

Siyu Yuan

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RESEARCH INTEREST

Siyu Yuan (员司雨) is a fourth-year Ph.D. candidate at Fudan University's School of Data Science. Her research focuses on advancing fundamental **Planning and Reasoning Capabilities in Language Models**, with a particular focus on building reasoning models and autonomous agents:

- **Reasoning Models:** Exploring and advancing research on incentivizing and understanding complex reasoning and planning capabilities in large language models. Key approaches include *reinforcement learning* and *iterative self-reflection*.
- **Autonomous Agents:** Developing agentic intelligence - autonomous systems capable of making decisions and executing plans with minimal human intervention. This includes investigating their interactions in real-world environments, emphasizing *efficient tool utilization* and *powerful multi-agent collaboration*.

EDUCATION

Ph.D. in Statistics

National Scholarship for Doctoral Students, ACL 2023 Outstanding Paper Award (Top 1%)

Fudan University
2021-2026 (expected)

B.S. in Data Science

National Scholarship, Outstanding Graduate of Shanghai

Fudan University
2017-2021

EXPERIENCE

Moonshot AI RL Team

July 2025 - Present

- Role: Research Intern
- Advisor: Dr. Dehao Zhang
- Topics: Developing agentic intelligence through reinforcement learning

ByteDance Seed-LLM-Horizon

September 2024 - June 2025

- Role: Research Intern
- Advisor: Dr. Jiangjie Chen and Dr. Jiecao Chen
- Topics: Enhancing complex reasoning capabilities in LLMs [1] [2] [3] [10]
- Projects: [Seed1.5-Thinking](#) (Github Star: 700+), [Doubao-1.5-pro-AS1-Preview](#)

Microsoft Research Asia

September 2023 - Jun 2024

- Role: Research Intern
- Advisor: Dr. Kaitao Song
- Topics: Autonomous Agents with Planning and Tool Use [5] [6] [8].
- Project: Participate in the [JARVIS](#) project (Github Stars: 23.6K).

ByteDance AI-Lab

January 2023 - May 2023

- Role: Research Intern
- Advisor: Dr. Changzhi Sun and Jiaze Chen
- Topics: Evaluation and Improvement on the analogical reasoning abilities of LLMs [24].

SELECTED WORK

[*: Equal Contribution; ♠: Student I Mentored; †: Project Leader;]

- [1] [Enigmata: Scaling Logical Reasoning in Large Language Models with Synthetic Verifiable Puzzles](#)
Jiangjie Chen*, Qianyu He*, **Siyu Yuan***, Aili Chen*, Zhicheng Cai, Weinan Dai, Hongli Yu, Jiaze Chen, Xuefeng Li, Qiying Yu, Hao Zhou, Mingxuan Wang
Technical Report, Preprint, 2025. **Core Contributor**. This project contributes to the Logical Reasoning Capabilities for [Seed1.5-Thinking](#).
- [2] [Seed1.5-Thinking: Advancing Superb Reasoning Models with Reinforcement Learning](#)
Siyu Yuan as a contributor to **Logic Reasoning Capabilities for Seed1.5-Thinking**
Technical Report, Preprint, 2025.
- [3] [Agent-R: Training Language Model Agents to Reflect via Iterative Self-Training](#)
Siyu Yuan*, Zehui Chen*, Zhiheng Xi, Junjie Ye, Zhengyin Du, Jiecao Chen
Long paper, Preprint, 2025. **Huggingface Daily Paper Top-1, Github Stars: 100+**

