

Tao Yu

CONTACT INFORMATION	https://taoyds.github.io/ Rm 204E, Chow Yei Ching Building, Pokfulam, Hong Kong	tyu@cs.hku.hk +852-5392-4676
RESEARCH INTERESTS	Natural Language Processing. The development and design of the next generation of natural language interfaces with language model agents that transform (“grounding”) language instructions into code or actions executable in real-world environments, including databases (data agent), web applications (plugins/web agent), and the physical world (robotic agent) etc,. This involves executable language grounding, code generation, semantic parsing, LLM + tool use, efficient and generalizable LLMs, and dialog or interactive systems.	
ACADEMIC POSITION	University of Hong Kong , Hong Kong Assistant Professor in Computer Science Director, XLANG Lab , co-director, HKU NLP Group	08/2021 - <i>Present</i>
	University of Washington , Seattle, WA Postdoctoral Researcher, UW NLP Group Working with Noah Smith , Luke Zettlemoyer , and Mari Ostendorf	09/2021 - 08/2022
EDUCATION	Yale University , New Haven, CT Ph.D. Computer Science Advisors: Dragomir Radev	08/2017 - 05/2021
	Columbia University , New York, NY M.S. Data Science Advisors: Owen Rambow and Kathleen McKeown	09/2015 - 05/2017
	University of Utah , Salt Lake City, UT B.S. Mathematics and Economics	01/2012 - 05/2015
HONORS & AWARDS	Google Research Scholar Award , aka <i>Google Faculty Award</i>	2023
	Amazon Research Award , aka <i>Amazon Faculty Award</i>	2022
	Yale PhD Fellowship	2017
	Connie and Robert White Honor Roll Scholarship	2014
	Mathematics Department Scholarship	2014
	International Student and Scholar Services Scholarship	2014
	NSF Research Experience for Undergraduates (REU) Fellowship	2014
INVITED TALKS	Tutorial on Language Agents: Foundations, Prospects, and Risks at EMNLP 2024	2024
	Tutorial on Complex Reasoning over Natural Language at ACL 2023 <i>“Neuro-Symbolic Approaches: Large Language Models + Tool Use”</i>	2023
	Talks related to <i>“Building Natural Language Interfaces with Large Language Models”</i>	2022 - 2023
	Keynote, LLMDB Workshop at VLDB 2023 , TRL Workshop at NeurIPS 2023 Cornell DB Seminar, Columbia NLP Seminar Instacart Distinguished Speaker Series, Apple KP Tech Talks, Amazon AWS, Google Research, Microsoft Research Asia	

1. Yiheng Xu, Hongjin Su, Chen Xing, Boyu Mi, Qian Liu, Weijia Shi, Binyuan Hui, Fan Zhou, Yitao Liu, Tianbao Xie, Zhoujun Cheng, Siheng Zhao, Lingpeng Kong, Bailin Wang, Caiming Xiong, **Tao Yu**
[Lemur: Harmonizing Natural Language and Code for Language Agents](#)
Preprint 2023
2. 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**
[OpenAgents: An Open Platform for Language Agents in the Wild](#)
Preprint 2023
3. Tianbao Xie*, Siheng Zhao*, Chen Henry Wu, Yitao Liu, Qian Luo, Victor Zhong, Yanchao Yang, **Tao Yu**
[Text2Reward: Automated Dense Reward Function Generation for Reinforcement Learning](#)
Preprint 2023
4. Hongjin Su*, Weijia Shi*, Jungo Kasai, Yizhong Wang, Yushi Hu, Mari Ostendorf, Wen-tau Yih, Noah A Smith, Luke Zettlemoyer, **Tao Yu**
[One Embedder, Any Task: Instruction-Finetuned Text Embeddings](#)
ACL Findings 2023
5. Yuhang Lai*, Chengxi Li*, Yiming Wang*, Tianyi Zhang*, Ruiqi Zhong*, Luke Zettlemoyer, Scott Wen-tau Yih, Daniel Fried, Sida Wang, **Tao Yu**
[DS-1000: A Natural and Reliable Benchmark for Data Science Code Generation](#)
ICML 2023
6. Tianyi Zhang, **Tao Yu**, Tatsunori B Hashimoto, Mike Lewis, Wen-tau Yih, Daniel Fried, Sida I Wang
[Coder Reviewer Reranking for Code Generation](#)
ICML 2023
7. Jiacheng Ye, Zhiyong Wu, Jiangtao Feng, **Tao Yu**, Lingpeng Kong
[Compositional Exemplars for In-context Learning](#)
ICML 2023
8. 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**
[Binding Language Models in Symbolic Languages](#)
ICLR 2023
9. Hongjin Su, Jungo Kasai, Chen Henry Wu, Weijia Shi, Tianlu Wang, Jiayi Xin, Rui Zhang, Mari Ostendorf, Luke Zettlemoyer, Noah A. Smith, **Tao Yu**
[Selective Annotation Makes Language Models Better Few-Shot Learners](#)
ICLR 2023
10. 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**
[UnifiedSKG: Unifying and Multi-Tasking Structured Knowledge Grounding with Text-to-Text Language Models](#)
EMNLP 2022
11. Jiacheng Ye*, Jiahui Gao*, Qintong Li, Hang Xu, Jiangtao Feng, Zhiyong Wu, **Tao Yu**, Lingpeng Kong
[ZeroGen: Efficient Zero-shot Learning via Dataset Generation](#)
EMNLP 2022

