

Heedong Yang

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EDUCATION

- **Ph.D Student in Computer Science and Engineering** Mar 2024 – Present
Korea University
- **Advisor:** Prof. Seunghoon Woo
- **M.S. in Computer Engineering** Mar 2019 – Feb 2021
Hannam University
- **Thesis:** Force execution of ARM-Based binary code by using Mambo
- **Advisor:** Prof. Manhee Lee
- **B.S. in Engineering in Computer, Communications and Unmanned Technology** Mar 2013 – Feb 2019
Hannam University
Daejeon, Republic of Korea

RESEARCH EXPERIENCE

- **SSP Lab, Korea Univ.** Mar 2024 – Present
Student Researcher
Seoul, Republic of Korea
- **Cyber Security Research Center, KAIST** Mar 2022 – Feb 2024
Researcher / Binary Analysis Team
Daejeon, Republic of Korea
- **HPSC Lab, Hannam Univ.** Jun 2018 – Feb 2022
Student Researcher
Daejeon, Republic of Korea

RESEARCH INTEREST

- **Binary Analysis**
 - Binary Disassemble & Lifting for Binary Analysis
 - Binary Fuzzing Testing
 - Force execution of Anti-VM/Debug Binary
- **Privacy & Data Anonymization**
 - Privacy model research for Privacy Preserving Data Publishing(PPDP)
 - Analysis of the Password Leaking in Virtual Keyboard
- **A.I Security**
 - Vulnerability Exploitability Prediction using A.I
 - Mouse Data Protection using GAN
- **Architectural Security**
 - ARM TrustZone & TEE Application
 - Spectre & Meltdown Attack

PUBLICATIONS - INTERNATIONAL JOURNAL

1. **Heedong Yang**, Seungsoo Park, Kangbin Yim, Manhee Lee, “Better Not to Use Vulnerability’s Reference for Exploitability Prediction”, Applied Sciences. 2020, 10, 2555., 2020 (**SCIE/IF:2.7**)

PUBLICATIONS - INTERNATIONAL CONFERENCE

1. Haeun Lee, **Heedong Yang**, Sugeun Ji, Sangkil Cha, “On the Effectiveness of Synthetic Benchmarks for Evaluating Directed Grey-box Fuzzers”, In Proceedings of the 2023 Asia-Pacific Software Engineering Conference, 2023
2. Soonhong Kwon, **Heedong Yang**, Manhee Lee, Jonghyouk Lee. “Machine Learning based Malware Detection with the 2019 KISA Data Challenge Dataset.” In Proceedings of the 2020 ACM International Conference on Intelligent Computing and its Emerging Application, pp. 1-4. 2020.
3. **Heedong Yang**, Manhee Lee. “Demystifying arm trustzone tee client api using op-tee.” In The 9th International Conference on Smart Media and Applications, ACM, 4 pages, pp. 325-328. 2020.
4. Kwangjun Kim, **Heedong Yang**, Byeonggeun Son, Hanjae Yoon, Kangbin Yim, Manhee Lee. “A Survey on Attack Cases Exploiting Computer Architectural Vulnerabilities.” In Innovative Mobile and Internet Services in Ubiquitous Computing: Proceedings of the 13th International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing (IMIS-2019), pp. 834-844. Springer International Publishing, 2020

PUBLICATIONS - DOMESTIC JOURNAL(KOR)