- [4] [Past Meets Present: Creating Historical Analogy with Large Language Models](#)
Nianqi Li[♠], **Siyu Yuan**[†], Jiangjie Chen, Jiaqing Liang, Feng Wei, Zujie Liang, Deqing Yang, Yanghua Xiao
Long paper, in: **ACL 2025**. **Oral (8%)**
- [5] [EvoAgent: Towards Multi-Agent Generation via Evolutionary Algorithms](#)
Siyu Yuan^{*}, Kaitao Song^{*}, Jiangjie Chen, Xu Tan, Dongsheng Li, Deqing Yang
Long paper, in: **NAACL 2025**. **Github Stars: 100+**
- [6] [EasyTool: Enhancing LLM-based Agents with Concise Tool Instruction](#)
Siyu Yuan^{*}, Kaitao Song^{*}, Jiangjie Chen, Xu Tan, Yongliang Shen, Ren Kan, Dongsheng Li, Deqing Yang
Long paper, in: **NAACL 2025**. In the **JARVIS** project (**Github Stars: 23.6K**)
- [7] [From Persona to Personalization: A Survey on Role-Playing Language Agents](#)
Jiangjie Chen^{*}, Xintao Wang^{*}, Rui Xu^{*}, **Siyu Yuan**^{*}, Yikai Zhang[♠], Wei Shi^{*}, Jian Xie^{*}, Shuang Li[♠], Ruihan Yang[♠], Tinghui Zhu, Aili Chen, Nianqi Li[♠], Lida Chen, Caiyu Hu, Siye Wu, Scott Ren, Ziquan Fu, Yanghua Xiao
Long paper, in: **TMLR**.
- [8] [TaskBench: Benchmarking Large Language Models for Task Automation](#)
Yongliang Shen^{*}, Kaitao Song^{*}, Xu Tan, Wenqi Zhang, Kan Ren, **Siyu Yuan**, Weiming Lu, Dongsheng Li, Yueting Zhuang
Long paper, in: **NeurIPS 2024**. In the **JARVIS** project (**Github Stars: 23.6K**)
- [9] [Distilling Script Knowledge from Large Language Models for Constrained Language Planning](#)
Siyu Yuan, Jiangjie Chen, Ziquan Fu, Xuyang Ge[♠], Soham Shah, Charles Robert Jankowski, Yanghua Xiao, Deqing Yang
Long paper, in: **ACL 2023**. **Outstanding Paper Award (Top 1%)**

MORE WORK

[*: Equal Contribution; ♠: Student I Mentored; †: Project Leader;]

Topic I: Planning and Reasoning

- [10] [KORGym: A Dynamic Game Platform for LLM Reasoning Evaluation](#)
Siyu Yuan as a contributor to Logic Reasoning Data Collection.
Long paper, Preprint, 2025.
- [11] [ARIA: Training Language Agents with Intention-driven Reward Aggregation](#)
Ruihan Yang[♠], Yikai Zhang[♠], Aili Chen, Xintao Wang, Jiangjie Chen, **Siyu Yuan**, Deqing Yang, Yanghua Xiao
Long paper, Preprint, 2025.
- [12] [Implicit reasoning in transformers is reasoning through shortcuts](#)
Tianhe Lin[♠], Jian Xie, **Siyu Yuan**, Deqing Yang
Long paper, in: **ACL 2025 Findings**.
- [13] [The lighthouse of language: Enhancing llm agents via critique-guided improvement](#)
Ruihan Yang[♠], Fanghua Ye, Jian Li, **Siyu Yuan**, Yikai Zhang[♠], Zhaopeng Tu, Xiaolong Li, Deqing Yang
Long paper, Preprint, 2025.
- [14] [ToolHop: A Query-Driven Benchmark for Evaluating Large Language Models in Multi-Hop Tool Use](#)
Junjie Ye, Zhengyin Du, Xuesong Yao, Weijian Lin, Yufei Xu, Zehui Chen, Zaiyuan Wang, Sining Zhu, Zhiheng Xi, **Siyu Yuan**, Tao Gui, Qi Zhang, Xuanjing Huang, Jiechao Chen
Long paper, in: **ACL 2025**.
- [15] [Revealing the Barriers of Language Agents in Planning](#)
Jian Xie, Kexun Zhang, Jiangjie Chen, **Siyu Yuan**, Kai Zhang, Yikai Zhang, Lei Li, Yanghua Xiao
Long paper, in: **NAACL 2025**.
- [16] [SELFGOAL: Your Language Agents Already Know How to Achieve High-level Goals](#)
Ruihan Yang[♠], Jiangjie Chen, Yikai Zhang[♠], **Siyu Yuan**, Kyle Richardson, Yanghua Xiao, Deqing Yang
Long paper, in: **NAACL 2025**.
- [17] [MultiLingPoT: Enhancing Mathematical Reasoning with Multilingual Program Fine-tuning](#)
Nianqi Li[♠], Zujie Liang, **Siyu Yuan**, Jiaqing Liang, Feng Wei, Yanghua Xiao
Long paper, Preprint, 2024.
- [18] [TIMEARENA: Shaping Efficient Multitasking Language Agents in a Time-Aware Simulation](#)
Yikai Zhang[♠], **Siyu Yuan**[†], Caiyu Hu, Kyle Richardson, Yanghua Xiao, Jiangjie Chen
Long paper, in: **ACL 2024**.
- [19] [Put Your Money Where Your Mouth Is: Evaluating Strategic Planning and Execution of LLM Agents in an Auction Arena](#)
Jiangjie Chen, **Siyu Yuan**, Rong Ye, Bodhisattwa Prasad Majumder, Kyle Richardson
Long paper, Preprint, 2024.

