Weixu Zhang

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Education

Xi'an Jiaotong University   Xi'an, China
Master in Cyber Science and Engineering, Department of Electronics and Information   *Sep. 2021 – present*
- GPA: 90.0/100, rewarded with First-class Scholarship for Academic Excellence.
- Focused research interests on Semantic Parsing and Natural Language Processing techniques.

Paris-Saclay University   Saclay, France
Master(Engineer's degree) CentraleSupélec, double diploma student   *Sep. 2019 – present*
- GPA: 3.77/4.3, recognized as an Eiffel Excellence Scholarship holder from French government for 2019-2021.
- Completed a minor in Fundamental Physics, earning a License 3 diploma (BSc).

Xi'an Jiaotong University   Xi'an, China
Bachelor in Energy Science and Engineering   *Sep. 2017 – Jun. 2021*
- GPA: 88.2/100, rewarded with First-class Scholarship for Academic Excellence.

Research Experience

Huawei 2012 Lab   Beijing, China
Research Internship Natural Language Processing   *Jul. 2023 – Sep. 2023*
- Led a comprehensive research project focusing on the adaptation of large language models for downstream tasks using instruction tuning and prompt tuning techniques that exhibited significant improvements in task-specific performance.
- Conducted in-depth investigations into the reliability, robustness, and truthfulness of large language models, specifically their performance under various conditions, including adversarial attacks and rare input distributions.

International Digital Economy Academy (IDEA)   Shenzhen, China
Research Internship in Natural Language Processing   *May 2023 – Jul. 2023*
- Developed and curated a comprehensive, large-scale, pragmatic dataset, innovatively designed to convert complex natural language queries into interactive data visualization code within a conversational context.
- Effectively utilized large language models to simulate human behavior in generating diverse and varied natural questions for data visualization, ensuring conversational coherence and cohesion through strategic in-context learning.

Xi'an Jiaotong University   Xi'an, China
Master's Project - Study of Text-to-SQL Parsing   *Sep. 2022 – present*
- Engaged in an in-depth study on Text-to-SQL parsing in multilingual contexts, and took the initiative to construct large-scale, context-dependent benchmarks to rigorously evaluate and improve parsing techniques.
- Developed and proposed a novel context-dependent evaluation metric, specifically designed for Text-to-SQL parsing, that employs distinguished tests to significantly enhance the evaluation process and parsing accuracy.

University of Cambridge   Cambridge, UK
Research Internship in Artificial Intelligence   *Aug. 2022 – Nov. 2022*
- Embarked on a detailed investigation into the robustness of semantic parsing models, validating defense models via adversarial training to enhance overall model performance, reliability, and resilience to adversarial attacks.
- Achieved an individual overall score of 90/100, Grade A

Tencent Holdings Ltd.   Shenzhen, China
Technical Research Internship in Natural Language Processing   *May. 2022 – Jul. 2022*
- Conducted in-depth studies on semantic parsing models within the challenging context of low-resource domain-expert scenarios, contributing valuable insights into the advancement of natural language processing techniques.
- Led the development of an end-to-end SQL generation system, innovatively based on intent recognition and a slot filling joint model, enhancing the efficiency and accuracy of natural language processing tasks.

Paris-Saclay University   Saclay, France
Engineering Project on Optimization and Machine Learning   *Dec. 2020 – Jun. 2021*
- Implemented reinforcement learning to optimize the charging process of large-scale electric vehicles and developed an adaptive charging network including comprehensive data storage, a sophisticated control algorithm, and a simulator.

Imperial College London   London, UK
Robotics and Artificial Intelligence Winter Project   *Jan. 2019 – Feb. 2019*
- Led the design and development of a smart robotic system capable of recognizing and grasping objects specified by voice commands, utilizing advanced deep neural network models for efficient object recognition.
- Achieved an individual overall score of 81/100, Grade A.

Papers & Manuscripts

Weixu Zhang, Yifei Wang, Yuanfeng Song, Victor Junqiu Wei, Yuxing Tian, Yiyan Qi, Jonathan H. Chan, Raymond Chi-Wing Wong, Haiqin Yang. Natural Language Interfaces to Tabular Data Querying and Visualization: A Survey. *IEEE Transactions on Knowledge and Data Engineering* (2024).

Tianyu Zheng, Shuyue Guo, Xingwei Qu, Jiawei Guo, **Weixu Zhang**, Xinrun Du, Qi Jia, Chenghua Lin, Wenhao Huang, Wenhu Chen, Jie Fu, Ge Zhang. Kun: Answer Polishment for Chinese Self-Alignment with Instruction Back-Translation. In Review at *Proceedings of the 2024 Conference on Language Modeling (COLM 2024)*.

Weixu Zhang, Haiqin Yang, Yiyan Qi, Yu Wang, Ming Fan. InterViz: A Large-Scale Conversational Benchmark Towards Interactive Natural Language Interfaces to Data Visualization. In Preparation for *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP 2024)*.

Weixu Zhang, Yu Wang, Ming Fan. Towards Robustness of Large Language Models on Text-to-SQL Task: An Adversarial and Cross-Domain Investigation. *Proceedings of the 2023 International Conference on Artificial Neural Networks* - ICANN 2023. Lecture Notes in Computer Science, vol 14258. Springer, Cham.

Yu Wang, Ming FAN, Jiawei Lin, **Weixu Zhang**, Zhitao Wang, Hanjing Su, Ling Peng, Li SUN, Ting Liu. mChase: A Multi-Language and Context-Dependent Text-to-SQL Dataset towards Pragmatic Semantic Parsing. In Review at *Proceedings of the Annual Meeting of the Association for Computational Linguistics (ACL Rolling Review)*.

Jiaqi Guo, **Weixu Zhang**, Qinghua Zheng, Yu Wang, Ming Fan, Ting Liu. Natural Language Semantic Parsing: A Literature Survey. In Review at *SCIENTIA SINICA Informationis*.

Skills

Language Proficiency: Chinese (native), English (IELTS 7.5), French (DALF C1)
Programming Languages: Python, Java, SQL, PyTorch, Latex, Matlab

Services & Volunteer

Reviewer The Conference on Empirical Methods in Natural Language Processing (EMNLP)	2022- present
Reviewer Annual Meeting of the Association for Computational Linguistics (ACL Rolling Review)	2022-present
Minister The Student Union of Xi'an Jiaotong University	2018-2019
Volunteer The Yang Fan Volunteer Association of Xi'an Jiaotong University	2018-2019

Honors & Awards

Excellent Postgraduate Student of Xi'an Jiaotong University	2022, China
Internet plus **Innovation Competition at Xi'an Jiaotong University , Bronze Award**	2022, China
Tengfei Cup Innovation Competition at Xi'an Jiaotong University, Excellence Award	2022, China
Innovation and Entrepreneurship Competition at Xi'an Jiaotong University, Silver Award	2019, China
China Undergraduate Mathematical Contest in Modelling, First Prize	2018, China
Excellent Undergraduate Student at Xi'an Jiaotong University	2018, China