12. Yushi Hu, Chia-Hsuan Lee, Tianbao Xie, [Tao Yu](#), Noah A. Smith, Mari Ostendorf
[In-Context Learning for Few-Shot Dialogue State Tracking](#)
EMNLP Findings 2022
13. Jiacheng Ye, Jiahui Gao, Zhiyong Wu, Jiangtao Feng, [Tao Yu](#), Lingpeng Kong
[ProGen: Progressive Zero-shot Dataset Generation via In-context Feedback](#)
EMNLP Findings 2022
14. Qi Liu, Zihuiwen Ye, [Tao Yu](#), Phil Blunsom, Linfeng Song
[Augmenting Multi-Turn Text-to-SQL Datasets with Self-Play](#)
EMNLP Findings 2022
15. Yiru Chen, Ryan Li, Austin Mac, Tianbao Xie, [Tao Yu](#), Eugene Wu
[NL2INTERFACE: Interactive Visualization Interface Generation from Natural Language Queries](#)
IEEE Visualization Conference NLVIZ Workshop, 2022
16. Ziming Mao*, Chen Henry Wu*, Ansong Ni, Yusen Zhang, Rui Zhang, [Tao Yu](#), Budhaditya Deb, Chenguang Zhu, Ahmed H Awadallah, Dragomir Radev
[DYLE: Dynamic Latent Extraction for Abstractive Long-Input Summarization](#)
ACL 2022
17. Yusen Zhang, Ansong Ni, [Tao Yu](#), Rui Zhang, Chenguang Zhu, Budhaditya Deb, Asli Celikyilmaz, Ahmed Hassan Awadallah, Dragomir Radev
[An Exploratory Study on Long Dialogue Summarization: What Works and What's Next](#)
EMNLP Findings 2021
18. Ansong Ni, Zhangir Azerbayev, Mutethia Mutuma, Troy Feng, Yusen Zhang, [Tao Yu](#), Ahmed Hassan Awadallah, Dragomir Radev
[SummerTime: Text Summarization Toolkit for Non-experts](#)
EMNLP 2021
19. Heather Lent, Semih Yavuz, [Tao Yu](#), Tong Niu, Yingbo Zhou, Dragomir Radev, Xi Victoria Lin
[Testing Cross-Database Semantic Parsers Using Canonical Utterances](#)
Evaluation & Comparison of NLP Systems Workshop at EMNLP 2021, **Best Paper Award**
20. Chang Shu, Yusen Zhang, Xiangyu Dong, Peng Shi, [Tao Yu](#), Rui Zhang
[Logic-Consistency Text Generation from Semantic Parses](#)
ACL Findings 2021
21. [Tao Yu](#), Rui Zhang, Oleksandr Polozov, Chris Meek, Ahmed Hassan Awadallah
[SCoRe: Pre-Training for Context Representation in Conversational Semantic Parsing](#)
ICLR 2021
22. [Tao Yu](#), Chien-Sheng Wu, Xi Victoria Lin, Bailin Wang, Yi Chern Tan, Xinyi Yang, Dragomir Radev, Richard Socher, Caiming Xiong
[GraPPa: Grammar-Augmented Pre-Training for Table Semantic Parsing](#)
ICLR 2021
23. Ming Zhong, Da Yin, [Tao Yu](#), Ahmad Zaidi, Mutethia Mutuma, Rahul Jha, Ahmed Hassan Awadallah, Asli Celikyilmaz, Yang Liu, Xipeng Qiu, Dragomir Radev
[QMSum: A New Benchmark for Query-based Multi-domain Meeting Summarization](#)
NAACL 2021
24. Linyong Nan, Dragomir Radev, Rui Zhang, Amrit Rau, Abhinand Sivaprasad, Chiachun Hsieh, Nazneen Fatema Rajani, Xiangru Tang, Aadit Vyas, Neha Verma, Pranav Krishna, Yangxiaokang Liu, Nadia Irwanto, Jessica Pan, Faiaz Rahman, Ahmad Zaidi, Murori Mutuma, Yasin Tarabar, Ankit Gupta, [Tao Yu](#), Yi Chern Tan, Xi Victoria Lin, Caiming Xiong, Richard Socher, Nazneen Fatema Rajani