1. Yongki Hong, Gihyuk Ko, **Heedong Yang**, Chan Ho Ryu, Seung Hwan Ryu, “Measuring Anonymized Data Utility through Correlation Indicator”, Journal of Korean Institute of Information Scientists and Engineers, 50(12), pp. 1163-1173, 2023 (**KCI**)
2. Yongki Hong, Gihyuk Ko, **Heedong Yang**, Seung Hwan Ryu, “Privacy-Preserving Data Publishing: Research on Trends in De-identification Techniques for Structured and Unstructured Data”, Journal of Korean Institute of Information Scientists and Engineers, 50(11), pp. 1008-1029, 2023 (**KCI**)
3. Seung Hwan Ryu, Yongki Hong, Gihyuk Ko, **Heedong Yang**, Jong Wan Kim, “Privacy Model Recommendation System Based on Data Feature Analysis”, Journal of The Korea Society of Computer and Information, 28(9), pp. 81-92, 2023 (**KCI**)
4. **Heedong Yang**, Manhee Lee, “Analysis of the Password Leaking in Virtual Keyboard”, Journal of the Korea Institute of Information Security & Cryptology, 32(5), pp. 827-835, 2022 (**KCI**)
5. Munsun Kim, **Heedong Yang**, Kwangjun Kim, Manhee Lee, “Detecting Spectre Malware Binary through Function Level N-gram Comparison”, Journal of the Korea Institute of Information Security & Cryptology, 30(6), pp. 1043-1052, 2020 (**KCI**)

TALKS & PRESENTATIONS

1. **Heedong Yang**, “Suitability verification for NVD Reference Feature used in predicting vulnerability exploitation”, Open Tech Talk (Speaker), Samsung Security Tech Forum 2019, Aug. 2019

AWARDS & HONORS

1. **CISC-W’21**: Best Paper Award (Nov. 2021), South Korea
2. **SMA-2020**: Best Paper Award Bronze (Sep. 2020), South Korea
3. **CISC-S’20**: Best Paper Award (Jun. 2020), South Korea
4. **KIISC-CC’19**: Best Paper Award (Sep. 2019), South Korea

PATENTS

1. **PRIVACY MODEL RECOMMENDATION AND DE-IDENTIFICATION METHOD FOR PREVENTING PRIVACY BREACH AND SYSTEM PERFORMING THE SAME APPLICATION**(10-2023-0113310), South Korea, 2023

PROJECTS

- **Development of SBOM Technologies for Securing Software Supply Chains**
Researcher / IITP / Apr. 2022 - Present
- **High Assurance of Smart Contract for Secure Software Development Life Cycle**
Researcher / IITP / Mar. 2022 - Feb. 2024
- **Development of Automated Vulnerability Discovery Technologies for Blockchain Platform Security**
Researcher / IITP / Mar. 2022 - Dec. 2022
- **The analysis of trends in the security verification of digital general items for the regulation and utilization of nuclear facilities, and the control and regulation of supply chains for regulatory purposes**
Student Researcher / KINAC / Jul. 2021 - Feb. 2022
- **Research on network training content using GAN-based AI technology**
Student Researcher / ETRI affiliated research institute / Apr. 2021 - Oct. 2021
- **Research on IoT device firmware base OS kernel version and vulnerability identification technology**
Student Researcher / ETRI affiliated research institute / Apr. 2021 - Oct. 2021
- **Research on QKD and PQC utilization and Quantum Cryptography Communication security requirements analysis**
Student Researcher / KISTI / Apr. 2021 - Oct. 2021
- **Research Laboratory of RAS Assurance for Cognitive Collaborative Embedded Systems Software**
Student Researcher / NRF / Mar. 2021 - Feb. 2022
- **Research on Binary Analysis Technology for Securing Stable Execution Paths**
Student Researcher / ETRI affiliated research institute / Apr. 2020 - Oct. 2020
- **Research on Identifying Vulnerabilities in Firmware components**
Student Researcher / ETRI affiliated research institute / Apr. 2020 - Oct. 2020
- **Research on Meltdown and Spectre Attacks from the Perspective of TEE**
Student Researcher / ETRI affiliated research institute / Apr. 2019 - Oct. 2019
- **Research on Establishment of a System for Responding to Supply Chain Attacks**
Student Researcher / ETRI affiliated research institute / Apr. 2019 - Oct. 2019
- **Research Laboratory of RAS Assurance for Distributed Embedded Systems Software**
Student Researcher / NRF / Jun. 2018 - Feb. 2021