

ZHUO ZHANG

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Department of Computer Science
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RESEARCH INTERESTS

Software Security and Engineering, Program Analysis (especially for native code without sources)

EDUCATION

Purdue University, West Lafayette, IN August 2018–Present

Ph.D. in Computer Science

Advisor: Dr. Xiangyu Zhang

Shanghai Jiao Tong University, Shanghai, China September 2014–June 2018

B.Sc. in Computer Science (w/ Zhiyuan Honours)

Theses: Static Binary Analysis for Decompilation

PUBLICATIONS

Conference Proceedings

- [1] **StochFuzz: Sound and Cost-effective Fuzzing of Stripped Binaries by Incremental and Stochastic Rewriting.**
Zhuo Zhang, Wei You, Guanhong Tao, Yousra Aafer, Xuwei Liu, and Xiangyu Zhang.
In *Proceedings of the IEEE Symposium on Security and Privacy (Oakland)*, May 2021.
- [2] **OSPReY: Recovery of Variable and Data Structure via Probabilistic Analysis for Stripped Binary.**
Zhuo Zhang, Yapeng Ye, Wei You, Guanhong Tao, Wen-chuan Lee, Yonghwi Kwon, Yousra Aafer, and Xiangyu Zhang.
In *Proceedings of the IEEE Symposium on Security and Privacy (Oakland)*, May 2021.
- [3] **NetPlier: Probabilistic Network Protocol Reverse Engineering from Message Traces.**
Yapeng Ye, Zhuo Zhang, Fei Wang, Xiangyu Zhang, and Dongyan Xu.
In *Proceedings of the Annual Network and Distributed System Security Symposium (NDSS)*, February 2021.
- [4] **ALchemist: Fusing Application and Audit Logs for Precise Attack Provenance without Instrumentation.**
Le Yu, Shiqing Ma, Zhuo Zhang, Guanhong Tao, Xiangyu Zhang, Dongyan Xu, Vincent E. Urias, Han Wei Lin, Gabriela Ciocarlie, Vinod Yegneswaran, and Ashish Gehani.
In *Proceedings of the Annual Network and Distributed System Security Symposium (NDSS)*, February 2021.
- [5] **PMP: Cost-Effective Forced Execution with Probabilistic Memory Pre-Planning.**
Wei You, Zhuo Zhang, Yonghwi Kwon, Yousra Aafer, Fei Peng, Yu Shi, Carson Makena Harmon, and Xiangyu Zhang.
In *Proceedings of the IEEE Symposium on Security and Privacy (Oakland)*, May 2020.

- [6] **BDA: Practical Dependence Analysis for Binary Executables by Unbiased Whole-Program Path Sampling and Per-Path Abstract Interpretation.**
Zhuo Zhang, Wei You, Guanhong Tao, Guannan Wei, Yonghwi Kwon, and Xiangyu Zhang.
 In *Proceedings of the ACM on Programming Languages Volume 3 Issue OOPSLA (OOPSLA)*, October 2019.
 * **ACM SIGPLAN Distinguished Paper Award.**
- [7] **Probabilistic Disassembly.**
 Kenneth Miller, Yonghwi Kwon, Yi Sun, **Zhuo Zhang**, Xiangyu Zhang, and Zhiqiang Lin.
 In *Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE)*, May 2019.

HONORS AND AWARDS

Academic Awards

- Emil Stefanov Memorial Partial Fellowship 2021
- **OOPSLA 2019 Distinguished Paper Award**, ACM SIGPLAN 2019
- Zhiyuan Honor Degree of B.Sc. in Computer Science, SJTU 2018
- National Scholarship, Ministry of Education of China (Top 2%) 2016

Selected Capture-The-Flag (CTF)

- 1st place at the 40th IEEE S&P Celebration Scavenger Hunt 2019
- 4th place (w/ A*0*E) at DEFCON CTF 2018 2018
- 3rd place (w/ A*0*E) at DEFCON CTF 2017 2017

SERVICES

Sub-reviewer

- USENIX Security Symposium 2021
- IEEE Symposium on Security and Privacy (Oakland) 2022
- The Network and Distributed System Security Symposium (NDSS) 2021 [workshop]
- International Conference on Dependable Systems and Networks (DSN) 2021
- International Conference on Automated Software Engineering (ASE) 2020
- International Symposium on Software Testing and Analysis (ISSTA) 2020
- International Symposium on the Foundations of Software Engineering (FSE) 2019, 2020

INVITED TALKS

PMP: Cost-effective Forced Execution with Probabilistic Memory Pre-planning

S&P 2020, Virtually May 2020

BDA: Practical Dependence Analysis for Binary Executables by Unbiased Whole-Program Path Sampling and Per-Path Abstract Interpretation

SPLASH 2019, Athens, Greece October 2019

Renmin University of China, Beijing, China November 2019

Hello World: A Brief Introduction to Capture-The-Flag

Renmin University of China, Beijing, China November 2019

EXPERIENCE

Purdue University, West Lafayette, IN August 2018–Present

Research Assistant

Advisor: Dr. Xiangyu Zhang

Tencent KeenLab, Shanghai, China June 2016–July 2017

Security Research Intern

Last updated: June 10, 2021