

Litu Ou

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EDUCATION

University of Edinburgh

- PhD in Computer Science, Sep 2025 – Present
Advisor: Prof. Mirella Lapata
- BSc (Hons) in Artificial Intelligence and Computer Science, First-Class Honours, Sep 2019 – May 2024

RESEARCH SUMMARY

My research focuses on making large language models more effective and reliable for complex, long-horizon tasks. I am particularly interested in web agents, post-training, retrieval, synthetic data, and long-context modeling, especially for improving reasoning, tool use, and evaluation. Across these areas, I study how better supervision, test-time control, and context management can help language models reason more robustly, use tools more effectively, and perform more reliably in realistic multi-step settings.

PUBLICATIONS

- **BrowseConf: Confidence-Guided Test-Time Scaling for Web Agents** (*Findings of ACL 2026*)
Litu Ou*, Kuan Li*, Huifeng Yin*, Liwen Zhang, Zhongwang Zhang, Xixi Wu, Rui Ye, Zile Qiao, Yong Jiang, Pengjun Xie, Fei Huang, Jingren Zhou
- **Context-Aware Hierarchical Merging for Long Document Summarization** (*Findings of ACL 2025*)
Litu Ou, Mirella Lapata
- **Revisiting Text Ranking in Deep Research** (*SIGIR 2026*)
Chuan Meng, Litu Ou, Sean MacAvaney, Jeff Dalton
- **WebSailor: Navigating Super-human Reasoning for Web Agent** (*arXiv preprint*)
Kuan Li*, Zhongwang Zhang*, Huifeng Yin*, Liwen Zhang*, Litu Ou*, Jialong Wu, Wenbiao Yin, Baixuan Li, Zhengwei Tao, Xinyu Wang, Weizhou Shen, Junkai Zhang, Dingchu Zhang, Xixi Wu, Yong Jiang, Ming Yan, Pengjun Xie, Fei Huang, Jingren Zhou
- **Tongyi DeepResearch Technical Report** (*arXiv preprint*)
Tongyi DeepResearch Team
- **WebSailor-V2: Bridging the Chasm to Proprietary Agents via Synthetic Data and Scalable Reinforcement Learning** (*ICLR 2026*)
Kuan Li, Zhongwang Zhang, Huifeng Yin, Rui Ye, Yida Zhao, Liwen Zhang, Litu Ou, Dingchu Zhang, Xixi Wu, Jialong Wu, Xinyu Wang, Zile Qiao, Zhen Zhang, Yong Jiang, Pengjun Xie, Fei Huang, Jingren Zhou
- **Specializing Smaller Language Models towards Multi-Step Reasoning** (*ICML 2023 Oral Poster*)
Yao Fu, Hao Peng, Litu Ou, Ashish Sabharwal, Tushar Khot
- **Chain-of-Thought Hub: A Continuous Effort to Measure Large Language Models' Reasoning Performance** (*ICML 2023*)
Yao Fu, Litu Ou, Yuhao Wan, Mingyu Chen, Hao Peng, Tushar Khot
- **Measuring Context Utilization on Recent Open-Source Long Context LLMs** (*ICLR Blog Posts 2025*)
Litu Ou
- **ToLeaP: Rethinking Development of Tool Learning with Large Language Models** (*arXiv preprint*)
Haotian Chen*, Zijun Song*, Boye Niu*, Zhang Ke*, Litu Ou*, Yaxi Lu, Zhong Zhang, Xin Cong, Yankai Lin, Zhiyuan Liu
- **ReSum: Unlocking Long-Horizon Search Intelligence via Context Summarization** (*arXiv preprint*)
Xixi Wu, Kuan Li, Yida Zhao, Liwen Zhang, Litu Ou, Huifeng Yin, Zhongwang Zhang, Yong Jiang, Pengjun Xie, Fei Huang, Minhao Cheng, Shuai Wang, Hong Cheng, Jingren Zhou
- **Uncertainty-Aware Gradient Signal-to-Noise Data Selection for Instruction Tuning** (*arXiv preprint*)
Zhihang Yuan, Cheng Yue, Long Huang, Litu Ou, Lei Shi

* Equal contribution.

RESEARCH EXPERIENCE

Research Intern, Tongyi Lab, Alibaba Group, Jun 2025 – Sep 2025

- Core contributor to Tongyi DeepResearch [[Github](#) 18k stars] and its technical report, focusing on post-training and test-time improvements for LLM-based web agents in long-horizon search and open-ended task-solving settings.
- Led research on confidence-aware evaluation and control for LLM search agents. Contributed to multiple research projects on web agents, context management and synthetic data generation. Resulting work accepted to ICLR and ACL.
- Contributed to developing a scalable agentic reinforcement learning framework for training web agents, including asynchronous rollout services, robust tool orchestration, and dynamic synthetic data generation.

Remote Research Assistant, Prof. Zhiyuan Liu's lab, Tsinghua University, Aug 2024 – May 2025

- Research on building a universal benchmark and evaluation pipeline for assessing tool-using abilities in large language models.
- Contributed to infra engineering for scalable synthetic data generation and agentic reinforcement learning.

Junior Research Assistant, ILCC, University of Edinburgh, Jun 2023 – Dec 2024

Advisor: Prof. Mirella Lapata

- Designed retrieval-enhanced summarization pipelines for book-length documents, leveraging QA-based blueprint generation and content selection to improve factual consistency and faithfulness for long document summarization.
- Proposed a context-aware hierarchical merging strategy to improve faithfulness in summarizing book-length documents. Resulting work accepted to Findings of ACL 2025.

Software Engineer Intern, Applied Machine Learning Department, ByteDance Inc., Sep 2021 – Jul 2022

- Contributed to the development of a creative advertising platform using React and TypeScript, and supported the development of an internal machine learning platform.

AWARDS

- **Young Software Engineer of the Year Awards 2024**, Finalist
Sole nominee from the University of Edinburgh, based on undergraduate thesis work.

ACADEMIC SERVICE

- Reviewer, ICLR 2026 Workshop on Lifelong Agents: Learning, Aligning, Evolving
- Reviewer, NeurIPS 2026 Main Conference

TEACHING EXPERIENCE

- Teaching Assistant for *Foundations of Natural Language Processing*, Jan 2026 – Present
Facilitate coursework design and class discussions on Piazza. Hold in-person office hours.
- Demonstrator for *Foundations of Natural Language Processing*, Jan 2024 – May 2024
- Demonstrator for *Introduction to Algorithms and Data Structures*, Sep 2023 – Dec 2023
- Tutor for *Introduction to Computation*, Sep 2020 – Dec 2020

SKILLS

- **Programming:** Python, C++, Java, JavaScript, TypeScript
- **ML Frameworks:** PyTorch, TensorFlow, Hugging Face, vLLM, SGLang
- **Research Engineering:** large-scale experimentation, evaluation pipelines, ablation studies, long-context and agentic LLM evaluation
- **Systems:** Linux, remote GPU servers, reproducible research workflows