**Xiaocheng Yang**

Email: [xy61@illinois.edu](mailto:xy61@illinois.edu) | Main Page: [yxc-cyber.github.io](https://yxc-cyber.github.io/)

**EDUCATION**

**University of Illinois at Urbana-Champaign** Aug 2024 - Expected May 2026

*Master of Science in Computer Science Current GPA: 4.0/4.0*

**Related Coursework:**

Advanced Topics in NLP, Numerical Analysis, Text Information Systems

**New York University Shanghai** Aug 2020 - May 2024

*Bachelor of Science in Computer Science, Minor in Mathematics* GPA: 3.92/4.0, In-Major GPA: 4.0/4.0

**Related Coursework:**

Natural Language Processing, Reinforcement Learning, Computer Vision

**Study Away:**

New York University, New York, USA Sep 2022 - Dec 2022

**PUBLICATIONS**

* Cheng Qian, Peixuan Han, Qinyu Luo, …, **Xiaocheng Yang**, Denghui Zhang, Yunzhu Li, Heng Ji. 2024. [EscapeBench: Pushing Language Models to Think Outside the Box](https://arxiv.org/abs/2412.13549).
* Vardhan Dongre, **Xiaocheng Yang**, Emre Can Acikgoz, Suvodip Dey, Gokhan Tur, Dilek Hakkani-Tur. 2024. [ReSpAct: Harmonizing Reasoning, Speaking, and Acting](https://arxiv.org/abs/2411.00927).
* **Xiaocheng Yang**, Bingsen Chen, and Yik-Cheung Tam. 2024. [Arithmetic Reasoning with LLM: Prolog Generation & Permutation](https://aclanthology.org/2024.naacl-short.61/). In Proceedings of the 2024 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (Volume 2: Short Papers), pages 699–710, Mexico City, Mexico. Association for Computational Linguistics.
* Bingsen Chen, Peiyang Wu, **Xiaocheng Yang**, Yik-Cheung Tam, Hongyi Wen. 2023. [Dialogue State Tracking using Large Language Models](https://github.com/BaleChen/dst-capstone/blob/main/Final_Report.pdf).

**RESEARCH EXPERIENCE**

**Siebel School of Computing and Data Science, University of Illinois at Urbana-Champaign**

*Graduate Research Assistant* | *Advisor:* [***Prof. Gokhan Tur***](https://siebelschool.illinois.edu/about/people/department-faculty/gokhan) Aug 2024 - Present

* Reproduced LLM ReAct framework for the task-oriented dialogue domain
* Conducted prompt engineering, by introducing friction rules in the prompt, to prompt machine-user interaction and mitigate ambiguity in task-oriented dialogues; Observed an increment in inform and success scores on the task-oriented dialogue benchmark MultiWOZ by 5.5% and 3% respectively when proper rules are given in the prompt
* Built and experimented with multi-agent systems for task-oriented dialogues, involving a verifier, friction generator, and ReAct agent; Observed improved inform scores when multi-agents are properly involved

**Department of Computer Science, New York University Shanghai**

*Undergraduate Research Assistant* | *Advisor:* [***Prof. Yik-Cheung (Wilson) Tam***](https://shanghai.nyu.edu/academics/faculty/directory/yik-cheung-wilson-tam) Jun 2023 – May 2024

* Finetuned LoRAs for large language models to investigate model mathematic reasoning ability on the arithmetic reasoning benchmark GSM8K; Experimented with different output settings, including Chain-of-Thought, Prolog generation, and combinations of both output strategies; Found that prolog generation outstripped other strategies; Open-sourced the GSM8K-Prolog dataset
* Experimented with data augmentations on Prolog data; Observed a 10.9% margin of accuracy on the GSM8K test set and a 22.6% margin on the GSM-HARD test set over the Chain-of-Thought baseline with Prolog permutation strategy; Investigated the divergence between cross entropy loss and the actual accuracy of Prolog codes
* Finetuned LoRAs for large language models to solve dialogue state tracking (DST) using the task-oriented dialogue benchmark MultiWOZ; Experimented with different LoRA settings, model scales, data scales, and different output settings, including slot-level QA and JSON format; Achieved a new SOTA in end-to-end DST methods, obtaining an 82.4% joint goal accuracy

**Department of Economics, New York University Shanghai**

*Undergraduate Research Assistant* | *Advisor:*[***Prof. Guodong Chen***](https://shanghai.nyu.edu/academics/faculty/directory/guodong-chen)*,* [***Prof. Yu Zhou***](https://shanghai.nyu.edu/academics/faculty/directory/yu-amanda-zhou) Jun 2022 – Dec 2023

* Conducted quasi-experimental study on the impact of the school enrollment lottery policies on household expenditures
* Experimented with data cleaning strategies, including outlier filtering, winsorization, and logarithms
* Utilized propensity score matching and difference-in-difference method and observed declining household education expenditures after the policy was released

**HONORS AND AWARDS**

* **Summa Cum Laude**, New York University Shanghai May 2024
* **Honors in Computer Science**, New York University Shanghai May 2024
* **NYU Shanghai Excellence Award**, New York University Shanghai May 2024
* **Dean's List for 2022-2023 Academic Year**, New York University Shanghai May 2023
* **Dean's List for 2021-2022 Academic Year**, New York University Shanghai May 2022
* **Dean's List for 2020-2021 Academic Year**, New York University Shanghai May 2021

**TECHNICAL SKILLS**

**Programming Languages:** Python, LaTex, SQL, R, Java

**Machine Learning Libraries:** PyTorch, Huggingface Python library, Peft, Torchrun, Deepspeed, Pandas, NumPy, Matplotlib, Scikit-Learn

**Spoken Languages:** Mandarin Chinese (Native), English (TOEFL 104)