

# Yuseok Jeon

ASSISTANT PROFESSOR OF COMPUTER SCIENCE, UNIST

EMAIL : [ysjeon@unist.ac.kr](mailto:ysjeon@unist.ac.kr)  
HOMEPAGE : <https://ysjeon.net/>  
LAB : <https://s2-lab.github.io/>

EDUCATION	<b>Purdue University</b> , West Lafayette, IN, USA <i>Ph.D.</i> in Computer Science – Advisors: Prof. Mathias Payer and Prof. Byoungyoung Lee	Aug. 2015 - Dec. 2020
	<b>POSTECH</b> , Pohang, South Korea <i>M.S.</i> in Computer and Communication Engineering – Advisor: Prof. Jong Kim	Feb. 2008 - Feb. 2010
	<b>Inha University</b> , Incheon, South Korea <i>B.S.</i> in Computer Science and Engineering	Mar. 2003 - Aug. 2007
PROFESSIONAL EXPERIENCE	<b>UNIST</b> , Ulsan, South Korea Assistant Professor, Dept. of Computer Science	Feb. 2021 - Current
	<b>Purdue University</b> , West Lafayette, IN, USA <i>Graduate Research Assistant</i> , Dept. of Computer Science	Aug. 2015 – Dec. 2020
	<b>Intel Corporation</b> , Hillsboro, OR, USA <i>Graduate Intern</i> , Platform Security Division	May. 2018 – Aug. 2018
	<b>NEC Labs America</b> , Princeton, NJ, USA <i>Research Intern</i> , Security Department	May. 2016 – Aug. 2016
	<b>Samsung Electronics</b> , Suwon, South Korea <i>Research Engineer</i> , Software Center	Dec. 2013 – Jun. 2015
	<b>National Security Research Institute</b> , Daejeon, South Korea <i>Research Engineer</i> , Cyber Technology Department	Feb. 2010 – Jun. 2013
PUBLICATIONS	[1] <b>Type++: Prohibiting Type Confusion with Inline Type Information</b> Nicolas Badoux, Flavio Toffalini, Yuseok Jeon, and Mathias Payer Network and Distributed System Security 2025 (NDSS'25)	
	[2] <b>ERASAN: Efficient Rust Address Sanitizer</b> Jiun Min*, Dongyeon Yu*, Seongyun Jeong, Dokyung Song, and Yuseok Jeon IEEE Symposium on Security and Privacy 2024 (S&P'24) (*: co-first author)	
	[3] <b>On the Robustness of Graph Reduction Against GNN Backdoor</b> Yuxuan Zhu, Michael Mandulak, Kerui Wu, George Slota, Yuseok Jeon, Ka-Ho Chow, and Lei Yu ACM Workshop on Artificial Intelligence and Security 2024 (AISec'24) in conjunction with CCS 2024	
	[4] <b>DryJIN: Detecting Information Leaks in Android Applications</b> Minseong Choi, Yubin Im, Steve Ko, Yonghwi Kwon, Yuseok Jeon, and Haehyun Cho International Conference on ICT Systems Security and Privacy Protection 2024 (IFIP SEC'24)	
	[5] <b>Pspray: Timing Side-Channel based Linux Kernel Heap Exploitation Technique</b> Yoochan Lee, Jinhan Kwak, Junesoo Kang, Yuseok Jeon, and Byoungyoung Lee USENIX Security Symposium 2023 (SEC'23)	
	[6] <b>DriveFuzz: Discovering Autonomous Driving Bugs through Driving Quality-Guided Fuzzing</b> Seulbae Kim, Major Liu, Junghwan Rhee, Yuseok Jeon, Yonghwi Kwon, and Chung Hwan Kim ACM Conference on Computer and Communications Security 2022 (CCS'22)	
	[7] <b>ShadowAuth: Backward-Compatible Automatic CAN Authentication for Legacy ECUs</b> Sungwoo Kim, Gisu Yeo, Taegyu Kim, Junghwan John Rhee, Yuseok Jeon, Antonio Bianchi, Dongyan Xu, and Dave (Jing) Tian ACM ASIA Conference on Computer and Communications Security 2022 (ASIACCS'22)	

