

Yoochan Lee / Ph.D Student

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South Korea

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RESEARCH INTERESTS

In general, my research area is **System and Software Security**. I focus on evolutionizing exploitation technique such as combining exploitation technique and side-channel attacks. I mainly focus on doing research that is of interest to academia and industry.

EDUCATION

Arizona State University Mar 2024 - Jun 2024
AZ, USA

Visiting Scholar

Seoul National University Sep 2019 - Present
Seoul, South Korea

M.S/Ph.D. in Electrical and Computer Engineering (Advisor: Byoungyoung Lee)

Hanyang University Mar 2012 - Feb 2018
Seoul, South Korea

B.S. Computer Science and Engineering

EXPERIENCE

- **White Hat School**, Seoul, South Korea (September 2023 - Present)
Lead Mentor
- **Best of the Best**, Seoul, South Korea (July 2023 - Present)
Mentor
- **Raon WhiteHat, Security Team**, Seoul, South Korea (February 2017 - August 2017)
Security Intern: Penetration Testing
- **Naver Labs, Security Team**, Gyeonggi-do, South Korea (April 2016 - June 2016)
Security Intern: Finding web browser vulnerabilities in Naver Whale
- **ETRI, Network Security Team**, Gyeonggi-do, South Korea (January 2015 - February 2015)
Intern

PUBLICATIONS

- **PeTAL: Ensuring Access Control Integrity against Data-only Attacks on Linux**
Juhee Kim, Jinbum Park, Yoochan Lee, Chengyu Song, Taesoo Kim, and Byoungyoung Lee
Proceedings of the 2024 on ACM SIGSAC Conference on Computer and Communications Security
- **Diagnosing Kernel Concurrency Failures with AITIA**
Dae R. Jeong, Minkyu Jung, Yoochan Lee, Byoungyoung Lee, Insik Shin, and Youngjin Kwon
In ACM EuroSys Conference (EuroSys) 2023
- **Pspray: Timing Side-Channel based Linux Kernel Heap Exploitation Technique**
Yoochan Lee, Jinhan Kwak, Junesoo Kang, Yuseok Jeon, and Byoungyoung Lee
In 31st USENIX Security Symposium (SEC), Aug 2023
- **ExpRace: Exploiting Kernel Races through Raising Interrupts**
Yoochan Lee, Changwoo Min, and Byoungyoung Lee
In 30th USENIX Security Symposium (SEC), Aug 2021

PUBLICATIONS (INDUSTIRAL CONFERENCES)

- **Privilege Escalation Exploit using DOP in x86-64 macOS**
Yoochan Lee, Sangjun Song, Junoh Lee, and Jeongsu Choi
Hack In The Box Amsterdam 2023
- **Perfect Spray: A Journey From Finding a New Type of Logical Flaw at Linux Kernel To Developing a New Heap Exploitation Technique**
Yoochan Lee, Jinhan Kwak, Junesoo Kang, Yuseok Jeon, and Byoungyoung Lee
BlackHat Europe 2022
- **Exploiting Kernel Races through Taming Thread Interleaving**
Yoochan Lee, Changwoo Min, and Byoungyoung Lee
BlackHat USA 2020

HONOR AND AWARDS

- **The 3rd place** in DEFCON 30 CTF (StarBugs), Las Vegas, USA, Aug. 2022
- The 4th place in DEFCON 29 CTF (StarBugs), Las Vegas, USA, Aug. 2021
- The 11th place in DEFCON 28 CTF (Star-Bugs), Las Vegas, USA, Aug. 2020
- The 15th place in DEFCON 27 CTF (CGC), Las Vegas, USA, Aug. 2019
- The 11th place in Seccon CTF (GYG), Tokyo, Japan, Dec. 2018
- **The 1st place** in Cyber Conflict Excercise and Contest 2018 (GYG), Jeju, South Korea, Oct. 2018
- The 13th place in DEFCON 26 CTF (C.G.K.S), Las Vegas, USA, Aug. 2018
- The 8th place in Midnight Sun CTF, Stockholm, Sweden, June. 2018
- The 9th place in Codegate CTF (GYG), Seoul, South Korea, Apr. 2018
- The 5th place in Cyber Conflict Excercise and Contest 2017 (GYG), Seoul, South Korea, Nov. 2017

- The 3rd place in Belluminar POC 2017, Seoul, South Korea, Nov. 2017
- The 9th place in DEFCON 25 CTF (RRR), Las Vegas, USA, Aug. 2017
- Encouragement Award in Samsung CTF 2017, Seoul, South Korea, Aug. 2017
- The 6th place in Nuit Du Hack 2017 (GYG), Paris, France, June. 2017
- The 12th place in Seccon CTF 2017 (GYG), Tokyo, Japan, Jan. 2017
- **The 1st place** in Secuinside Capture The Bug (Minionz), Seoul, South Korea, July. 2016
- The 6th place in Codegate CTF (teambob), Seoul, South Korea, May. 2016
- **Top 10** in Best Of the Best 4th, Mar. 2016

REPORTED VULNERABILITIES (SELECTED)

- **CVE-2021-31077: macOS:** Kernel heap overflow leads to Local Privilege Escalation.
- **Solidly:** Drain tremendous funds using invalid type casting.
- **CVE-2018-4417: macOS:** Kernel Information Leakage.
- **CVE-2018-4338: macOS:** Kernel Information Leakage.
- **CVE-2018-4084: macOS:** Kernel Information Leakage.
- **CVE-2017-7014: macOS:** Arbitrary Kernel Code Execution.