorious Winner**, MCM

Media Coverage

2024.07	**Voice of China (ZhongGuoZhiSheng)**, China Media Group (CMG)

Professional Service

PC member/Reviewer   ARR, ACL, EMNLP, NAACL, NeurIPS, ICLR, AAAI, JWS, NLPCC, TKDE, IJCLR, COLM, AKBC, etc.