- [8] **SwarmFlawFinder: Discovering and Exploiting Logic Flaws of Swarm Algorithms**  
Chijung Jung, Ali Ahad, Yuseok Jeon, and Yonghwi Kwon  
IEEE Symposium on Security and Privacy 2022 (S&P'22)
- [9] **Certified Malware in South Korea: A Localized Study of Breaches of Trust in Code-Signing PKI Ecosystem**  
Bumjun Kwon, Sanghyun Hong, Yuseok Jeon, and Doowon Kim  
International Conference on Information and Communications Security (ICICS'21)
- [10] **FuZZan: Efficient Sanitizer Metadata Design for Fuzzing**  
Yuseok Jeon, Wookhyun Han, Nathan Burow, and Mathias Payer  
USENIX Annual Technical Conference 2020 (ATC'20)
- [11] **PolPer: Process-Aware Restriction of Over-Privileged Setuid Calls in Legacy Applications**  
Yuseok Jeon, Junghwan Rhee, Chung Hwan Kim, Zhichun Li, Mathias Payer, Byoungyoung Lee, and Zhenyu Wu  
ACM Conference on Data and Application Security and Privacy 2019 (CODASPY'19)
- [12] **HexType: Efficient Detection of Type Confusion Errors for C++**  
Yuseok Jeon, Priyam Biswas, Scott Carr, Byoungyoung Lee, and Mathias Payer  
ACM Conference on Computer and Communications Security 2017 (CCS'17)
- [13] **TypeSan: Practical Type Confusion Detection**  
Istvan Haller, Yuseok Jeon, Hui Peng, Mathias Payer, Herbert Bos, Cristiano Giuffrida, and Erik van der Kouwe  
ACM Conference on Computer and Communications Security 2016 (CCS'16)
- [14] **A Distributed Monitoring Architecture for AMIs: Minimizing the Number of Monitoring Nodes and Enabling Collided Packet Recovery**  
Incheol Shin, Junho Huh, Yuseok Jeon, and David M. Nicol  
Smart Energy Grid Security Workshop 2013 in conjunction with CCS 2013 (SEGS'13)
- [15] **LT-OLSR: Attack-Tolerant OLSR against Link Spoofing**  
Yuseok Jeon, Tae-Hyung Kim, Yuna Kim, and Jong Kim  
IEEE Conference on Local Computer Networks 2012 (LCN'12) (short paper)

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## SERVICES

### PROGRAM CHAIR

- IEEE/ACIS International Conference on Software Engineering, Management and Applications (SERA'23)

### PROGRAM COMMITTEE

- USENIX Security Symposium (SEC'25)
- IEEE Symposium on Security and Privacy (S&P'25)
- USENIX Security Symposium (SEC'24)
- ACM Conference on Computer and Communications Security (CCS'24)
- Network and Distributed System Security (NDSS'24)
- World Conference on Information Security Applications (WISA'24)
- USENIX Security Symposium (SEC'23)
- Network and Distributed System Security (NDSS'23)
- World Conference on Information Security Applications (WISA'23)
- The Silicon Valley Cybersecurity Conference (SVCC'23)
- USENIX Security Symposium (SEC'22)
- European Symposium on Research in Computer Security (ESORICS'22)
- International Symposium on Research in Attacks, Intrusions and Defenses (RAID'22)
- ACM Conference on Data and Application Security and Privacy (CODASPY'22)
- USENIX Security Symposium (SEC'21)
- European Symposium on Research in Computer Security (ESORICS'21)
- International Symposium on Research in Attacks, Intrusions and Defenses (RAID'21)

- ACM Conference on Data and Application Security and Privacy (CODASPY'21)
- Man-At-The-Middle Attacks Workshop (CheckMATE'21), co-located with the ACM CCS

#### **JOURNAL REVIEWER**

- IEEE Trans. on Dependable and Secure Computing
- ACM Trans. on Software Engineering and Methodology

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## **ADVISING**

### **GRADUATED STUDENTS**

- |                    |   |
|--------------------|---|
| 1. MINSEONG CHOI   | (PhD Student) 2023.2 - Current  |
| 2. SUNGHYUN YANG   | (Master-PhD Combined) 2022.9 - Current<br>(Researcher) 2021.11 - 2022.8           |
| 3. JIUN MIN        | (Master-PhD Combined) 2023.2 - Current<br>(Undergraduate Intern) 2020.12 - 2023.1 |
| 4. DONGYEON YU     | (Master-PhD Combined) 2023.2 - Current<br>(Undergraduate Intern) 2020.12 - 2023.1 |
| 5. JAE EUN EOM     | (Master-PhD Combined) 2024.9 - Current<br>(Undergraduate Intern) 2023.12 - 2024.8 |
| 6. SANGHOON JUNG   | (Master Student) 2022.9 - Current<br>(Researcher) 2022.6 - 2022.8                 |
| 7. TAEYEONG HWANG  | (Master Student) 2032.2 - Current<br>(Undergraduate Intern) 2022.6 - 2023.1       |
| 8. SEONG YUN JEONG | (Master Student) 2032.8 - Current<br>(Undergraduate Intern) 2021.12 - 2023.7      |
| 9. WONIL JANG      | (Master Student) 2024.2 - Current<br>(Researcher) 2023.6 - 2024.1                 |
| 10. YOUNGJIN LEE   | (Master Student) 2024.2 - Current<br>(Researcher) 2023.12 - 2024.1                |
| 11. ZEEWUNG SHIN   | (Master Student) 2024.9 - Current<br>(Researcher) 2024.4 - 2024.8                 |

