

Xinming Hou

✉ dyxhou@gmail.com | 🏠 dxhou.github.io | 💻 dxhou | 🐦 XinmingHou

Research Interests

My primary research and study lie in the area of **machine learning** and **natural language processing**.

As an AI researcher with a passion for interdisciplinary exploration, I am particularly passionate about a broad range of topics within AI, including Causality, Cognitive Science, Reinforcement Learning, Alignment and Explainable AI.

Education

Gaoling School of Artificial Intelligence, Renmin University of China (RUC)

Beijing, China

BACHELOR'S OF ENGINEERING (B.ENG.) IN **ARTIFICIAL INTELLIGENCE** WITH HONORS

Sept. 2021-Jun. 2025(Expected)

- Major GPA: 3.68/4; Overall GPA: 3.5/4; Average score: 87.2
- Relevant Courses: Machine Learning, Deep Learning, Natural language processing, Algorithm Design and Analysis, Data Structure and Algorithm, Python Programming, C & C++ Programming, Probability and Statistics, Advanced Algebra, Mathematical Analysis.

Publications

CoAct: A Global-Local Hierarchy for Autonomous Agent Collaboration

Xinming Hou, Mingming Yang, Wenxiang Jiao, Xing Wang, Zhaopeng Tu, Xin Zhao.

In submission, 2024 [Paper]

Hallucination Reduction in Large Vision-language Models via Emphasizing Image-negative Tokens

Meng Shen, Chengru Song, Minghao Wu, **Xinming Hou**, Deepu Rajan

In submission, 2024

Research Experience

Renmin University of China

Beijing, China

RESEARCH ASSISTANT AT **RUC AI BOX**, ADVISED BY **PROF. WAYNE XIN ZHAO**

Jul. 2022 - Present

- **Research Topics:** machine learning, natural language processing, explainability
- Delved into topics related to knowledge discernment and memory management to enhance factuality control of language models.
- Built a self-improvement framework in various complex cognitive and reasoning tasks, and explored the universal pipeline for building user-friendly prompts, incorporating various ICL methods.
- Explored Transformer mechanisms at the neuronal level, inspired by the language networks' behaviors and characteristics in the human brain, aiming to investigate LLMs' multilingual capabilities and reasoning mechanisms.

Tencent AI Lab

Shenzhen, China

RESEARCH INTERN AT **AI REASERCH GROUP**, ADVISED BY **WENXIANG JIAO** AND **XING WANG**

Jul. 2023 - Jun. 2024

- **Research Topics:** the self-organization and humanity of multi-agents system
- Explored the potential of transferring human societal work patterns to AI systems.
- Investigated efficient and flexible collaboration methods for LLM agents to enhance real-world complex task handling capabilities.

The University of Hong Kong

Hong Kong, China

RESEARCH ASSISTANT AT **XLANG LAB**, ADVISED BY **PROF. TAO YU**

Aug. 2024 - Oct. 2024

- **Research Topics:** natural language processing, executable language grounding
- Built benchmarking platform designed to evaluate VLM agents on a highly flexible, wide range of OS-level real-world tasks.

Project Portfolio (Selected)

Classical Chinese Poetry Creation Model

Beijing, China

FOUNDER & DEVELOPER, ADVISED BY [PROF. RUI YAN](#) AND [PROF. DANJUN CAI](#) / [\[PRE. SLIDES\]](#)

Feb. 2023 - Apr. 2024

- Proposed a Chinese Tang Poetry creation pre-trained language model, which endows the model with vitality and a complete life cycle like Tang dynasty poets, and enables emotional interaction with users.
- Won the Best Creativity Award in The 14th Student Entrepreneurship Star Competition, JD Cup.

Survey of Large Language Models

Beijing, China

PROOFREADER, ADVISED BY [PROF. WAYNE XIN ZHAO](#) / [\[PAPER\]](#) / [\[GITHUB\]](#) / [\[BOOK\]](#)

Mar. 2023 - May. 2023

- Conducted overall and detailed review to translate the paper into a high-quality Chinese version.
- Corrected the inconsistencies and ambiguities in the text and provided feasible suggestions for improvement.

Implementation of a Basic Search Engine

Beijing, China

FOUNDER & DEVELOPER, ADVISED BY [PROF. JIAXIN MAO](#) / [\[CODE\]](#)

Aug. 2022

- Coursework for Artificial Intelligence Integrated Design, voted as the best system (1/14)
- Built A website that supports school community network search using HTML5, CSS, and JS languages.
- Applied the advanced methods of web crawler and classical algorithms of information retrieval (such as TF-IDF, PAGE-RANK, etc.)

Skills

Programming C/C++, Python, \LaTeX , Linux, SQL, MATLAB, HTML5, CSS, JS, etc.

Frameworks PyTorch, Tensorflow, NumPy, DeepSpeed, Git, Anaconda, etc.

Honors and Awards (Selected)

- 2022 **National First Prize**, National College Student Mathematical Modeling Competition (top 0.60%)
- 2023 **Finalist**, Mathematical Contest in Modeling (top 2%)
- 2024 **First Prize**, Sa shixuan Elite Fund Scholarship
- 2023 **Best Creativity Award**, The 14th Student Entrepreneurship Star Competition, JD Cup(50,000 RMB prize)
- 2022 **Best System**, GSAI Artificial Intelligence Integrated Design
- 2022 **1st place**, RUC Group Competitive OJ Contest for Programming Course (Captain, 1/22)