Kyungtae Kim

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Research Interests

Software Reliability and Security; Program Analysis

Education

Purdue University, West Lafayette, IN

Ph.D., Computer Science — Aug. 2014 to present

- Topic: *Improving Software Testing through Fuzzing and Symbolic Execution*
- Advisor: Byoungyoung Lee

Hongik University, Seoul, South Korea

M.S., Computer Engineering — Aug. 2009 to Aug. 2011

- Thesis: *Dual Encoding Technique for Protection of Data Pointers against Heap Attack*
- Advisor: Changwoo Pyo

B.S., Computer Engineering — Mar. 2003 to Aug. 2009

Employment History

Research Assistant — Aug. 2014 to present
Department of Computer Science,
Purdue University

Teaching Assistant — Jan. 2018 to May. 2018
Department of Computer Science,
Purdue University,
Computer Security (CS 42600), Spring 2018

Researcher — Mar. 2012 to Feb. 2014
Research Institute of Science and Technology,
Hongik University

Military Service — Dec. 2004 to Dec. 2006
Republic of Korea Army

Referred International Publications

1. Dae R. Jeong, **Kyungtae Kim**, Basavesh Ammanaghatta Shivakumar, Byoungyoung Lee, Insik Shin. "Razzer: Finding Kernel Race Bugs through Fuzzing. " In Proceedings of the 40th IEEE Symposium on Security and Privacy, San Francisco, CA, May 2019 (S&P 2019).

2. Adil Ahmad, **Kyungtae Kim**, Muhammad Ihsanulhaq Sarfraz, Byoungyoung Lee. "OBLIVIATE: A Data Oblivious File System for Intel SGX." In Proceedings of the 25th Network and Distributed System Security Symposium, San Diego, CA, February 2018 (NDSS 2018).

3. **Kyungtae Kim**, I Luk Kim, Chung-hwan Kim, Yonghwi Kwon, Yunhui Zheng, Xiangyu Zhang, Dongyan Xu. "J-Force: Forced Execution on JavaScript." In Proceedings of the 26th International Conference on World Wide Web, Perth, Australia, April 2017 (WWW 17)

4. Yonghwi Kwon, Dohyeong Kim, William N. Sumner, **Kyungtae Kim**, Brendan Saltaformaggio, Xiangyu Zhang, Dongyan Xu. "LDX: Causality Inference by Lightweight Dual Execution." In Proceedings of the 21th International Conference on Architectural Support for Programming Language and Operating Systems, 2016 (ASPLOS 16)

5. Yonghwi Kwon, Fei Peng, Dohyeong Kim, **Kyungtae Kim**, Xiangyu Zhang, Dongyan Xu, Vinod Yegneswaran, John Qian. "P2C: Understanding Output Data Files via On-the-Fly Transformation from Producer to Consumer Executions." In Proceedings of the 22th Network and Distributed System Security Symposium, San Diego, CA, February 2015 (NDSS 15)

6. **Kyungtae Kim**, Changwoo Pyo. "Securing Heap Memory by Data Pointer Encoding." Future Generation Computer Systems, 28(8), 2012 (FGCS 12)

Referred Domestic Publications

1. **Kyungtae Kim**, Taehwan Kim, Changwoo Pyo, Gyungho Lee, "A Method Protecting Control Flow by Indirect Branch Monitoring and Program Counter Encoding," Journal of the Korea Institute of Information Scientists and Engineers: Computing Practices and Letters, 2014

2. **Kyungtae Kim**, Changwoo Pyo, Gyungho Lee, "Expanding the Capability of Linkers for Protecting Function Addresses, The 38th Korea Institute of Information Scientists and Engineers," Fall Conference, 2011

3. **Kyungtae Kim**, Changwoo Pyo, Sunil Kim, Gyungho Lee, "Dual-Encoding of Return Addresses for Detection and Defense against Stack Attacks," Journal of the Korea Institute of Information Scientists and Engineers: Computing Practices and Letters 17(3), 2011

4. Sungho Kwon, Youjin Kim, **Kyungtae Kim**, Changwoo Pyo, "Analysis and Expansion of Wilanders Benchmarks," The 37th Korea Institute of Information Scientists and Engineers, Fall Conference, 2010

5. **Kyungtae Kim**, Sungho Kwon, Changwoo Pyo, "Vulnerable Code Pointers in Android Platform," The 37th Korea Institute of Information Scientists and Engineers, Fall Conference, 2010

6. **Kyungtae Kim**, Changwoo Pyo, "Data Pointer Encoding for Defense against Heap Attack," Korea Computer Congress, 2010

Referred Posters

1. **Kyungtae Kim**, Byoungyoung Lee. "Alexkidd-Fuzzer: Kernel Fuzzing Guided by Symbolic Information." 20th Annual Information Security Symposium (CERIAS 2018)

Award

Travel Awards — Purdue University, College of Science
- Graduate Student International Travel Awards ($800) Feb. 2017

Patent

Dynamic memory management system and the management methods for defense against heap attacks (No. 10-1166051)

Software Engineering Skills

Programming Languages
- Expert in C/C++, x86, JavaScript, fluent in Python, Go

Development Knowledge
- Expert in GCC, GDB, WebKit, Syzkaller, fluent in LLVM, QEMU, Klee, S2E

Professional Service	External Reviewer • CCS 2015, ISSTA 2016, CCS 2016, ICSE 2017, ASIACCS 2018, NDSS 2019
References	Available on Request