

# Siyu Yuan

🌐 <https://siyuyuan.github.io/>

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## RESEARCH INTEREST

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Siyu Yuan (员司雨) is a third-year Ph.D. student at Fudan University in the School of Data Science. Her interested research topics are mostly around cognitive science with generative agents, including (but are not limited to):

- **Cognitive reasoning**, especially on exploring the cognitive reasoning abilities of generative agents, including *analogical reasoning*, *concept understanding*, *role-playing* and *belief exploration* of language agents. The ultimate goal is to enhance the understanding of these agents about themselves and others, thereby enabling them to generate responses that align better with human cognition.
- **Strategic Planning**, especially on equipping generative agents with human-level planning capabilities revolving around *constrained planning*, *tool invocation* and *multitasking planning*.
- **Knowledge Acquisition**, especially on excavating knowledge based on generative agents, including *concept acquisition*, *script generation*, *idiom construction*, *pun generation* and *analogy making*. These aim to construct rich knowledge resources that can be effectively utilized.

## EDUCATION

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### Ph.D. in Statistics.

Knowledge Works Laboratory at Fudan University, Advisor: Prof. Deqing Yang.

**Fudan University**  
2021-2026 (estimated)

### B.S. in Data Science.

Knowledge Works Laboratory at Fudan University, Advisor: Prof. Deqing Yang.

**Fudan University**  
2017-2021

## EXPERIENCE

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### Microsoft Research Asia (Shanghai)

September 2023 - Present

- Role: Research Intern
- Advisor: Dr. Kaitao Song
- Topics: Autonomous Agents with Planning and Tool Use
- Project: Participate in the **JARVIS** project (Github Stars: 22.1K) [5] [13]

### ByteDance AI-Lab (Shanghai)

January 2023 - May 2023

- Role: Research Intern
- Advisor: Dr. Changzhi Sun and Dr. Jiaze Chen
- Topics: Evaluation and Improvement on the analogical reasoning abilities of LLMs [7].

### Brain Technologies, NLP Research Intern (Remote)

June 2022 - September 2022

- Role: Research Intern
- Advisor: Dr. Charles Jankowski
- Topics: Symbolic Knowledge Distillation for Language Planning and LLM Prompt Engineering [9].

### Knowledge Works Lab at Fudan University (Shanghai)

March 2019 - Present

- Role: Student Researcher
- Advisor: Prof. Yanghua Xiao and Dr. Jiangjie Chen
- Topics: Knowledge Acquisition, e.g. Analogy-making [8], Entity Typing [11], and Concept Extraction [12] [10].

## AWARDS AND ACHIEVEMENTS

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### ACL 2023 Outstanding Paper Award (Top 1%)

2023

- Association of Computational Linguistics

<b>Huatai Securities Scholarship</b>	2023
◦ Fudan University	
<b>Outstanding Graduate Student of Shanghai Colleges and University (Top 5%)</b>	2021
◦ Fudan University	
<b>Outstanding Student pacemaker of Fudan University</b>	2021
◦ Fudan University	
<b>China National Scholarship</b>	2018
◦ Fudan University	

## SELECTED PUBLICATIONS

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

- [1] **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, Preprint, 2024.
- [2] **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, Preprint, 2024.
- [3] **“A good pun is its own reword”: Can Large Language Models Understand Puns?**  
 Zhijun Xu♠, **Siyu Yuan†**, Lingjie Chen♠, Deqing Yang  
 Long paper, Preprint, 2024.
- [4] **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, Preprint, 2024.
- [5] **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: **ICLR 2024 Workshop on LLM Agents**.
- [6] **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.
- [7] **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, Preprint, 2023.
- [8] **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)**.
- [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%)**
- [10] **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**.
- [11] **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**.

- [12] [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**.

## COMPLETE PUBLICATIONS

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- [13] [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: **ICLR 2024 Workshop on LLM Agents**.
- [14] [Light Up the Shadows: Enhance Long-Tail Entity Grounding with Concept-Guided Vision-Language Models](#)  
Yikai Zhang<sup>♣</sup>, Qianyu He, Xintao Wang, Siyu Yuan, Jiaqing Liang, Yanghua Xiao  
Long paper, Preprint, 2024.
- [15] [Character is Destiny: Can Large Language Models Simulate Persona-Driven Decisions in Role-Playing?](#)  
Rui Xu, Xintao Wang, Jiangjie Chen, Siyu Yuan, Xinfeng Yuan<sup>♣</sup>, Jiaqing Liang, Zulong Chen, xiaoqingdong, Yanghua Xiao  
Long paper, Preprint, 2024.
- [16] [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, Preprint, 2024.
- [17] [Deciphering Figurative Meanings: IdiomKB's Role in Optimizing Idiomatic Translation on Language Models](#)  
Shuang Li<sup>♣</sup>, Jiangjie Chen, Siyu Yuan, Xinyi Wu, Hao Yang, Shimin Tao, Yanghua Xiao  
Long paper, in: **AAAI 2024**.
- [18] [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**.

## Academic Service

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- Program Committee/Reviewer of EMNLP (2022, 2023), APIN (2022, 2023), ACL(2023), ARR (2023, 2024), IEA/AIE (2023, 2024), ICLR (2024), COLM (2024)

## Mentoring

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[Knowledge Cutoff: Feb 2024]

- Ruihan Yang, Ph.D. student at Fudan University [1] June 2023 - Present
- Yikai Zhang, Ph.D. student at Fudan University [4] [14] [1] May 2023 - Present
- Shuang Li, M.S. student at Fudan University [17] Jan 2023 - Present
- Nianqi Li, M.S. student at Fudan University [1] Mar 2024 - Present
- Xinfeng Yuan, M.S. student at Fudan University [15] [2] Sep 2023 - Present
- Zhijun Xu, M.S. student at Fudan University [3] Sep 2023 - Present
- Tianhe Lin, M.S. student at Fudan University [2] Sep 2023 - Present
- Yuhan Cui, B.S. student at Fudan University [2] Sep 2023 - Present
- Linjie Chen, B.S. student at Fudan University [3] Sep 2023 - Present
- Xuyang Ge, B.S. student at Fudan University → M.S. student at Fudan University [8][9] Jul 2022 - Dec 2023