Zhe Wang

Homepage | Email (zhe36@illinois.edu) | Scholar (570 Citations) | Github (2.5k+ Stars)

Education

University of Illinois at Urbana-Champaign — **Aug 2024 – May 2026**
Master of Science in Computer Science — ***Illinois, United States***
- **Advisor:** Lingming Zhang

Tsinghua University — **Sep 2020 – Jun 2024**
Bachelor of Science in Mathematics and Physics — ***Beijing, China***
- **Advisor:** Zhiyuan Liu

Research Interests

- **LLMs for Code:** to develop LLMs for code through post-training via reasoning and data-centric alignment.
- **AI for Cybersecurity:** to enhance the trustworthiness, reliability and security of software systems against cyberactivity attacks.
- **Agents for Software Engineering:** to empower LLM agents with the capability of reasoning, collaborating and self-evolving for real-world software engineering tasks.

Publications

- Chunqiu Steven Xia, **Zhe Wang**, Yan Yang, Yuxiang Wei, Lingming Zhang. *"Live-SWE-agent: Can Software Engineering Agents Self-Evolve on the Fly?"*, arxiv preprint. [Paper] [Code] [Leaderboard]
- Jiawei Liu*, Nirav Diwan*, **Zhe Wang*** (* equal contribution), Haoyu Zhai, Xiaona Zhou, Kiet A. Nguyen, Tianjiao Yu, Muntasir Wahed, Yinlin Deng, Hadjer Benkraouda, Yuxiang Wei, Lingming Zhang, Ismini Lourentzou, Gang Wang. *"PurpCode: Reasoning for Safer Code Generation"*, NeurIPS 2025. [Paper] [Code] [Dataset]
- Kunlun Zhu*, Hongyi Du*, Zhaochen Hong*, Xiaocheng Yang*, Shuyi Guo*, **Zhe Wang*** (* equal contribution), Zhenhailong Wang, Cheng Qian, Xiangru Tang, Heng Ji, Jiaxuan You. *"MultiAgentBench: Evaluating the Collaboration and Competition of LLM Agents"*, ACL main 2025. [Paper] [Code]
- Yuxiang Wei, **Zhe Wang**, Jiawei Liu, Yifeng Ding, Lingming Zhang. *"Magicoder: Empowering code generation with oss-instruct"*, ICML 2024. [Paper] [Code] [Dataset]

Research Experiences

Live-SWE-agent: Can Software Engineering Agents Self-Evolve on the Fly?
Supervised by Prof. Lingming Zhang at UIUC — **Sept 2025 – Nov 2025**

- Introduced **Live-SWE-agent**, the first live software agent that can autonomously and continuously evolve itself on-the-fly during runtime when solving real-world software issues.
- Offered an open, unified, and powerful platform that enables genuinely fair, apples-to-apples comparison for future model releases.
- Live-SWE-agent outperformed **all existing OSS software agents** and approaching the performance of the best proprietary solution on SWE-bench Verified and SWE-Bench Pro without any offline training or heavy workflows.

PurpCode: Reasoning for Safer Code Generation
Supervised by Prof. Gang Wang, Prof. Lourentzou, Prof. Lingming Zhang at UIUC — **Dec 2024 – Jul 2025**

- Introduced **PurpCode**, the first cybersafety reasoning model that generates secure code and defends against malicious cyber activities, outperforming frontier models in secure code generation while maintaining utility.
- Designed a novel training pipeline with (1)**Data Curation**, (2)**Rule Learning** via SFT on self-aligned safety reasoning trajectories, and (3) **Reinforcement Learning** with multi-objective rewards.
- **Won 1st place in Amazon Nova AI Challenge 2025.**

MultiAgentBench: Evaluating the Collaboration and Competition of LLM Agents
Supervised by Prof. Jiaxuan You and Prof. Heng Ji at UIUC **Nov 2024 – Feb 2025**

- Introduced **MultiAgentBench**, a comprehensive benchmark, and the **MARBLE** framework for evaluating LLM-based multi-agent systems across 6 different collaborative and competitive scenarios.
- Developed innovative evaluation metrics including milestone-based KPIs, planning/communication scores, and competition metrics, offering insights through emergent social behaviors toward AGI-level collaboration.
- Project accepted at ACL main 2025. Code and dataset released at Github.

Magicoder: Empowering Code Generation with OSS-Instruct
Supervised by Prof. Lingming Zhang at UIUC **Oct 2023 – Dec 2023**

- Proposed **OSS-Instruct**, a new approach for high-quality data synthesis with open-source code snippets, adopted by *Meta Llama 3.1*, *Google CodeGemma*, and *IBM Granite*.
- Introduced **Magicoder**, a series of fully open-source coding LLMs trained with OSS-Instruct, outperforming all evaluated LLMs of $\leq$16B parameters with only 7B parameters.
- **Achieved 2k+ Github stars, featured on Github trending, and received 393k+ downloads.**

Teaching Experience

CS427: Software Engineering I **Aug 2025 – Dec 2025**
University of Illinois at Urbana-Champaign, Supervised by Prof. Lingming Zhang **Illinois, United States**

CS427: Software Engineering I **Jan 2025 – May 2025**
University of Illinois at Urbana-Champaign, Supervised by Prof. Darko Marinov **Illinois, United States**

CS427: Software Engineering I **Aug 2024 – Dec 2024**
University of Illinois at Urbana-Champaign, Supervised by Prof. Lingming Zhang **Illinois, United States**

Technical Skills

Languages: Mandarin (Native), English (Fluent; TOEFL 109: **Speaking 27**), Japanese Beginner
Programming Languages: Python, Java, C, C++, SQL