

Ziru “Ron” Chen

Curriculum Vitae

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| INTERESTS | Natural Language Processing, Conversational AI, Human-Computer Interaction | |
| EDUCATION | The Ohio State University , Columbus, OH Ph.D. Computer Science and Engineering | Aug 2022 – May 2027 GPA: 4.0 / 4.0 |
| | The Ohio State University , Columbus, OH B.S. Computer and Information Science, Math Minor Summa Cum Laude | Aug 2018 – May 2022 GPA: 3.97 / 4.0 |
| EXPERIENCES | Research Assistant , The Ohio State University Advisor: Dr. <i>Huan Sun</i> | Dec 2020 – Present |
| | Visiting Student Research Intern , Westlake University Advisor: Dr. <i>Zhenzhong Lan</i> | May – Jul 2021 |
| | Student Instructional Assistant , The Ohio State University | Aug 2019 – Dec 2020; Aug 2021 – May 2022 |
| HONORS | University Fellowship , The Ohio State University | 2022–2023, 2026–2027 |
| | 3rd Place (Student Co-lead), 1st Alexa Prize Taskbot Challenge | 2022 |
| | Undergraduate Research Award , The Ohio State University | 2022 |
| | CIS Undergrad Scholarship , The Ohio State University | 2021 |
| | Dean’s List , The Ohio State University (6 semesters) | 2018–2021 |
| RESEARCH | Building Language Agents for Code Generation | Jul 2023 – Present |
| | Investigating the problems in autoregressive code generation. Developing a language agent that can break down the generation process and automatically refine the generated code via more comprehensive searching and step-by-step planning. Our initial experiments have achieved $\sim 3\%$ absolute accuracy gain on text-to-SQL parsing. | |
| | Interactive Natural Language Interface to Databases | Jun 2022 – Jun 2023 |
| | Designed a novel interactive semantic parsing framework for cross-domain Text-to-SQL systems. Developed (1) a SQL error detection model and (2) a SQL error correction model to implement the framework. Our SQL error detection model improves the recall of erroneous SQL queries by up to 32.0% absolute gain. Our SQL error correction model can improve the execution accuracy of different parsers by up to 5.4% absolute gain without any interaction. When database users interact with the suggested corrections in our framework, a system can reach 81.2% overall accuracy. | |
| | Measuring Answer Attribution of Large Language Models | Apr 2023 – Jun 2023 |
| | Reproduced Stanford Alpaca training and tested the model’s zero-shot ability to attribute language models’ answers to their retrieved references. Fine-tuned Roberta, Flan-T5, and GPT-2 on our simulated training data for answer attribution. Annotated a realistic evaluation benchmark for evaluating LLM attribution. Demonstrated that Flan-T5 can outperform Alpaca by 10.6% and ChatGPT by 7.5% on evaluating LLMs’ answer attribution. | |
| | Chain-of-Thought Style Prompting for Text-to-SQL Parsing | Dec 2022 – May 2023 |
| | Proposed to explore chain-of-thought style prompting to better leverage large language models (Codex)’s reasoning capabilities for text-to-SQL parsing. Experimented with three kinds of chain-of-thought style prompting methods to enhance Codex’s multi-step reasoning ability and studied their robustness. Improved Codex’s text-to-SQL parsing accuracy by 5.2% absolute gain. | |
| | TacoBot: 1st Alexa Prize Taskbot Challenge | Jun 2021 – Jun 2022 |
| | Co-led the OSU Tacobot team. Designed the overall dialogue system architecture and finite state machine for dialogue management. Developed a pipeline to extract and simplify information in structured documents (Wikihow articles and Wholefoods recipes). Implemented retrieval-based response generation and three user engagement features. Achieved 3rd place out of 125 applications . | |

PUBLICATIONS

- [7] *Automatic Evaluation of Attribution by Large Language Models*
Xiang Yue, Boshi Wang, **Ziru Chen**, Kai Zhang, Yu Su, Huan Sun
Findings of the Conference on Empirical Methods in Natural Language Processing (2023, Long)
- [6] *Error Detection for Text-to-SQL Semantic Parsing*
Shijie Chen, **Ziru Chen**, Huan Sun, Yu Su
Findings of the Conference on Empirical Methods in Natural Language Processing (2023, Long)
- [5] *Exploring Chain-of-Thought Style Prompting for Text-to-SQL*
Chang-Yu Tai*, **Ziru Chen***, Tianshu Zhang, Xiang Deng, Huan Sun (* equal contribution)
The 2023 Conference on Empirical Methods in Natural Language Processing (2023, Long)
- [4] *Roll Up Your Sleeves: Working with a Collaborative and Engaging Task-Oriented Dialogue System*
Lingbo Mo, Shijie Chen, **Ziru Chen**, Xiang Deng, Ashley Lewis, Sunit Singh, Samuel Stevens, Chang-Yu Tai, Zhen Wang, Xiang Yue, Tianshu Zhang, Yu Su, Huan Sun
The 24th Meeting of the Special Interest Group on Discourse and Dialogue (2023, Demo)
- [3] *Text-to-SQL Error Correction with Language Models of Code*
Ziru Chen, Shijie Chen, Michael White, Raymond Mooney, Ali Payani, Jayanth Srinivasa, Yu Su, Huan Sun
The 61st Annual Meeting of the Association for Computational Linguistics (2023, Short)
- [2] *Error Detection for Interactive Text-to-SQL Semantic Parsing*
Shijie Chen, **Ziru Chen**, Huan Sun, Yu Su
The 2nd Workshop on Interactive Learning for Natural Language Processing (2022, Short)
- [1] *Bootstrapping a User-Centered Task-Oriented Dialogue System*
Shijie Chen*, **Ziru Chen***, Xiang Deng, Ashley Lewis, Lingbo Mo, Samuel Stevens, Zhen Wang, Xiang Yue, Tianshu Zhang, Yu Su, Huan Sun (* equal contribution)
The 1st Proceedings of Alexa Prize Taskbot Challenge (2022, Long)

TEACHING

CSE 5525 Speech and Language Processing, Undergraduate & Graduate Level
Teaching Assistant, The Ohio State University (Autumn 2021; Spring 2022)

CSE 2321 Foundations I: Discrete Structures, Undergraduate Level
Teaching Assistant, The Ohio State University (Autumn 2019; Spring, Autumn 2020)

SERVICE

Program Committee: AAAI (2023, 2024)

SKILLS

Programming
Python, C, Java, MATLAB, HTML and CSS, Ruby, JavaScript
Languages
*Chinese (Native), English (Fluent), Japanese (Proficient; **JLPT N2**), Korean (Elementary)*

REFERENCES

Huan Sun, Ph.D.
Associate Professor and College of Engineering Innovation Scholar
Department of Computer Science and Engineering
The Ohio State University
NSF CAREER Award (2020), Google Research Scholar Award (2022)
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Yu Su, Ph.D.
Distinguished Assistant Professor of Inclusive Excellence
Department of Computer Science and Engineering
The Ohio State University / Microsoft Semantic Machines
NSF ICICLE Institute AI Lead, Lumley Research Award (2023)
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Michael White, Ph.D.
Professor and Vice Chair
Department of Linguistics
The Ohio State University
Lumley Interdisciplinary Research Award (2022)
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