DART: Open-Domain Structured Data Record to Text Generation
NAACL 2021

25. Ruiqi Zhong, [Tao Yu](#), Dan Klein
[Semantic Evaluation for Text-to-SQL with Distilled Test Suites](#)
EMNLP 2020
26. Yusen Zhang, Xiangyu Dong, Shuaichen Chang, [Tao Yu](#), Peng Shi, Rui Zhang
[Did You Ask a Good Question? A Cross-Domain Question Intention Classification Benchmark for Text-to-SQL](#)
Interactive and Executable Semantic Parsing Workshop at EMNLP 2020
27. [Tao Yu](#), Rui Zhang, He Yang Er, Suyi Li, Eric Xue, Bo Pang, Xi Victoria Lin, Yi Chern Tan, Tianze Shi, Zihan Li, Youxuan Jiang, Michihiro Yasunaga, Sungrok Shim, Tao Chen, Alexander Fabbri, Zifan Li, Luyao Chen, Yuwen Zhang, Shreya Dixit, Vincent Zhang, Caiming Xiong, Richard Socher, Walter Lasecki, Dragomir Radev
[CoSQL: A Conversational Text-to-SQL Challenge Towards Cross-Domain Natural Language Interfaces to Databases](#)
EMNLP 2019
28. Rui Zhang, [Tao Yu](#), He Yang Er, Sungrok Shim, Eric Xue, Xi Victoria Lin, Tianze Shi, Caiming Xiong, Richard Socher, Dragomir Radev
[Editing-based SQL Query Generation for Cross-Domain Context-Dependent Questions](#)
EMNLP 2019
29. [Tao Yu](#), Rui Zhang, Michihiro Yasunaga, Yi Chern Tan, Xi Victoria Lin, Suyi Li, Heyang Er, Irene Li, Bo Pang, Tao Chen, Emily Ji, Shreya Dixit, David Proctor, Sungrok Shim, Jonathan Kraft, Vincent Zhang, Caiming Xiong, Richard Socher, Dragomir Radev
[SPaC: Cross-Domain Semantic Parsing in Context](#)
ACL 2019
30. Richard A Plunz, Yijia Zhou, Maria Isabel Carrasco Vintimilla, Kathleen Mckeown, [Tao Yu](#), Laura Ugucioni, Maria Paola Sutto
[Twitter Sentiment in New York City Parks as Measure of Well-being](#)
Landscape and Urban Planning 2019
31. [Tao Yu](#), Rui Zhang, Kai Yang, Michihiro Yasunaga, Dongxu Wang, Zifan Li, James Ma, Irene Li, Qingning Yao, Shanelle Roman, Zilin Zhang, Dragomir Radev
[Spider: A Large-Scale Human-Labeled Dataset for Complex and Cross-Domain Semantic Parsing and Text-to-SQL Task](#)
EMNLP 2018
32. [Tao Yu](#), Michihiro Yasunaga, Kai Yang, Rui Zhang, Dongxu Wang, Zifan Li, Dragomir Radev
[SyntaxSQLNet: Syntax Tree Networks for Complex and Cross Domain Text-to-SQL Task](#)
EMNLP 2018
33. [Tao Yu](#), Zifan Li, Zilin Zhang, Rui Zhang, Dragomir Radev
[TypeSQL: Knowledge-based Type-Aware Neural Text-to-SQL Generation](#)
NAACL 2018
34. Mohammad Sadegh Rasooli, Noura Farra, Axinia Radeva, [Tao Yu](#), and Kathleen McKeown
[Cross-Lingual Sentiment Transfer with Limited Resources](#)
Machine Translation 2017
35. Owen Rambow, [Tao Yu](#), Axinia Radeva, Sardar Hamidian, Alexander R. Fabbri, Debanjan Ghosh, Christopher Hidey, Tianrui Peng, Mona Diab, Kathleen McKeown, Smaranda Muresan
[The Columbia-GWU System at the 2016 TAC KBP BeSt Evaluation](#)
NIST TAC KBP Workshop 2016

