Zhengliang Shi

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EDUCATION

M.S. at Shandong University *Sep 2023 - Jun 2026*

- Computer Science and Technology; GPA Rank 1 / 41
- Supervised by Prof. *Zhaochun Ren*
- Core Modules: Machine Learning (99), Advanced Algorithms (98)

B.E. at Shandong University *Sep 2019 - Jun 2023*

- Computer Science and Technology; GPA: 93.46 / 100, Rank: 2 / 182
- Supervised by Prof. *Zhaochun Ren*
- Core Modules: Advanced Mathematics (98), Discrete Mathematics (100)

RESEARCH INTERESTS

My research focuses on Deep Research with LLMs (and other foundation models). I organize my research into ***three progressive directions***:

Part I: Tool Learning with Foundation Models

- Teaching LLMs to use diverse external tools, thereby extending their action space to interact with the physical world.

Part II: Deep Research Agents

- Enabling LLMs to serve as agent that can reason (*e.g., planning*) and act (*e.g., execute*) for more complex task solving, providing accurate assistance

Part III: General Deep Research Agents (*future work*)

- Empowering agents to act as general partners in practical decision-making, including research innovation and science discovery.

I am also highly enthusiastic about other areas, e.g., RL, Multimodality or Agents for Social Good.

ACADEMIC SERVICES

- ***Area Chair*** for ACL Rolling Review (ARR, *e.g.,* ACL, EMNLP and NAACL)
- ***Program Committee*** for SIGIR, TheWebConf (WWW), AAAI and IJCAI
- ***Reviewer*** for ARR, ICLR, ECIR, IPM (journal), TKDD (journal), TORS (journal)

RESEARCH INTERNSHIPS

Tencent, TEG Group, *HunYuan* Multimodal Model Department *Apr. 2025 – Jun. 2025*

- Research Internship
- Supervised by Dr. *Zhaopeng Tu*
- Research Topic: Deep Research Agent; Agents for Social Science

Leiden University (Netherlands), Institute of Computer Science Mar. *2025 – Apr. 2025*

- Visiting Student
- Supervised by Prof. *Zhaochun Ren*, *Suzan Verberne* and *Maarten de Rijke*
- Research Topic: Deep Research Agent

Baidu, Search Science Team *Sep. 2023 – Sep 2025*

- Research Internship
- Supervised by Dr. *Lingyong Yan* and Dr. *Dawei Yin*

- Research Topic: LLM-based Agent, Retrieval-augmented generation

Shandong University, Information Retrieval Laboratory *Sep. 2022 – Jun. 2023*

- Research Assistant
- Supervised by Prof. *Zhaochun Ren*
- Research Topic: Retrieval-augmented Generation

PUBLICATIONS (SELECTED * equal contribution)

I have published several papers in top-tier AI conferences that align with my research interests, such as tool-use agent and L Deep Research. Below are selected papers.

LLM-based Agent / Tool-use Agent

[1] Tool Learning in the Wild: Empowering Language Models as Automatic Tool Agents
Zhengliang Shi, ... (four more authors), Dawei Yin, Zhumin Chen, Suzan Verberne, Zhaochun Ren
Accepted by **WWW** 2025

[2] Divide-Then-Aggregate: An Efficient Tool Learning Method via Parallel Tool Invocation
Dongsheng Zhu*, Weixian Shi*, **Zhengliang Shi,** ... (three more authors) Dawei Yin
Accepted by ACL 2025

[3] Retrieval Models Aren't Tool-Savvy: Benchmarking Tool Retrieval for Large Language Models
Zhengliang Shi, Yuhan Wang, Lingyong Yan, Pengjie Ren, Shuaiqiang Wang, Dawei Yin, Zhaochun Ren
Accepted by **ACL** 2025

[4] Iterative Tool Learning from Introspection Feedback by Easy-to-Difficult Curriculum
Shen Gao*, **Zhengliang Shi***, ... (six more authors), Zhaochun Ren.
Accepted by **AAAI** 2024

Deep Research Agent

[1] Iterative Self-incentivization Empowers Large Language Models as Agentic Searchers
Zhengliang Shi, Lingyong Yan, Dawei Yin, Suzan Verberne, Maarten de Rijke, Zhaochun Ren
Accepted by NeurIPS 2025

[2] Generate-then-Ground in Retrieval-Augmented Generation for Multi-hop Question Answering
Zhengliang Shi, Shuo Zhang, Weiwei Sun, Shen Gao, Pengjie Ren, Zhumin Chen, Zhaochun Ren.
Accepted by ***ACL*** 2024

COMPETITION AWARD (SELECTED)

2022 World Artificial Intelligence Challenge Competition	National 3rd Prize
2021, 2022 American Mathematical Modeling Competition	Honorable Mention
2021 China Mathematical Modeling Competition	National 1st Prize
2021 China Innovation & Entrepreneurship Competition	National 1st Prize

HONORS (SELECTED)

Outstanding Graduate	*2023*
Academic Scholarship	*2021,2022,2023*
Presidential Scholarship	*2022*
Dean's Scholarship, Department of Computer Science	*2022*
National Scholarship, Ministry of Education, China	*2021*