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	**Fudan University**
National Scholarship, ACL 2023 (Top 1.0%) and ACL 2025 (Top 0.3%) Outstanding Paper Award	2021-2026 *(expected)*
B.S. in Data Science	**Fudan University**
National Scholarship, Outstanding Graduate of Shanghai	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] [4] [11]
- 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 [6] [7] [9].
- 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 [25].

SELECTED AWARDS

ACL 2025 Outstanding Paper Award (Top 0.3%)	2025
- Association of Computational Linguistics	
China National Scholarship for Doctoral Students	2024
- Fudan University	
ACL 2023 Outstanding Paper Award (Top 1%)	2023
- Association of Computational Linguistics	
Outstanding Graduate Student of Shanghai Colleges and University (Top 5%)	2021
- Fudan University	
Outstanding Student pacemaker of Fudan University (Top 10 Students in Fudan University)	2021
- Fudan University	
China National Scholarship for Undergraduate	2018
- Fudan University	

SELECTED WORK

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

[1] ThinkDial: An Open Recipe for Controlling Reasoning Effort in Large Language Models
Qianyu He*, **Siyu Yuan***, Xuefeng Li, Mingxuan Wang, Jiangjie Chen
Technical Report, Preprint, 2025.

[2] 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**.

[3] 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.

[4] 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+**

[5] 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%). Outstanding Paper Award (Top 0.3%)**

[6] 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+**

[7] 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**)

[8] 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**.

[9] 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**)

[10] 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

[11] KORGym: A Dynamic Game Platform for LLM Reasoning Evaluation
Siyu Yuan as a contributor to Logic Reasoning Data Collection.
Long paper, Preprint, 2025.

[12] 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.

[13] Implicit reasoning in transformers is reasoning through shortcuts
Tianhe Lin♠, Jian Xie, **Siyu Yuan**, Deqing Yang
Long paper, in: **ACL 2025 Findings**.

[14] 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.

[15] 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**.

[16] 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**.

[17] 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**.

[18] MultiLingPoT: Enhancing Mathematical Reasoning with Multilingual Program Fine-tuning
Nianqi Li♠, Zujie Liang, **Siyu Yuan**, Jiaqing Liang, Feng Wei, Yanghua Xiao
Long paper, EMNLP 2025 Findings.

[19] 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**.

[20] 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

[21] 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**.

[22] WAPITI: A Watermark for Finetuned Open-Source LLMs
Lingjie Chen♠, Ruizhong Qiu, **Siyu Yuan**, Zhining Liu, Tianxin Wei, Hyunsik Yoo, Zhichen Zeng, Deqing Yang, Hang-hang Tong
Long paper, Preprint, 2024.

[23] "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**.

[24] 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**.

[25] 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**.

[26] 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**.

[27] 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).

[28] 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).

[29] 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**.

[30] 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**.

[31] 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**.

[32] 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] 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, EMNLP 2025 Findings.

[34] 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**.

[35] 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**.

[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**.

Academic Service

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