### **UNDER-GRADUATED INTERN AND RESEARCHER**

- |                   |                  |
|-------------------|------------------|
| 12. INGYU JANG    | 2021.5 - Current |
| 13. SEOHYEON LEE  | 2022.7 - Current |
| 14. YEWAN NA      | 2023.7 - Current |
| 15. CHANGHEON LEE | 2024.3 - Current |
| 16. MINKYO KIM    | 2024.6 - Current |
| 17. JUYOUNG LEE   | 2024.6 - Current |
| 18. DONGUK KIM    | 2024.8 - Current |

### **PAST UNDER-GRADUATED INTERN AND RESEARCHER**

- |                   |                   |
|-------------------|-------------------|
| 19. INSUK SEO     | 2021.5 - 2021.11  |
| 20. GYOHUN HWANG  | 2020.12 - 2021.12 |
| 21. SEOHYEON LEE  | 2021.5 - 2021.12  |
| 22. LUONG DOAN    | 2021.2 - 2022.1   |
| 23. HYEONSEOK LEE | 2021.5 - 2022.1   |
| 24. JUNESOO KANG  | 2020.12 - 2022.3  |

25. MINJIN KIM	2021.12 - 2022.6
26. YINAE PARK	2021.12 - 2022.6
27. ALMAS ABILKHANOV	2020.12 - 2022.6
28. MD.MAZBA UR RAHMAN	2022.5 - 2022.7
29. YECHAN PARK	2022.6 - 2022.8
30. SOYEON SIM	2021.12 - 2022.8
31. AZAMAT MYRZABEKOV	2020.12 - 2022.9
32. BAO TRUONG	2021.2 - 2022.9
33. JEONGHAN SON	2022.6 - 2022.12
34. NODIRKHUJA KHUJAEV	2020.12 - 2023.2
35. AHIN LEE	2022.6 - 2023.2
36. JOO HO SON	2021.5 - 2023.2
37. SEUNGMIN LEE	2022.7 - 2023.6
38. YONGMIN KWON	2023.7 - 2023.11
39. HYUNJU KIM	2022.12 - 2023.5
40. MINJOONG KIM	2023.2 - 2023.11
41. HYEONJU SHIN	2023.6 - 2023.12
42. CHANMIN PARK	2021.12 - 2024.1
43. YONGHUN NO	2023.12 - 2024.2
44. SEUNGBHIN PARK	2024.1 - 2024.2
45. JUNWHA HONG	2020.12 - 2024.2

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## PATENTS

- [1] **Tracker Detection Devices, Tracker Detection Methods, and Computer Programs.** Yuseok Jeon. KR patent 10-2023-0182097 (Applied 12/2023)
- [2] **Apparatus and Method for Detecting Malware Based Android.** Yuseok Jeon, Seongyun Jeong. KR patent 10-2023-0193639 (Applied 12/2023)
- [3] **Memory Stability Determination Device, Method for Determining Stability of Memory Allocation Code by Detecting Atypical Memory Allocation Code, and Computer Program.** Yuseok Jeon. KR patent 10-2023-0174829 (Applied 12/2023)
- [4] **Program Stability Determination Device, Method for Detecting Raw Pointers and Extracting Code Associated with the Raw Pointers, and Computer Program.** Yuseok Jeon. KR patent 10-2023-0174828 (Applied 12/2023)
- [5] **Apparatus, Method and Computer Program for Testing Autonomous Driving Program.** Yuseok Jeon. KR patent 10-2023-0174827 (Applied 12/2023)
- [6] **UAF Sequence-aware Efficient Fuzzing Approach.** Yuseok Jeon. KR patent 10-2023-0196124 (Applied 12/2023)
- [7] **Memory Error Detection Apparatus and Method.** Yuseok Jeon. KR patent 10-2023-0189110 (Applied 12/2023)
- [8] **Vulnerability Detection Device, Vulnerability Detection Method and Computer Program for Rust Language.** Yuseok Jeon. KR patent 10-2023-0023155 (Applied 2/2023)
- [9] **Device and Method for Detecting Type Confusion using Memory Tagging, and Computer Program for Executing the Method.** Yuseok Jeon. KR patent 10-2022-0174184 (Applied 12/2022)
- [10] **Security Check Code Validity Check Device, Security Check Code Validity Check Method and Computer Program.** Yuseok Jeon, Ingyu Jang. KR patent 10-2022-0174191 (Applied 12/2022)
- [11] **Memory stability determination device, method for determining stability of memory allocation code by detecting atypical memory allocation code, and computer program.** Yuseok Jeon. US Patent 18/382,187 (Applied 10/2023), KR patent 10-2022-0179795 (Applied 12/2022)
- [12] **Security Setting Device, Method of Setting Oer-process Security Policy, and Computer Pro-**

