Zhaoyang Yu

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Research Interests

My research interests center on improving the decision-making capabilities of language model agents.

- **Efficient agent learning**: organizing interaction experience into reusable representations, and building scalable environments for generating training data with verifiable intermediate states.
- **Agent decision-making and inference**: exploring decision representations and inference procedures, including planning, action abstraction, and context management.
- **Multi-agent coordination**: designing mechanisms for communication and collaborative decision-making among agents.

Education

Renmin University of China Beijing, China | 2020–2024
B.E. in Artificial Intelligence | Thesis Advisor: Prof. Xu Chen
Undergraduate thesis: *Multi-head Reflexion: A Memory Mechanism of Autonomous Agent.*

Selected Publications

For a complete publication list, see Google Scholar.

ReCode: Unify Plan and Action for Universal Granularity Control
Zhaoyang Yu, Jiayi Zhang, Huixue Su, Yufan Zhao, Yifan Wu, Mingyi Deng, Jinyu Xiang, Yizhang Lin, Fanqi Kong, Lingxiao Tang, Yuyu Luo, Bang Liu†, Chenglin Wu†
AIWILD Workshop at ICML 2026 Paper · Code

AFlow: Automating Agentic Workflow Generation
Jiayi Zhang*, Jinyu Xiang*, **Zhaoyang Yu**, Fengwei Teng, Xiong-Hui Chen, Jiaqi Chen, Mingchen Zhuge, Xin Cheng, Sirui Hong, Jinlin Wang, Bingnan Zheng, Bang Liu, Yuyu Luo†, Chenglin Wu†
*ICLR 2025, **Oral*** Paper · Code

Atom of Thoughts for Markov LLM Test-Time Scaling
Fengwei Teng, Quan Shi, **Zhaoyang Yu**, Jiayi Zhang, Yuyu Luo, Chenglin Wu†, Zhijiang Guo†
NeurIPS 2025 Paper · Code

AutoWebWorld: Synthesizing Infinite Verifiable Web Environments via Finite State Machines
Yifan Wu, Yiran Peng, Yiyu Chen, Jianhao Ruan, Zijie Zhuang, Cheng Yang, Jiayi Zhang, Man Chen, Yenchi Tseng, **Zhaoyang Yu**, Liang Chen, Yuyao Zhai, Bang Liu†, Chenglin Wu†, Yuyu Luo†
ICML 2026 Paper · Project

InteractComp: Evaluating Search Agents With Ambiguous Queries
Mingyi Deng*, Lijun Huang*, Yani Fan, Fanqi Kong, Jiayi Zhang†, Fashen Ren, Jinyi Bai, Fuzhen Yang, Dayi Miao, **Zhaoyang Yu**, Yifan Wu, Yanfei Zhang, Fengwei Teng, Yingjia Wan, Song Hu, Yude Li, Xin Jin, Conghao Hu, Haoyu Li, Qirui Fu, Tai Zhong, Xinyu Wang, Xiangru Tang, Nan Tang, Chenglin Wu, Yuyu Luo
ICML 2026 Paper · Code

Self-Supervised Prompt Optimization
Jinyu Xiang*, Jiayi Zhang*, **Zhaoyang Yu**, Xinbing Liang, Fengwei Teng, Jinhao Tu, Fashen Ren, Xiangru Tang, Sirui Hong, Chenglin Wu†, Yuyu Luo†
EMNLP 2025 Paper · Code

Foundation Protocol: A Coordination Layer for Agentic Society
Bang Liu‡†, Yongfeng Gu‡, Jiayi Zhang‡, **Zhaoyang Yu‡**, Sirui Hong‡, Maojia Song‡, Xiaoqiang Wang‡, Mingyi Deng, Zijie Zhuang, Ronghao Wang, Mingzhe Cao, Yutong Zhu, Xingjian Li, Yifan Wu, Jianhao Ruan, Yiran Peng, Shuangrui Chen, Jinlin Wang, Yizhang Lin, Dongjie Zhang, Dekun Wu, Chen Ma, Lizi Liao, Han Yu, Jian Pei, Heng Ji, Qiang Yang, Yuyu Luo†, Chenglin Wu†
arXiv preprint, 2026 Paper · Code

*Equal contribution. ‡Core contributor. †Corresponding author.

Selected Projects

ReCode *First Author and Lead Developer* May 2025–Oct 2025

- Built an open source agent framework that recursively decomposes complex tasks, executes subtasks on demand, and gives each subtask an isolated context.
- Unified planning and tool use under one code interface for both inference and training, achieving 22% higher benchmark performance than ReAct, 4.6× greater cost efficiency, and 3.7× greater data efficiency.

OpenManus *Cofounder* Mar 2025–Present

- Built an open source framework for building general purpose agents across different models, tools, and workflows.
- Developed its core agent runtime and coordination components; the project reached **57K GitHub stars** and **10K forks**.

Experience

Vatic Labs Mar 2026–Present
AI Scientist Abu Dhabi, UAE

- Built and maintained an LLM system for financial information analysis, covering data ingestion, retrieval, and automated reporting; implemented asynchronous processing and sustained reliable operation over several months.
- Developed an auto-research loop for quantitative research that proposes hypotheses with explicit expected outcomes, evaluates experimental results, and analyzes discrepancies to guide subsequent iterations.

DeepWisdom Feb 2025–Mar 2026
Researcher Shenzhen, China

- Led *ReCode* research on recursive agent decision-making and learning, from method design through implementation and evaluation.
- Co-founded *OpenManus* and developed its core agent runtime and coordination components.
- Collaborated within Foundation Agents on agent workflow optimization, reasoning, environment generation, and evaluation; contributed to early design discussions for *Foundation Protocol*.

Xiaomi Jan 2024–Apr 2024
Algorithm Engineer Intern Beijing, China

- Built tools for robot navigation, vision, audio, and tactile perception; created instruction data for fine-tuning MiLM-6B to use these tools.
- Developed a ReAct agent for language-guided control of CyberDog2 and delivered an autonomous robot demonstration; ranked first in Xiaomi's quarterly programming competition.

GeWu Lab, Renmin University of China Jun 2022–Aug 2023
Research Assistant Beijing, China

- Trained an audio-visual navigation policy with PPO in SoundSpaces and transferred it from simulation to CyberDog.
- Built a real-time robotic interaction system that combines emotion recognition with robot motions; demonstrated it at BAAI Conference 2022.

Awards and Academic Service

Shanghai Open Source Innovation Elite Award	2025
Alibaba Global Mathematics Competition AI Challenge, Top 3 (Team)	2024
Sa Shixuan Scholarship, Renmin University of China	2024
National College Student Mathematics Competition, Second Prize	2023

Reviewer: TMLR; AAAI'27; NeurIPS/ECCV/CVPR/ICML/ICLR'26; ICML'25 MAS Workshop.
Invited talk:
"Advances and Challenges in Foundation Agents." X-AGI 18th China-R Conference, 2025.

Skills and Languages

Programming Python, C/C++
Languages Mandarin Chinese (native), English (C1)