

# Heedong Yang

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## EDUCATION

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- **Ph.D Student in Computer Science and Engineering** Mar 2024 – Present  
*Korea University* *Seoul, South Korea*
  - Advisor: Prof. Seunghoon Woo
- **M.S. in Computer Engineering** Mar 2019 – Feb 2021  
*Hannam University* *Daejeon, South Korea*
  - 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, South Korea*

## RESEARCH EXPERIENCE

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

## RESEARCH INTEREST

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- **Main Topic:** Software Component Analysis
  - Open-source software security; Supply chain security
  - Binary code similarity detection; Vulnerability detection
- **Previous Topics:** Binary analysis; Data anonymization; ML-based security; architectural security

## PUBLICATIONS - INTERNATIONAL CONFERENCE

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- [C1] Haeun Lee, **Heedong Yang**, Su Geun Ji, Sang Kil Cha, “On the Effectiveness of Synthetic Benchmarks for Evaluating Directed Grey-box Fuzzers”, In Proceedings of the 2023 Asia-Pacific Software Engineering Conference (APSEC’23), 2023
- [C2] 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 (ICEA’20), pp. 1-4. 2020.
- [C3] **Heedong Yang**, Manhee Lee. “Demystifying arm trustzone tee client api using op-tee.” In The 9th International Conference on Smart Media and Applications (SMA2020), ACM, 4 pages, pp. 325-328. 2020.
- [C4] 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 (IMIS2019), pp. 834-844. Springer International Publishing, 2020

## PUBLICATIONS - INTERNATIONAL JOURNAL

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- [J1] **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 - DOMESTIC JOURNAL(KOR)

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- [K1] Youngjae Choi, **Heedong Yang**, Seunghoon Woo, "Research on improving Software Bill of Materials (SBOM) for Supply Chain Security", Review of KIISC, 35(1), pp. 9-16, 2025
- [K2] 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**)
- [K3] 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**)
- [K4] 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**)
- [K5] **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**)
- [K6] 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

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

## AWARDS & HONORS

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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

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

## OPEN-SOURCE SOFTWARE PROJECT

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1. **B2R2**  
Main Contributor, F#, 2022 – 2023  
An open-source tool for binary analysis  
 [github.com/B2R2-org/B2R2](https://github.com/B2R2-org/B2R2)
2. **KOALA (KAIST Open-source Anonymization Platform)**  
Main Contributor, Java, 2023  
A platform for data anonymization balancing privacy protection with data utility using ARX framework  
 [github.com/KAIST-CSRC-Privacy/KOALA](https://github.com/KAIST-CSRC-Privacy/KOALA)

## PROJECTS (SELECTED)

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1. **Research on Intelligent SBOM Generation and Automated Vulnerability Analysis through Multi-level Code Analysis**  
Researcher / NRF / Mar 2025 – Present
2. **Development of Automated SBOM and VEX Verification Technologies for Securing Software Supply Chains**  
Researcher / IITP / Jul 2024 – Present
3. **Development of SBOM Technologies for Securing Software Supply Chains**  
Researcher / IITP / Apr 2022 – Present
4. **High Assurance of Smart Contract for Secure Software Development Life Cycle**  
Researcher / IITP / Mar 2022 – Feb 2024
5. **Development of Automated Vulnerability Discovery Technologies for Blockchain Platform Security**  
Researcher / IITP / Mar 2022 – Dec 2022
6. **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**  
Researcher / KINAC / Jul 2021 – Feb 2022
7. **Research on network training content using GAN-based AI technology**  
Researcher / ETRI affiliated research institute / Apr 2021 – Oct 2021
8. **Research on IoT device firmware base OS kernel version and vulnerability identification technology**  
Researcher / ETRI affiliated research institute / Apr 2021 – Oct 2021
9. **Research on QKD and PQC utilization and Quantum Cryptography Communication security requirements analysis**  
Researcher / KISTI / Apr 2021 – Oct 2021
10. **Research Laboratory of RAS Assurance for Cognitive Collaborative Embedded Systems Software**  
Researcher / NRF / Mar 2021 – Feb 2022
11. **Research on Binary Analysis Technology for Securing Stable Execution Paths**  
Researcher / ETRI affiliated research institute / Apr 2020 – Oct 2020
12. **Research on Identifying Vulnerabilities in Firmware components**  
Researcher / ETRI affiliated research institute / Apr 2020 – Oct 2020
13. **Research on Meltdown and Spectre Attacks from the Perspective of TEE**  
Researcher / ETRI affiliated research institute / Apr 2019 – Oct 2019
14. **Research on Establishment of a System for Responding to Supply Chain Attacks**  
Researcher / ETRI affiliated research institute / Apr 2019 – Oct 2019
15. **Research Laboratory of RAS Assurance for Distributed Embedded Systems Software**  
Researcher / NRF / Jun 2018 – Feb 2021