

HAO YAN

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Research Interests

- Semantic Parsing
- Question Answering
- Generative AI
- Conversational AI
- Prompt Engineering
- LLM Agent
- Human-AI Interaction

Education

- George Mason University** **Aug. 2021 – Current**
PhD in Computer Science advised by Prof. Ziyu Yao; GPA: 3.84 *Fairfax, VA*
- George Mason University** **Aug. 2018 – Dec. 2020**
Masters in Computer Science *Fairfax, VA*
- Fujian Normal University** **Aug. 2013 – Jun. 2017**
Bachelors in Electronic and Information Engineering *China*

Research Overview

Conversational AI & Prompt Engineering Advisor: Prof. Ziyu Yao

IntelliExplain: Enhancing Conversational Code Generation for Non-Professional Programmers ([arXiv preprint 2024](#))

- Analyzed user behaviors in code generation with Chat-based LLMs, identifying limitations such as complex explanations and unstructured interactions that hinder non-professional programmers from generating code efficiently and accurately.
- Developed IntelliExplain, a novel paradigm with enhanced explanations and a structured interaction to improve code comprehension and efficient feedback loop.
- Demonstrated IntelliExplain's effectiveness in assisting non-professional programmers write and debug code through comprehensive user studies.

Semantic Parsing Advisor: Prof. Ziyu Yao

Learning to Simulate Natural Language Feedback for Interactive Semantic Parsing ([ACL 2023](#))

- We proposed a new task of simulating NL feedback for interactive semantic parsing to abate the need of human-annotated feedback data to train the interactive semantic parser.
- On a text-to-SQL dataset, we show that our feedback simulator can generate high-quality NL feedback to boost the error correction ability of a specific parser.
- In low-data settings, our feedback simulator can help achieve comparable error correction performance as trained using the costly, full set of human annotations

Professional Experience

George Mason University **Jan. 2020 – Dec. 2020, Aug. 2021 – now**
Graduate Teaching Assistant *Fairfax, VA*

- Conducted weekly lab sessions for undergraduate courses and fostered an engaging learning environment for diverse student populations.
- Collaborated with faculty to design and refine lecture slides, lab exercises, and instructional resources.
- Offered individualized support during office hours, addressing questions and guiding students through challenging concepts.

George Mason University **Aug. 2022 – May 2023**
Graduate Research Assistant *Fairfax, VA*

- Working with Prof. Ziyu Yao on diverse NLP topics such as Semantic Parsing, Question Answering, Conversational AI, and Prompt Engineering.
- Published one paper in top-tier conference ACL. Actively engaged in reviewing papers from conferences such as NeurIPS, ICLR, etc.

Individual **Feb. 2021 – Aug. 2021**
Front-end Developer *Fairfax, VA*

- Collaborated with a start-up company to design and implement user-facing features for a web-based online grocery platform.
- Contributed to the development and maintenance of the application using modern web technologies, including Angular, Firebase, TypeScript, and Ionic.

Honors and Awards

- **CAHMP 2024 Summer GRA Award**, George Mason University, (May 2024)
- **Graduate Student Travel Fund (GSTF)**, George Mason University, (July 2023)
- **Distinguished GTA Award**, George Mason University, (May 2022)
- **Graduate Students Poster Award (Honorable Mention)**, George Mason University, (May. 2022)
- **Outstanding GTA Award**, George Mason University, (May 2020, May 2021)

Publications

Conference Papers

1. **Hao Yan**, Saurabh Srivastava, Yintao Tai, Sida I Wang, Wen-tau Yih, Ziyu Yao “**Learning to Simulate Natural Language Feedback for Interactive Semantic Parsing**” ACL 2023 *The 61st Annual Meeting of the Association for Computational Linguistics*.

arXiv Preprint

1. **Hao Yan**, Thomas D. Latoza, Ziyu Yao “**IntelliExplain: Enhancing Conversational Code Generation for Non-Professional Programmers**” arXiv preprint 2024

Student Abstracts or Summaries

1. **Hao Yan** and Ziyu Yao “**Can Code LLMs Be Easily Exploited to Produce Vulnerable Code?**” CHAMP 2024 *The Center for Advancing Human-Machine Partnership*
2. **Hao Yan**, Saurabh Srivastava, Yintao Tai, Sida Wang, Scott Yih, Ziyu Yao “**Learning to Simulate Natural Language Feedback for Interactive Semantic Parsing**” MASC-SLL 2023 *Mid-Atlantic Student Colloquium on Speech, Language and Learning*
3. **Hao Yan** and Ziyu Yao “**User Feedback Simulation for Text-to-SQL Interactive Semantic Parsing**” *GMU-CS PhD Research Symposium 2022*

Professional Activities/Services

Reviewer

- ICLR 2025: The Thirteenth International Conference on Learning Representations
- IEEE CI-NLPSoMe 2025: IEEE Symposium on Computational Intelligence in Natural Language Processing and Social Media
- WLLFM 2024: IEEE BigData 2024 From Theory to Practice: Workshop on Large Language and Foundation Models
- NeurIPS 2023 (Secondary): Conference on Neural Information Processing Systems

Volunteer

- Student Volunteer @ The 61st Annual Meeting of the Association for Computational Linguistics (ACL), 2023

Invited Talk

- LLM agent: build your own personal assistant @ The EPIC SPICE Intern Program, George Mason University, 2024

Technical Skills

Languages: Python, Java, C, HTML/CSS, JavaScript, SQL

Developer Tools: VS Code, Eclipse, AWS Platform

Technologies/Frameworks: Pytorch, TensorFlow, Keras, Linux, GitHub