

Changshu Liu

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LinkedIn | Google Scholar

Research Interest

I study **Software Engineering** and **Machine Learning**, with a goal to improve the efficiency of software developers with automated tools. Specifically, my research focuses on improving LLMs' reasoning ability on code execution.

Skills

Program Analysis, Software Testing, LLM Agent, Linux, Machine Learning, Finetuning, Python, Swift, C, C++ , JavaScript, HTML, PyTorch, Huggingface, Django, Flask, React, Docker, SQL

Education

University of Illinois Urbana-Champaign

Aug 2023 – Now

- PhD in Computer Science
- GPA: 3.83/4.0
- Advisor: Prof. Reyhaneh Jabbarvand

Columbia University

Sep 2021 – May 2023

- MS in Computer Science
- GPA: 3.55/4.0
- Advisor: Prof. Baishakhi Ray

University of Electronic Science and Technology of China (UESTC)

Aug 2016 – Jun 2020

- BS in Software Engineering
- GPA: 3.80/4.0

Publications

[1] Assessing Large Language Models for Valid and Correct Code Reasoning

Changshu Liu, Yang Chen, Reyhaneh Jabbarvand

48th IEEE/ACM International Conference on Software Engineering (ICSE 2026)

[2] Codemind: A framework to challenge large language models for code reasoning

Changshu Liu, Yang Chen, Reyhaneh Jabbarvand

In Submission

[3] A Tool for In-depth Analysis of Code Execution Reasoning of Large Language Models

Changshu Liu, Reyhaneh Jabbarvand

33rd ACM International Conference on the Foundations of Software Engineering, Demonstration Track (FSE-Demo 2025)

[4] Automated Code Editing with Search-Generate-Modify

Changshu Liu, Pelin Cetin*, Yogesh Patodia*, Baishakhi Ray, Saikat Chakraborty, Yangruibo Ding

IEEE Transactions on Software Engineering (TSE)

[5] Self-supervised Consensus Representation Learning for Attributed Graph

Changshu Liu, Liangjian Wen, Zhao Kang, Guangchun Luo, Ling Tian

29th ACM international conference on multimedia, **Oral** (ACM MM 2021)

Professional Experience

Research Intern @ Simular Research

Palo Alto, May 2025 - Aug.2021

Hosted by Dr. Ang Li and Dr. Jiachen Yang

- Tree search-based sub-task LLM planner for computer use LLM Agent (AgentS)

Teaching Experience

CS598: ML for Software Engineering

UIUC, Fall 2025

Teaching Assistant