

Kyungtae Kim

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RESEARCH INTERESTS	Software Security; Program Analysis	
EDUCATION	Purdue University , West Lafayette, IN	
	Ph.D., Computer Science	Aug. 2014 – present
	• Advisors: Prof. Dave (Jing) Tian and Prof. Byoungyoung Lee	
	Hongik University , Seoul, South Korea	
	M.S., Computer Engineering	Aug. 2009 – Aug. 2011
	• Thesis: <i>Dual Encoding Technique for Protection of Data Pointers against Heap Attack</i>	
	B.S., Computer Engineering	Mar. 2003 – Aug. 2009
EMPLOYMENT HISTORY	Research Assistant	Aug. 2014 – present
	Department of Computer Science, Purdue University	
	Research Intern	May. 2019 – Aug. 2019
	Data Science and System Security Department, NEC Laboratories America	
	Teaching Assistant	Jan. 2018 – May. 2018
	Department of Computer Science, Purdue University, Computer Security (CS 42600), Spring 2018	
	Researcher	Mar. 2012 – Feb. 2014
	Research Institute of Science and Technology, Hongik University	
	Military Service	Dec. 2004 – Dec. 2006
	Republic of Korea Army	
REFERRED INTERNATIONAL PUBLICATIONS	<ol style="list-style-type: none">1. Trung Nguyen, Kyungtae Kim, Antonio Bianchi, Dave (Jing) Tian. “<i>TruEMU: An Extensible, Open-Source, Whole-System iOS Emulator</i>” BlackHat USA 2022.2. Kyungtae Kim, Taegy Kim, Ertza Warraich, Byoungyoung Lee, Kevin Butler, Antonio Bianchi, Dave (Jing) Tian. “<i>FuzzUSB: Hybrid Stateful Fuzzing of USB Gadget Stacks.</i>” In Proceedings of the 43rd IEEE Symposium on Security and Privacy, San Francisco, CA, May 2022 (S&P 2022).3. Taegy Kim, Vireshwar Kumar, Junghwan Rhee, Jizhou Chen, Kyungtae Kim, Chung Hwan Kim, Dongyan Xu, Dave Tian. “<i>PASAN: Detecting Peripheral Access Concurrency Bugs within Bare-metal Embedded Applications.</i>” In Proceedings of the 30th Usenix Security Symposium, Virtual Event, August 2021 (Usenix Sec 2021)	

4. **Kyungtae Kim**, Chung Hwan Kim, Junghwan Rhee, Xiao Yu, Haifeng Chen, Dave (Jing) Tian, Byoungyoung Lee. “*VESSELS: Efficient and Scalable DNN Prediction on Trusted Processors.*” In Proceedings of the 11th ACM Symposium on Cloud Computing, Virtual Event, October 2020 (SoCC 2020)
5. **Kyungtae Kim**, Dae R. Jeong, Chung Hwan Kim, Yeongjin Jang, Insik Shin, Byoungyoung Lee. “*HFL: Hybrid Fuzzing on the Linux Kernel.*” In Proceedings of the 27th Network and Distributed System Security Symposium, San Diego, CA, February 2020 (NDSS 2020)
6. 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).
7. Adil Ahmad, **Kyungtae Kim**, Muhammad Ihsanulhaq Sarfraz, Byoungyoung Lee. “*OBLIVIAE: 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).
8. **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)
9. 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 21st International Conference on Architectural Support for Programming Language and Operating Systems, Atlanta, GA, April 2016 (ASPLOS 16)
10. 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 22nd Network and Distributed System Security Symposium, San Diego, CA, February 2015 (NDSS 15)
11. **Kyungtae Kim**, Changwoo Pyo. “*Securing Heap Memory by Data Pointer Encoding.*” Future Generation Computer Systems, 28(8), 2012 (FGCS 12)

REFERRED
POSTERS

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

REPORTED
SECURITY
VULNERABILITIES

- Linux Kernel
- CVE-2020-12464, CVE-2020-13143, CVE-2020-13974, CVE-2020-15393, CVE-2020-27784
- Android Kernel
- CVE-2021-26689, CVE-2021-0936, CVE-2021-30313

AWARD

- Travel Awards — Purdue University, College of Science
- Graduate Student International Travel Awards (\$800) 2017
- ACSAC Student Conferenceship 2021
- Vulnerability Bounty Award by Android, Google (\$600) 2021
- Vulnerability Bounty Award by Android, Samsung (\$156) 2021
- Bilsland Dissertation Fellowship — Purdue University 2022

PATENT

- Efficient and scalable enclave protection for machine learning programs (US 20210081122A1)
- Dynamic memory management system and the management methods for defense against heap attacks (Korea 10-1166051)

PROFESSIONAL SERVICE	<p>Program Committee</p> <ul style="list-style-type: none"> • SafeThings 2022 <p>Artifact Evaluation Committee</p> <ul style="list-style-type: none"> • Usenix Security 2021 <p>Replicability Committee</p> <ul style="list-style-type: none"> • ACM WiSec 2021 <p>External Reviewer</p> <ul style="list-style-type: none"> • CCS 2015, ISSTA 2016, CCS 2016, ICSE 2017, ASIACCS 2018, NDSS 2019, DSN 2020, NDSS 2021, ASIACCS 2021, ICDCS 2021, ACSAC 2021, NDSS 2023
SOFTWARE ENGINEERING SKILLS	<p>Programming Languages</p> <ul style="list-style-type: none"> • C/C++, x86, Python, JavaScript, Go <p>Development Knowledge</p> <ul style="list-style-type: none"> • GCC, GDB, Syzkaller, Darknet, WebKit, S2E, LLVM, QEMU, Klee
REFERENCES	Available on Request