Heedong Yang

✉ heedongy@korea.ac.kr | 🎓 Google Scholar | 💼 LinkedIn | 🐙 GitHub |
📍 145, Anam-ro, Seongbuk-gu, Seoul, 02841, Republic of Korea

EDUCATION

- **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

- **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

- **Main topic (Software Component Analysis)**

  - Open-source Software Security, Supply Chain Security
  - Binary Code Similarity Detection, Vulnerability Detection

- **Previous topics**

  - Binary Analysis (Disassemble & Lifting, Fuzzing, Binary force execution)
  - Data Anonymization (PPDP)
  - A.I Security (Password Leaking, Vulnerability exploit prediction)
  - Architectural Security(ARM TrustZone, Spectre & Meltdown Attack)

PUBLICATIONS - INTERNATIONAL CONFERENCE

[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, 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, 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, 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 (IMIS-2019), pp. 834-844. Springer International Publishing, 2020

Publications - International Journal

[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)

[K1] 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**)

[K2] 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**)

[K3] 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**)

[K4] **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**)

[K5] 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 (SSTF2019), 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 PERFOMRING THE SAME** APPLICATION(10-2023-0113310), South Korea, 2023

Projects (Selected)

- **Development of Automated SBOM and VEX Verification Technologies for Securing Software Supply Chains** Researcher / IITP / Jul. 2024 - Present

- **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**
  Researcher / KINAC / Jul. 2021 - Feb. 2022

- **Research on network training content using GAN-based AI technology**
  Researcher / ETRI affiliated research institute / Apr. 2021 - Oct. 2021

- **Research on IoT device firmware base OS kernel version and vulnerability identification technology**
  Researcher / ETRI affiliated research institute / Apr. 2021 - Oct. 2021

- **Research on QKD and PQC utilization and Quantum Cryptography Communication security requirements analysis**
  Researcher / KISTI / Apr. 2021 - Oct. 2021

- **Research Laboratory of RAS Assurance for Cognitive Collaborative Embedded Systems Software**
  Researcher / NRF / Mar. 2021 - Feb. 2022

- **Research on Binary Analysis Technology for Securing Stable Execution Paths**
  Researcher / ETRI affiliated research institute / Apr. 2020 - Oct. 2020

- **Research on Identifying Vulnerabilities in Firmware components**
  Researcher / ETRI affiliated research institute / Apr. 2020 - Oct. 2020

- **Research on Meltdown and Spectre Attacks from the Perspective of TEE**
  Researcher / ETRI affiliated research institute / Apr. 2019 - Oct. 2019

- **Research on Establishment of a System for Responding to Supply Chain Attacks**
  Researcher / ETRI affiliated research institute / Apr. 2019 - Oct. 2019

- **Research Laboratory of RAS Assurance for Distributed Embedded Systems Software**
  Researcher / NRF / Jun. 2018 - Feb. 2021