Topic II: Cognitive Modeling.....

- [20] [Unlocking Scientific Concepts: How Effective Are LLM-Generated Analogies for Student Understanding and Classroom Practice?](#)
Zekai Shao*, Siyu Yuan*, Lin Gao, Yixuan He, Deqing Yang, Siming Chen
Long paper, in: [CHI 2025](#).
- [21] [WAPITI: A Watermark for Finetuned Open-Source LLMs](#)
Lingjie Chen[♣], Ruizhong Qiu, Siyu Yuan, Zhining Liu, Tianxin Wei, Hyunsik Yoo, Zhichen Zeng, Deqing Yang, Hanghang Tong
Long paper, Preprint, 2024.
- [22] [“A good pun is its own reword”: Can Large Language Models Understand Puns?](#)
Zhijun Xu[♣], Siyu Yuan[†], Lingjie Chen[♣], Deqing Yang
Long paper, in: [EMNLP 2024](#).
- [23] [Boosting Scientific Concepts Understanding: Can Analogy from Teacher Models Empower Student Models?](#)
Siyu Yuan*, Jiayang Cheng*, Lin Qiu, Deqing Yang
Short paper, in: [EMNLP 2024](#).
- [24] [AnalogyKB: Unlocking Analogical Reasoning of Language Models with A Million-scale Knowledge Base](#)
Siyu Yuan*, Jiangjie Chen*, Jiaqing Liang, Changzhi Sun, Yanghua Xiao, Deqing Yang
Long paper, in: [ACL 2024](#).
- [25] [Translate Meanings, Not Just Words: IdiomKB’s Role in Optimizing Idiomatic Translation with Language Models](#)
Shuang Li[♣], Jiangjie Chen, Siyu Yuan, Xinyi Wu, Hao Yang, Shimin Tao, Yanghua Xiao
Long paper, in: [AAAI 2024](#).
- [26] [Light Up the Shadows: Enhance Long-Tail Entity Grounding with Concept-Guided Vision-Language Models](#)
Yikai Zhang[♣], Qianyu He, Xintao Wang, Siyu Yuan, Jiaqing Liang, Yanghua Xiao
Long paper, in: [ACL 2024](#) (Findings).
- [27] [Beneath Surface Similarity: Large Language Models Make Reasonable Scientific Analogies after Structure Abduction](#)
Siyu Yuan, Jiangjie Chen, Xuyang Ge[♣], Yanghua Xiao, Deqing Yang
Long paper, in: [EMNLP 2023](#) (Findings).
- [28] [Causality-aware Concept Extraction based on Knowledge-guided Prompting](#)
Siyu Yuan, Deqing Yang, Jinxi Liu, Shuyu Tian, Jiaqing Liang, Yanghua Xiao, Rui Xie
Long paper, in: [ACL 2023](#).
- [29] [Generative Entity Typing with Curriculum Learning](#)
Siyu Yuan, Deqing Yang, Jiaqing Liang, Zhixu Li, Jinxi Liu, Jingyue Huang, Yanghua Xiao
Long paper, in: [EMNLP 2022](#).
- [30] [Contextual Information and Commonsense Based Prompt for Emotion Recognition in Conversation](#)
Jingjie Yi, Deqing Yang, Siyu Yuan, Kaiyan Cao, Zhiyao Zhang and Yanghua Xiao
Long paper, in: [ECML PKDD 2022](#).
- [31] [Large-Scale Multi-granular Concept Extraction Based on Machine Reading Comprehension](#)
Siyu Yuan, Deqing Yang, Jiaqing Liang, Jilun Sun, Jingyue Huang, Kaiyan Cao, Yanghua Xiao, Rui Xie.
Long paper, in: [ISWC 2021](#).