PROFESSIONAL SERVICES	Organizing Committee Member	
	ACL 2023 SUKI: Workshop on Structured and Unstructured Knowledge Integration at NAACL 2022 The Workshop on Interactive and Executable Semantic Parsing at EMNLP 2020	
	Program Committee Member/Referee	
	Nature , Nature Communications , TACL , ARR , ACL , EMNLP , NAACL , ICLR , ICML , NeurIPS	
STUDENTS	Tianbao Xie (HKU PhD, 2022)	
	Hongjin Su (HKU PhD, 2022)	
	Yiheng Xu (HKU PhD, 2022, co-advised with Lingpeng Kong)	
	Jiacheng Ye (HKU PhD, 2022, co-advised with Lingpeng Kong)	
	Fan Zhou (Intern 2023, SJTU BS/MS)	
	Leo Zeyu Liu (Intern 2023, UW BS/MS → UT Austin PhD)	
	Zhoujun Cheng (Intern 2022, SJTU BS/MS)	
	Chen Henry Wu (Intern 2022, Tsinghua BS → CMU PhD)	
	Ryan Li (Intern 2022, UW BS → Stanford MS)	
	Chengzu Li (Intern 2022, Xi'an Jiaotong BS → Cambridge PhD)	
	Shuyang Jiang (Intern 2023, SJTU BS → Fudan PhD)	
	Yiming Wang (Intern 2022, PKU BS → Harvard MS)	
	Yuhang Lai (Intern 2022, BIT BS → Fudan MS)	
	Chengxi Li (Intern 2022, HIT BS → CUHK PhD)	
	Ming Zhong (Intern 2020, Fudan MS → UIUC PhD)	
	Da Yin (Intern 2020, PKU BS → UCLA PhD)	
	Yusen Zhang (Intern 2020, Emory MS → PSU PhD)	
	Naihao Deng (Intern 2020, UMich BS → UMich PhD)	
	Michihiro Yasunaga (Project Student, 2018-19, Yale BS → Stanford PhD)	
	Suyi Li (Project Student, 2019, Yale MS → HKUST PhD)	
	Kai Yang (Project Student, 2018, Yale MS → Google SE)	
	James Ma (Project Student, 2018, Yale BS → LinkedIn DS)	
GRANTS	Early Career Scheme, Research Grants Council of Hong Kong (HKD\$1,078,487)	2023
	Google Research Scholar Award (USD\$35,000)	2023
	Amazon Research Award (USD\$40,000 + \$80,000 AWS Credits)	2022
RESEARCH & INDUSTRY EXPERIENCE	Microsoft Research , Redmond, WA	06/2020 - 08/2020
	NLP Research Intern	
	Mentors: Ahmed Hassan Awadallah , Oleksandr Polozov , and Chris Meek	
	Salesforce Research , Palo Alto, CA	06/2019 - 08/2019
	NLP Research Intern	
	Mentors: Victoria Lin , Caiming Xiong , and Richard Socher	
	Samsung Research America , Mountain View, CA	06/2018 - 08/2018
	NLP Research Intern	

Columbia CCLS & NLP Group, New York, NY

05/2016 - 10/2016

Graduate Research Assistant

Mentors: [Owen Rambow](#) and [Kathleen McKeown](#)

TEACHING
EXPERIENCE

<i>Instructor:</i>	Advanced NLP (DATA 8005), University of Hong Kong	2023
<i>Teaching Assistant:</i>	Natural Language Processing (CPSC 577), Yale University	2019
<i>Teaching Assistant:</i>	Database Systems (CPSC 537), Yale University	2019
<i>Teaching Assistant:</i>	Introduction to NLP (CS 4705), Columbia University	2017
<i>Teaching Assistant:</i>	Natural Language Processing (Coursera)	2016