Zhiqiang Zang

Research Interests

Software engineering and programming languages, with a focus on just-in-time compiler testing and optimization.

Education

2018–Aug 2023 (Expected)	**Ph.D.**, *The University of Texas at Austin (UT Austin)*, Austin, TX, U.S.. Software Engineering and Systems — Advisor: Milos Gligoric
2014–2018	**B.E.**, *Beijing University of Posts and Telecommunications (BUPT)*, Beijing, China. Telecommunication Engineering

Publications

[3] **Zhiqiang Zang**, Nathaniel Wiatrek, Milos Gligoric, and August Shi. Compiler Testing using Template Java Programs. In *International Conference on Automated Software Engineering*, page to appear, 2022. **ACM SIGSOFT Distinguished Paper Award**.

[2] Pengyu Nie, Marinela Parovic, **Zhiqiang Zang**, Sarfraz Khurshid, Aleksandar Milicevic, and Milos Gligoric. Unifying Execution of Imperative Generators and Declarative Specifications. In *Conference on Object-Oriented Programming, Systems, Languages, and Applications*, pages 217:1–217:26, 2020.

[1] Ben Buhse, Thomas Wei, **Zhiqiang Zang**, Aleksandar Milicevic, and Milos Gligoric. VeDebug: Regression Debugging Tool for Java. In *International Conference on Software Engineering, Tool Demonstrations Track*, pages 15–18, 2019.

Patents

[1] Hiroaki Yoshida, **Zhiqiang Zang**, Mukul R. Prasad. Generation of Software Program Repair Examples. US11099817B1. Aug 24, 2021.

Industry Experience

Summer 2022	**Software Engineer Intern**, *Meta Platforms*, Bellevue, WA, U.S.. Migrated a large-scale data analytic engine onto a new environment to improve performance and maintainability.
Summer 2020	**Research Intern**, *Fujitsu Laboratories of America*, ~~Sunnyvale, CA, U.S.~~ (Remote). Improved software program repair examples by minimizing buggy/fixed pairs of programs.
Summer 2019	**Software Engineer Intern**, *NIO*, Beijing, China. Developed and improved a physical and visual simulator for autonomous vehicles.

Selected Projects

JAttack   https://github.com/EngineeringSoftware/jattack
           A template-based compiler testing framework that 1) accepts as input a template Java program
           written in a domain-specific language in Java; 2) executes the template to generate concrete programs
           and 3) tests Java JIT compilers using the generated programs. JavaParser, OW2 ASM, DSL, JIT,
           Java. Team Project. Discovered CVEs: CVE-2020-14792, CVE-2022-21305.

VeDebug   https://github.com/EngineeringSoftware/VeDebug
           A Java debugging tool that 1) automatically sets breakpoints where the current execution diverges
           from the previously captured one, and 2) provides video player features e.g., speed up/slow down the
           replay. Bytecode instrumentation(OW2 ASM, javaagent), Java. Team project.

Honors & Awards

2022	ACM SIGSOFT Distinguished Paper Award, *for [3]*
2017	Outstanding Undergraduate Award Finalist, *BUPT*
2015–2016	Qualcomm Innovation Scholarship, *BUPT*
2014–2015	Qualcomm Innovation Scholarship, *BUPT*

Teaching Experience

Fall 2021	Teaching Assistant, *UT Austin* EE 379K: Programming Paradigms (38 students)
Spring 2021	Teaching Assistant, *UT Austin* EE 360T: Software Testing (101 students)
Spring 2020	Teaching Assistant, *UT Austin* EE 312H: Software Design and Implementation I (35 students)
Fall 2019	Teaching Assistant, *UT Austin* EE 312: Software Design and Implementation I (60 students)
Spring 2019	Teaching Assistant, *UT Austin* EE 422C: Software Design and Implementation II (172 students)

Professional Service

ICSE 2023	External reviewer, *International Conference on Software Engineering*
ICSE 2022	External reviewer, *International Conference on Software Engineering*
ASE 2021	External reviewer, *International Conference on Automated Software Engineering*
ISSTA-AE 2020	Artifact evaluation committee member, *International Symposium on Software Testing and Analysis*
ISSTA 2020	External reviewer, *International Symposium on Software Testing and Analysis*

Technical Skills

- Programming Languages: Java (everyday), Bash (everyday), C, Python
- Tools: Emacs (everyday), Git (everyday), OW2 ASM, JavaParser