Sungwoo Kim

Ph. D. Student in Computer Science at Purdue University

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https://sung-woo.kim/

https://cspapers.org/

RESEARCH INTERESTS	System Security, Program Analysis, Cyber-Physical System.

EDUCATION	**Purdue University**, Dept. of Computer Science	West Lafayette, IN, USA
	Ph. D. in Computer Science	2021–Now
	Advisors: Dave (Jing) Tian and Dongyan Xu	
	Kwangwoon University, Dept. of Electronics and Communications Eng.	Seoul, Republic of Korea
	B.S. in Electronics and Communications Engineering	2014–2020
	Advisor: Suwon Park	

CONFERENCE PUBLICATIONS

[C2] Fuzz The Power: Dual-role State Guided Black-box Fuzzing for USB Power Delivery
Kyungtae Kim, **Sungwoo Kim**, Kevin Buttler, Antonio Bianchi, Rick Kennell, Dave (Jing) Tian
*32nd USENIX Security Symposium (Security'23), Anaheim, CA, August 2023 (**USENIX '23**)*
Anaheim, CA, August 2023 *Acceptance Rate: 29.2%*
[C1] ShadowAuth: Backward-Compatible Automatic CAN Authentication for Legacy ECUs
Sungwoo Kim, Gisu Yeo, Taegyu Kim, Junghwan "John" Rhee, Yuseok Jeon, Antonio Bianchi, Dongyan Xu, and Dave (Jing) Tian
*Proceedings of the 2022 ACM Asia Conference on Computer and Communications Security (**ASIACCS '22**)*
Nagasaki, Japan, May 2022, *acceptance rate=18.4%*

PROFESSIONAL SERVICE

Artifact Evaluation Committee (AEC)

- USENIX Security Symposium (USENIX) 2024

WORK EXPERIENCE	**Purdue University**, Dept. of Computer Science	West Lafayette, IN, USA
	Graduate Research Assistant	2021–Now
	- Researching iOS kernel security	
	- Researching Bluetooth security	
	- Researching in-vehicle network security	
	Inedit Corp.	Seoul, Republic of Korea
	Software Engineer	Apr.–Jul. 2021
	- Maintained a mobile application "brandazine" using Django REST Framework, Vue, and Cordova	
	Purdue University, Dept. of Computer Science	West Lafayette, IN, USA
	Research Intern	Aug. 2020– Jul. 2021
	- Internship advisor: Dave (Jing) Tian	
	- Researched in-vehicle network security	
	F1Security	Seoul, Republic of Korea
	Software Engineer	May 2018–Jan. 2020
	- Developed a low-overhead Honeypot system for embedded devices	
	- Developed a signature-based anti-virus system for web applications	

Republic of Korea Cyber Operations Command　　　　　　　　　Republic of Korea
Sergeant; Software Engineer　　　　　　　　　　　　　　　　Jun. 2016–Mar. 2018
- Developed military software

Korea Information Technology Research Institute　　　　Seoul, Republic of Korea
Trainee in "Best of the Best (BOB)" Program　　　　　　　　Jun. 2014–Jan. 2015
- Trained security techniques: binary analysis, SQL injection, buffer overflow, etc.
- Reported vulnerabilities discovered from a commercial car rental system

TEACHING
EXPERIENCE

Korea Maritime & Ocean University　　　　　　　　　Busan, Republic of Korea
Guest Lecturer　　　　　　　　　　　　　　　　　　　　　　May 10. 2024
- Lectured on CAN security

Hongik University High School　　　　　　　　　　　Seoul, Republic of Korea
Guest Lecturer　　　　　　　　　　　　　　　　　　　　　　Jul. 07. 2023
- Lectured on software security

Hongik University High School　　　　　　　　　　　Seoul, Republic of Korea
Instructor　　　　　　　　　　　　　　　　　　　　　　　Mar.–Jul. 2021
- Lectured on a quadruped robot dog

PATENTS

[PT2] Honeynet System for Internet Of Things using Packet Virtualization
Korean Patent No. 102062718

[PT1] Origin Tracking Method and System using DNS Server for Infected Systems
Korean Patent No. 101961451

CVE

Linux Kernel (8)
- CVE-2024-38620, CVE-2024-36968, CVE-2024-36013, CVE-2024-36012, CVE-2024-36011, CVE-2023-40283, CVE-2023-28866, CVE-2022-45934
Commercial Drone (1)
- CVE-2021-34125

SKILLS

Programming Languages: C; Golang; Haskell; Erlang
Web Application Framework: NextJS (Typescript); NestJS (Typescript); Spring (Kotlin and Java); .NET core (C#)
User Interface Library / Framework: React; Vue; SCSS
Software Tools: IDA Pro; Ghidra; OllyDBG