Topic III: Role-Playing Agents.....

- [33] [CoSER: Coordinating LLM-Based Persona Simulation of Established Roles](#)
Xintao Wang, Heng Wang, Yifei Zhang, Xinfeng Yuan, Rui Xu, Jen-tse Huang, Siyu Yuan, Haoran Guo, Jiangjie Chen, Wei Wang, Yanghua Xiao, Shuchang Zhou
Long paper, in: [ICML 2025](#).
- [34] [DEEPER Insight into Your User: Directed Persona Refinement for Dynamic Persona Modeling](#)
Aili Chen, Chengyu Du, Jiangjie Chen, Jinghan Xu, Yikai Zhang, Siyu Yuan, Zulong Chen, Liangyue Li, Yanghua Xiao
Long paper, in: [ACL 2025](#).
- [35] [Character is Destiny: Can Large Language Models Simulate Persona-Driven Decisions in Role-Playing?](#)
Rui Xu, Xintao Wang, Jiangjie Chen, Siyu Yuan, Xinfeng Yuan[♣], Jiaqing Liang, Zulong Chen, xiaoqingdong, Yanghua Xiao
Long paper, Preprint, 2024.
- [36] [MINDECHO: Role-Playing Language Agents for Key Opinion Leaders](#)
Rui Xu, Dakuan Lu, Xiaoyu Tan, Xintao Wang, Siyu Yuan, Jiangjie Chen, Wei Chu, Xu Yinghui
Long paper, Under Review, 2024.

[37] [Evaluating Character Understanding of Large Language Models via Character Profiling from Fictional Works](#)
Xinfeng Yuan[♣], **Siyu Yuan**[†], Yuhan Cui^{*♣}, Tianhe Lin[♣], Xintao Wang, Rui Xu, Jiangjie Chen, Deqing Yang
Long paper, in: **EMNLP 2024**.

[38] [InCharacter: Evaluating Personality Fidelity in Role-Playing Agents through Psychological Interviews](#)
Xintao Wang, Yunze Xiao, Jen-tse Huang, **Siyu Yuan**, Rui Xu, Haoran Guo, Quan Tu, Yaying Fei, Ziang Leng, Wei Wang,
Jiangjie Chen, Cheng Li, Yanghua Xiao
Long paper, in: **ACL 2024**.

SELECTED AWARDS

China National Scholarship for Doctoral Students	2024
○ Fudan University	
ACL 2023 Outstanding Paper Award (Top 1%)	2023
○ Association of Computational Linguistics	
Huatai Securities Scholarship	2023
○ Fudan University	
Outstanding Graduate Student of Shanghai Colleges and University (Top 5%)	2021
○ Fudan University	
Outstanding Student pacemaker of Fudan University	2021
○ Fudan University	
China National Scholarship for Undergraduate	2018
○ Fudan University	

Academic Service

- Program Committee/Reviewer for leading conferences including ACL ARR (2022-), ICLR (2024), COLM (2024-), NeurIPS (2025) and related workshops