

# Weixu Zhang

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## Education

### Xi'an Jiaotong University

Xi'an, China

*MEng 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

*MEng(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

*BEng 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 – present*

- 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

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**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 Review at *Proceedings of the Annual Meeting of the Association for Computational Linguistics*).

**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*.

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 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)*.

**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. In Review at *IEEE Transactions on Knowledge and Data Engineering* [Under 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

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**Language Proficiency:** Chinese (native), English (IELTS 7.5), French (DALF C1)

**Programming Languages:** Python, Java, SQL, PyTorch, Latex, Matlab

## Services & Volunteer

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<b>Reviewer</b>	The Conference on Empirical Methods in Natural Language Processing (EMNLP)	2022-2023
<b>Minister</b>	The Student Union of Xi'an Jiaotong University	2018-2019
<b>Volunteer</b>	The Yang Fan Volunteer Association of Xi'an Jiaotong University	2018-2019

## Honors & Awards

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