**gram Stored in Recording Medium for Execution of the Method.** Yuseok Jeon. US Patent 18/069,801 (Applied 12/2022), KR patent 10-2630816 (Granted 01/2024)

[13] **Blackbox Program Privilege Flow Analysis with Inferred Program Behavior Context.** Junghwan Rhee, Yuseok Jeon, Zhichun Li, Kangkook Jee, Zhenyu Wu, Guofei Jiang. US Patent 10,505,962 (Granted)

[14] **Fine-Grained Analysis and Prevention of Invalid Privilege Transitions.** Junghwan Rhee, Yuseok Jeon, Zhichun Li, Kangkook Jee, Zhenyu Wu, Guofei Jiang. US Patent 10,402,564 (Granted)

[15] **Automated blackbox inference of external origin user behavior.** Zhenyu Wu, Jungwhan Rhee, Yuseok Jeon, Zhichun Li, Kangkook Jee, Guofei Jiang. US Patent 10,572,661 (Granted)

TEACHING	Software Security: CSE614, 3 credits, 20 students	Fall 2024
	System Programming: CSE251, 3 credits, 85 students	Spring 2024
	Advanced Computer Security: CSE551, 3 credits, 17 students	Fall 2023
	System Programming: CSE251, 3 credits, 85 students	Spring 2023
	Computer Security: CSE467, 3 credits, 41 students	Spring 2022
	Advanced Computer Security: CSE551, 3 credits, 8 students	Fall 2021
	Software hacking and defense: UNI204, 1 credit, 10 students	Winter 2021
	Computer Security: CSE467, 3 credits, 37 students	Spring 2021
	Object Oriented Programming: CSE241, 3 credits, 65 students	Fall 2020

INVITED TALKS	CPS Security Workshop, KIISC	Fall 2020
	Graduate School of Information Security Seminar, KAIST	Spring 2021
	CS Seminar, Soongsil University	Spring 2021
	CS Seminar, Yonsei University	Fall 2021
	CS Seminar, Hannam University	Fall 2021
	CS Seminar, Inha University	Fall 2021
	Graduate School of Information Security Seminar, Sungkyunkwan University	Spring 2022
	CS seminar, Soonchunhyang University	Spring 2022
	Ulsan Science High School Talk	Summer 2022
	Sejong Cybersecurity Workshop, Sejong University	Fall 2022
	National Security Research Institute Seminar, NSRI	Spring 2023
	Software Disaster Research Center Seminar, STAAR	Summer 2023
	KCC Seminar, KIISE	Summer 2023
	Deagu Cybersecurity Conference, DIP	Fall 2023
	Graduate School of Information Security Seminar, Korea University	Fall 2023
	Maritime Cyber Security Expert Forum, KIISC	Fall 2023
	National Security Research Institute Seminar, NSRI	Fall 2023
	Improving Information Security Skills Workshop Talk, UIPA	Summer 2024

HONORS AND AWARDS	CERIAS Diamond Award, 2020	
	Bilsland Dissertation Fellowship, 2020	
	ACM CCS travel grant, 2016.	
	Expert certification (top grade), Samsung S/W certificate, 2015.	
	19th place, Samsung S/W Programming Contest Final, 2014.	
	19th place, ACM International Collegiate Programming Contest in Asia - Seoul, 2004.	
	Top prize, National Computer Competition, South Korea, 2001.	
	Bronze prize, Information Technology Competition, South Korea, 2001.	
	Bronze prize, Korea Computer Competition, South Korea, 2001.	

OPEN SOURCE CONTRIBUTION	ERASAN: Efficient Rust Address Sanitizer ( <a href="#">GitHub repo</a> )	
	FuZZan: Efficient Sanitizer Metadata Design for Fuzzing ( <a href="#">GitHub repo</a> )	
	HexType: Efficient Detection of Type Confusion Errors for C++ ( <a href="#">GitHub repo</a> )	
	TypeSan: Practical Type Confusion Detection ( <a href="#">GitHub repo</a> )	
	Key-Manager (in Samsung Tizen OS): reducing probability of key leaking from device ( <a href="#">GitHub repo</a> )	

