

Shuofei Zhu

College of Information Science and Technology Phone: (814) 699-1720
The Pennsylvania State University Email: sfzhu@psu.edu
University Park, PA zhushuofei@gmail.com

Education

B.S. Computer Science, Nanjing University, 2011 - 2015.

M.S. Computer Science, Nanjing University, 2015 - 2018.

Ph.D. Information Science, The Pennsylvania State University, 2018 - present.

Research Interests

Software Engineering, Programming Languages

Publications

Shuofei Zhu, Ziyi Zhang, Limin Yang, Linhai Song and Gang Wang. "Benchmarking Label Dynamics of VirusTotal Engines." In CCS'2020. (Tool Demo)

Shuofei Zhu, Jianjun Shi, Limin Yang, Boqin Qin, Ziyi Zhang, Linhai Song and Gang Wang. "Measuring and Modeling the Label Dynamics of Online Anti-Malware Engines." In USENIX Security 2020.

Zhaogui Xu, Shiqing Ma, Xiangyu Zhang, **Shuofei Zhu**, and Baowen Xu. "Debugging with intelligence via probabilistic inference." In ICSE 2018.

Other Projects

Automated Concurrency Bug Fixing for Go

Go is a programming language developed by Google. It is widely used to build systems software and is well-known for its concurrency programming. An existing empirical study have shown that its concurrency features could bring potential new bugs.

This project is to design and implement a tool based on a bug checker (as its front-end) on Go. For a potential bug to fix, the tool first does a postmortem analysis on the existing bug report from the bug checker front-end and dispatch the bug to a specific bug patcher. Then, the bug patcher fixes the buggy file. Currently, for goroutine leak (one type of special memory leak bug in Go) bugs, we can identify and patch two subtypes of them.

Comparison of Dynamic Dispatch vs Static Dispatch in Rust

Rust is an emerging programming language with many recent advances in programming languages. Its trait is a similar facility as interfaces in Java and typeclasses in Haskell. A trait could be used directly as an abstract type like the way in Java, or plays a role of type constraints in generics. When a trait is used directly, it is implemented through dynamic dispatch as in many programming languages. On the other hand, as a systems programming language, the Rust compiler implements generics by generating multiple copies of function instances with different concrete types. We call it "static dispatch". Both implementation has advantages and disadvantages. We would design and conduct measurements on how dynamic dispatch and static dispatch could influence the performance of compilers and the object code.

Additional Activities

Teaching Assistant of

IST 451 Network Security (Fall 2018)

IST 451 Network Security (Fall 2019)

SRA 221 Overview of Information Security (Fall 2020)

Reviewer of

EAI Transactions on Security and Safety: 2019, 2020

Skills

Programming Languages: Python, C#, C++, C

Frameworks and Tools: LLVM, Z3, AFL, VirusTotal

Last updated: October 17, 2020