

ZHAOYANG CHU

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RESEARCH INTEREST

My research interest focuses on the intersection of **software engineering** and **machine learning**, aimed at building trustworthy, reliable, and human-centric AI systems for software engineering.

EDUCATION

Huazhong University of Science and Technology

M.E. in Computer Science and Technology

GPA: 3.53/4.0

Sep 2022 – Jun 2025 (anticipated)

Huazhong Agricultural University

B.E. in Data Science and Big Data Technology (Graduated with Honors)

GPA: **3.93**/4.0

Sep 2018 – Jun 2022

RESEARCH PAPERS

* indicates equal contribution. † indicates the corresponding author.

[1] Graph Neural Networks for Vulnerability Detection: A Counterfactual Explanation.

Zhaoyang Chu, Yao Wan†, Qian Li, Yang Wu, Hongyu Zhang, Yulei Sui, Guandong Xu, Hai Jin.

ISSTA 2024, CORE A.

[2] CODESYNC: Synchronizing Large Language Models with Dynamic Code Evolution at Scale.

Chenlong Wang*, **Zhaoyang Chu***, Zhengxiang Cheng*, Xuyi Yang, Kaiyue Qiu, Yao Wan†, Zhou Zhao, Xuanhua Shi, Dongping Chen.

ICML 2025, CORE A*.

[3] How to Select Pre-Trained Code Models for Reuse? A Learning Perspective.

Zhangqian Bi, Yao Wan†, **Zhaoyang Chu**, Yufei Hu, Junyi Zhang, Hongyu Zhang, Guandong Xu, Hai Jin.

SANER 2025, CORE A.

IEEE TCSE Distinguished Paper Award.

[4] TESTEVAL: Benchmarking Large Language Models for Test Case Generation.

Wenhan Wang*, Chenyuan Yang*, Zhijie Wang*, Yuheng Huang, **Zhaoyang Chu**, Da Song, Lingming Zhang, An Ran Chen, Lei Ma.

NAACL 2025 Findings, CORE A.

[5] Hierarchical Graph Representation Learning for the Prediction of Drug-Target Binding Affinity.

Zhaoyang Chu*, Feng Huang*, Haitao Fu, Yuan Quan, Xionghui Zhou, Shichao Liu, Wen Zhang†.

Information Sciences, CORE A, Impact Factor 8.1.

[6] Can Large Language Models Serve as Evaluators for Code Summarization?

Yang Wu, Yao Wan†, **Zhaoyang Chu**, Wenting Zhao, Ye Liu, Hongyu Zhang, Xuanhua Shi, Philip S. Yu.

IEEE Transactions on Software Engineering (TSE), CORE A*, Impact Factor 6.5. Under Review (Major Revision).

[7] Scrub It Out! Erasing Sensitive Memorization in Code Language Models via Machine Unlearning.

Zhaoyang Chu, Yao Wan†, Zhikun Zhang, Di Wang, Zhou Yang, Hongyu Zhang, Pan Zhou, Xuanhua Shi, Hai Jin, David Lo.

ICSE 2026, CORE A*. Under Review.

[8] How to Prompt Large Language Models for Code Generation? A Counterfactual Explanation.

Guanghua Wan*, **Zhaoyang Chu***, Yao Wan†, Junxiao Han, Hongyu Zhang, Xuanhua Shi, Hai Jin.

ACL 2025, CORE A*. Under Review.

RESEARCH EXPERIENCE

Research Intern

University of Illinois Urbana-Champaign, advised by Prof. Lingming Zhang

May 2024 – Present

Test Case Generation (NAACL 2025 Findings)

- *Propose a novel benchmark that evaluates LLMs' capabilities in generating test cases for Python programs.*
- *Collaborated with Prof. Lei Ma at The University of Tokyo.*

Compiler Fuzzing (Ongoing)

- *Develop an LLM-based mutation fuzzing framework for LLVM compilers with integrated domain knowledge.*

Master Research Assistant

Sep 2022 – Present

Huazhong University of Science and Technology, advised by Prof. Yao Wan

Counterfactual Vulnerability Detection (ISSTA 2024)

- *Design a counterfactual explainer to uncover the decision mechanisms of GNN-based detection systems.*
- *Collaborated with Prof. Yulei Sui at University of New South Wales.*

LLM Synchronization with Code Evolution (ICML 2025)

- *Propose a novel benchmark to evaluate LLMs' synchronization with real-time library API updates.*
- *Collaborated with Prof. Zhou Zhao at Zhejiang University.*

Code LLM Selection (SANER 2025 Distinguished Paper)

- *Propose learning-based methods for efficiently selecting and reusing pre-trained code LLMs for target software engineering tasks within limited computational budgets.*
- *Collaborated with Prof. Hongyu Zhang at Chongqing University.*

LLM-as-a-Judge for Code Summarization (TSE Submission)

- *Develop an LLM-based evaluator to assess the quality of code summaries generated by neural models.*
- *Collaborated with Prof. Philip S. Yu at University of Illinois at Chicago .*

Machine Unlearning for code LLMs (ICSE 2026 Submission)

- *Develop a privacy-preserving method to erase sensitive information from code LLMs via machine unlearning.*
- *Collaborated with Prof. David Lo at Singapore Management University.*

Counterfactual Prompting for Code Generation (ACL 2025 Submission)

- *Design a counterfactual explainer to guide developers in assessing and refining prompt design for code generation.*

Undergraduate Research Assistant

Sep 2018 – Jun 2022

Huazhong Agricultural University, advised by Prof. Wen Zhang

Drug-Target Binding Affinity Prediction (Information Sciences)

- *Build a hierarchical GNN to integrate coarse- and fine-grained information from affinity graphs and molecular graphs in a coarse-to-fine manner.*

HONORS & AWARDS

IEEE TCSE Distinguished Paper Award	2025
National Scholarship for Masters (Top 1%)	2024
National Scholarship for Undergraduates (Top 1%)	2020