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	Compiler testing using template Java programs. Team Project.

AndroidUnit	Evaluated the quality of randomly generated tests by Randoop via performing mutation testing with MDroid+ on real-life Android applications. Team project.
Deuterium	A framework to unify execution of declarative and imperative code in Java. Implemented 12 basic and advanced data structures in both declarative and imperative version. Evaluated the framework by running both random and bounded exhaustive generated tests for the data structures. Randoop, Java. Team project.
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