Yihang Sun

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Education

Siebel School of Computing and Data Science, UIUC — Urbana, USA
M.S. in *Computer Science* — 08/2025 - present

- Advisor: Prof. Jiaxuan You

Elite Honors Program (Bajian Class), School of EECS, Peking University — Beijing, China
B.S. in *Information and Computing Science* — 09/2021 - 07/2025

- Overall GPA: **3.804 / 4.0** ; Ranking: **18 / 134**
- Course Highlights: Probability Theory and Statistics(A) **(93)**, Programming in Artificial Intelligence **(96)**, Methodologies & Practices for AI Research(I) **(94)**, Large Language Models & Natural Language Generation **(93)**, Multimodal Learning **(95)**, Study and Practice on Topics of Frontier Computing(I/II) **(97/98)**

Publications and Preprints

(* stands for equal contribution.)

P1 **GraphEval: A Lightweight Graph-Based LLM Framework for Idea Evaluation**
Tao Feng *, Yihang Sun *, Jiaxuan You
The 13th International Conference on Learning Representations (ICLR), 2025

P2 **PREMIUM: LLM Personalization with Individual-level Preference Feedback**
Yihang Sun, Tao Feng, Ge Liu, Jiaxuan You
Arxiv Preprint

P3 **Proagent: Building Proactive Cooperative AI with Large Language Models**
Ceyao Zhang *, Kaijie Yang *, Siyi Hu *, Zihao Wang, Guanghe Li, Yihang Sun, Cheng Zhang, Zhaowei Zhang, Anji Liu, Song-Chun Zhu, Xiaojun Chang, Junge Zhang, Feng Yin, Yitao Liang, Yaodong Yang
The 38th Annual AAAI Conference on Artificial Intelligence, 2024 ***(Oral)***

Research Experience

Research Intern at University of Illinois Urbana-Champaign — 03/2024 - 12/2024
Advisor: Jiaxuan You, Ge Liu
Projects Led:

- **Integrating LLMs with Graphs for Research Idea Evaluation** (see P1)
  - Proposed a lightweight graph-based LLM framework for research idea evaluation, addressing the instability of existing solutions and the challenges in understanding semantically complex research ideas.
  - Innovatively proposed transforming complex research ideas into a graph structure of fine-grained viewpoints using prompted LLMs, followed by the application of lightweight graph algorithms to evaluate their quality.
  - Proposed a detection method to enhance the framework's ability to assess idea novelty, addressing the limitation of LLMs in identifying plagiarized viewpoints.
  - Demonstrated that our framework achieves at least a 14% improvement in F1 score, with minimal computation & API costs compared to various baselines, through extensive experiments on multiple datasets.
  - Implemented the entire LLM components of the framework and the graph label propagation algorithm, and conducted key portions of the experiments and writing.

- **LLM Personalization with Individual-level Preference Feedback** (see P2)
  - Developed a locally deployable, LLM-agnostic personalization framework, tackling challenges in existing methods like high computational costs, privacy risks, and limited adaptability to dynamic user preferences.
  - Innovatively utilized a Tag System to efficiently characterize user profiles and leveraged the Preference Ranking Feedback from users, enabling continuous self-iteration and optimization of the framework.
  - Prepared a novel and essential benchmark for the standardized evaluation of personalized language models.
  - Demonstrated significant personalized performance improvements for our framework over diverse baselines across multiple datasets through extensive experiments.
  - Independently completed this end-to-end project in just three months.

Research Intern at Peking University 07/2023 - 01/2024

Advisor: Yaodong Yang

Project Participated In:

- **Building Proactive Cooperative AI with Large Language Models** (see P3)
  - Proposed novel LLM-based proactive agents capable of dynamically adapting their behavior to enhance cooperation with teammates in zero-shot coordination scenarios, where learning-based methods struggle.
  - Improved several key aspects, including refining the LLM's action selection strategy, incorporating a self-reflection mechanism, optimizing memory update process, and developing more effective prompt templates.
  - Completed over half of the core experimental work and successfully validated the effectiveness of my proposed innovations within two weeks, while also contributing to the writing of key sections of the paper.

Research Interests

Currently, my research interests primarily focus on **the application of LLMs, with an emphasis on the interaction between humans and LLM agents**. Key areas of interest include:

- Developing lightweight LLM personalization frameworks that leverage interaction data to address challenges such as high computational costs and privacy concerns in existing methods.
- Enhancing LLMs with relational data, such as graph structures.
- Exploring various directions within the empirical aspects of evaluating and improving the interpretability, fairness, privacy, robustness, and reasoning capabilities of LLMs, ultimately advancing their benefits to humanity.

Awards and Scholarships

Outstanding Graduate of Peking University	2021 - 2025
Merit Student Award	2023 - 2024
Peking University Second-Class Scholarship	2023 - 2024
Peking University Outstanding Research Award	2022 - 2023
Shenzhen Stock Exchange Scholarship	2022 - 2023
Peking University Excellence in Studies Award	2021 - 2022

Skills

Programming Languages: Python, C++/C, CUDA, LaTeX

Languages: Chinese (native), English (TOEFL MyBest Scores: Reading 30, Listening 30, Speaking 24, Writing 27)