

Ruiwen Zhou

✉ skyriver@sjtu.edu.cn 🏠 <https://skyriver-2000.github.io>

Education

Shanghai Jiao Tong University

M.Eng. student in Computer Science (GPA: 3.83 / 4.00)

Sep 2022 – Present

Shanghai, China

Thesis: Design and Evaluation of LLM Complex Reasoning Methods and Agents

Shanghai Jiao Tong University

B.Eng. in Information Engineering (GPA: 90.56 / 100, Rank: 2 / 143)

Sep 2018 – Jun 2022

Shanghai, China

Thesis: Graph Neural Network-Based Tabular Data Prediction

Interest

My interest lies in building powerful language models and AI agents that can automatically complete complex real-world tasks and inspire creative ideas / designs for humans. To achieve this, my recent research works mainly focus on:

- Evaluation and analysis of LLMs.
- LLMs with retrieval augmentation.
- LLM reasoning, planning, rule-following, and agents.

Preprints / Under Review

Is Risk-Sensitive Reinforcement Learning Properly Resolved?

arXiv preprint

R. Zhou, M. Liu, K. Ren, X. Luo, W. Zhang, and D. Li

Publications

RuleArena: A Benchmark for Rule-Guided Reasoning with LLMs in Real-World Scenarios

ACL 2025

R. Zhou, W. Hua, L. Pan, S. Cheng, X. Wu, E. Yu, and W. Wang

AntiLeak-Bench: Anti-Leakage Benchmark for LLMs by Contamination-Free Samples

ACL 2025

X. Wu, L. Pan, Y. Xie, R. Zhou, Y. Ma, M. Du, R. Mao, S. Zhao, A. Luu, and W. Wang

TRAD: Enhancing LLM Agents with Step-Wise Thought Retrieval and Aligned Decision

SIGIR 2024

R. Zhou, Y. Yang, M. Wen, Y. Wen, W. Wang, C. Xi, G. Xu, Y. Yu, and W. Zhang

Learning Enhanced Representations for Tabular Data via Neighborhood Propagation

NeurIPS 2022

K. Du, W. Zhang, R. Zhou, Y. Wang, X. Zhao, J. Jin, Q. Gan, Z. Zhang, and D. Wipf

Experience

NLP Group (UC Santa Barbara)

Jul 2024 – Dec 2024

Visiting Student, Advised by: Prof. William Yang Wang

Santa Barbara, U.S.

- Proposed a challenging benchmark (**RuleArena**) from real-world scenarios to evaluate LLMs' ability in rule-guided reasoning, and conducted extensive analysis to uncover systematic issues that limit LLM performances.
- Revealed that: 1) existing state-of-the-art LLMs, mostly fail on our complex rule-guided reasoning tasks; 2) LLMs struggle to integrate multiple rules or facts cohesively and are prone to distraction by irrelevant information; and 3) common failure modes include inadequate rule recall, improper usage of similar rules, and computation errors.
- Participated in the design and data collection of **AntiLeak-Bench**, which aims to prevent data contamination through automatically constructing benchmarks with updated real-world knowledge.
- **Two papers accepted at ACL 2025.**

APEX Lab (Shanghai Jiao Tong University)

Jan 2021 – Present

Student Researcher, Advised by: Prof. Weinan Zhang

Shanghai, China

- I work as a student researcher under the supervision of Prof. Weinan Zhang.
- **Lead or participate several research projects in APEX Lab.**

China Pacific Insurance Company
Student Leader of a Collaboration Project

Feb 2023 – Feb 2024
Shanghai, China

- Revealed that existing trajectory-wise few-shot LLM agents suffer from plausible expert demonstrations due to retrieval with task meta-data and noise from many irrelevant steps in expert trajectories.
- Proposed a step-wise demonstration retrieval and prompting method (**TRAD**) to better solve sequential decision making tasks with LLMs, which achieves state-of-the-art performances on ALFWorld and Mind2Web benchmarks.
- **One paper accepted at SIGIR 2024.**

Amazon Web Service

Feb 2022 – Feb 2023
Shanghai, China

Research Intern, Advised by: Quan Gan

- As existing retrieval-augmented tabular prediction models ignored either column-wise (across features) or row-wise (across samples) interaction, we aimed to develop a novel model architecture to unify both interactions and enhance the performance on various tabular prediction tasks.
- Participated in design and implementation of a novel tabular prediction model (**PET**) based on graph neural networks and relevant sample retrieval, which achieves state-of-the-art results on various tabular prediction benchmarks.
- **One paper accepted at NeurIPS 2022.**

Microsoft Research Asia

Aug 2021 – Jan 2022
Shanghai, China

Research Intern, Advised by: Kan Ren

- Revealed a common theoretical issue in existing distributional risk-sensitive RL algorithms - the absence of history return distributions in policy and value functions leads to optimization divergence.
- Proposed a history-dependent reinforcement learning algorithm (**Trajectory Q-Learning**), which achieves theoretical optimality and decent practical performance in risk-sensitive policy optimization under distortion risk measures.
- **One paper released on arXiv.**

Selected Awards

National Scholarship (Top 1 / 144)	2020
A-Class Excellence Scholarship (Top 1 / 144)	2020
B-Class Excellence Scholarship (Top 10%)	2019, 2021
Zhiyuan Honors Scholarship (Top 5%)	2019, 2020, 2021
First-Class Excellence Scholarship	2022, 2024
Huatai Securities Scholarship	2024

Talks

TRAD: Enhancing LLM Agents with Step-Wise Thought Retrieval and Aligned Decision	Jul 2024
Oral Presentation at SIGIR 2024	
Paper Talk at SIGIR 2024 AgentIR Workshop	

Services

Organizer:	Volunteer Host (SIGIR 2024 AgentIR Workshop)
Reviewer:	ICML (2023), NeurIPS (2023), TPAMI

Skills

Programming:	Proficient in Python, LaTeX; Capable of C, C++, Matlab
Languages:	Proficient in Chinese, English (TOEFL: 106)