

Na-Eun Park

CONTACT	Incoming Postdoctoral Researcher (Sep. 2026 ~) Sungshin R&DB Foundation in Sungshin Women's University Part-time Lecture in Department of Convergence Security Engineering <i>Email: nepark.cse@gmail.com, naeun@sungshin.ac.kr</i>	
AWARDS	Outstanding Young Researcher Award , by Korea Internet & Security Agency (KISA),	May. 2025
RESEARCH INTERESTS	Agentic AI, Endpoint Detection and Response, eXtended Detection and Response, Anomaly Detection, Lightweight Mechanism (wake-up mechanism)	
WORK EXPERIENCE	Sungshin Women's University Part-time Lecturer, in Department of Convergence Security Engineering	Mar. 2025 ~ Present
	NEWRACOM, California Irvine, US Short-term Internship (2-week program)	Jan. 2024
	Sungshin Women's University Research Assistant (RA), in CSE Lab	Spring 2023
	Sungshin Women's University Teaching Assistant (TA), in Department of Convergence Security Engineering	Spring 2021 Fall 2023
	Sungshin Women's University Undergraduate Internship, in Sungshin Women's University	Mar.2019 ~ Sep. 2020
EDUCATION	Sungshin Women's University Ph.D. , in Future Convergence Technology Engineering (expected AUG.20)	Mar.2023 ~ Aug.2026
	Sungshin Women's University M.S., in Future Convergence Technology Engineering	Sep.2021 ~ Feb.2023
	Sungshin Women's University B.S., in Computer Engineering (Double Major)	Mar.2018 ~ Aug.2021
	Sungshin Women's University B.S., in Convergence Security Engineering	Mar.2018 ~ Aug.2021
TEACHING EXPERIENCE	Sungshin Women's University 1. LB001500 Network Security - Spring 2025: 34 students, evaluation rating 4.48/5.0 2. LB001500 Network Security - Spring 2026: 34 students, evaluation rating 4.65/5.0	
INVITED TALKS	ETRI(Electronics and Telecommunications Research Institute) Open Source -based Endpoint Detection and Response	Sep. 2024
RESEARCH FUNDING RECEIVED(only PI)	"Research on Secure Transmission Techniques Robust to Signal Interference in High-Density, High-Capacity Networks" (8,000,000 KRW), funded by Korea Foundation for Women in Science, Engineering and Technology (WISET) (Principal Investigator), Apr. 2023 – Oct. 2023.	
PUBLICATIONS	Journals 1. Na-Eun Park , Seo-Yi Kim, Il-Gu Lee, "Selfish Attack Detection and Response Using Cooperative Backoff Adjustment in Wireless Sensor Networks," ICT Express, Dec. 2024 (SCIE, IF 4.1, Q1, JCR Top 23.1%) 2. Yu-Rim Lee, Na-Eun Park , Seo-Yi Kim, Il-Gu Lee, "Malicious Traffic Compression and Classification Technique for Secure Internet of Things," CMC-Computers, Materials & Continua, Vol.76, No. 3, pp.3465-3482, Oct. 2023 (SCI, IF 3.1)	

3. **Na-Eun Park**, Yu-Rim Lee, Soyoung Joo, So-Yeon Kim, So-Hui Kim, Ju-Young Park, Seo-Yi Kim, Il-Gu Lee, "Performance Evaluation of Fast and Efficient Intrusion Detection Framework for Advanced Persistent Threat-based Cyber attacks," Elsevier Computers & Electrical Engineering, Vol. 105, No. 108548, Jan. 2023 (SCI, IF 4.3, JCR Q2, Top 25%)
4. So-Hyun Park, Sun-Woo Yun, So-Eun Jeon, **Na-Eun Park**, Hye-Yeon Shim, Yu-Rim Lee, Sun-Jin Lee, Tae-Rim Park, Na-Yeon Shin, Min-Jin Kang, and Il-Gu Lee, "Performance Evaluation of Open-source Endpoint Detection and Response combining GRR and osquery for Threat Detection," IEEE Access, Vol.10, pp.20259-20269, Feb. 2022 (SCI, IF 3.367, JCR Q2)
5. Jung-Min Moon, **Na-Eun Park**, Il-Gu Lee, "Uncertainty-Aware Machine Learning for Delay-Spread Estimation and Surplus Guard Interval Utilization in IEEE 802.11be Environments, " Electronics, 2026 (SCIE, IF 2.6, Q2, JCR Top 44.3%)
6. **Na-Eun Park**, So-Hyun Park, Ye-Sol Oh, Jung-Hyun Moon and Il-Gu Lee, "Distributed Authentication Model for Secure Network Connectivity in Network Separation Technology," Sensors, Vol.22, No. 579, Jan. 2022 (SCIE, IF 3.576, JCR Q2).

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7. Yeon-Jin Kim, **Na-Eun Park**, Il-Gu Lee, "Air-Fuzz: Feasibility Analysis of Fuzzing-Based Side-Channel Information Leakage Attack in Air-Gap Networks," Lecture Notes in Computer Sciences (LNCS) , Vol. 15499, pp.231-242, Feb. 05, 2025
8. Yeon-Ji Lee, **Na-Eun Park**, Il-Gu Lee, "Lightweight Anomaly Detection Mechanism based on Machine Learning Using Low-Cost Surveillance Cameras," Lecture Notes in Computer Sciences (LNCS) 2024.
9. Sun-Woo Yun, **Na-Eun Park**, Il-Gu Lee, "Wake-up Security: Effective Security Improvement Mechanism for Low Power Internet of Things," Intelligent Automation & Soft Computing, Vol. 37, No.3, pp. 2897-2917, Sept. 2023.
10. Yeon-Ji Lee, Ye-Sol Oh, **Na-Eun Park**, Il-Gu Lee, "Implementation and Evaluation of Harmful Media Filtering Techniques by Multimodal Information Extraction," Journal of Information and Communication Convergence Engineering (JICCE), Vol.21, No.1, pp.75-81, Mar. 2023.

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11. Jungsu Park, **Na-Eun Park**, Yeon-Jin Kim, Il-Gu Lee, "Detection of Ransomware Using MITRE ATT&CK-Based Deception Technique," Journal of The Korea Institute of Information Security & Cryptology, Vol.36, No.3, 2026.
12. Ga-Yeong Kim, **Na-Eun Park**, Il-Gu Lee, "Anomalous Traffic Input Sanitization for Enhancing the Security of Popularity Prediction-Based Dynamic Memory Allocation," Journal of the Korea Convergence Security Association, Vol.26, No.2, 2025.
13. Sun-Woo Yun, Il-Gu Lee, So-Hyun Park, **Na-Eun Park**, So-Eun Jeon, Ye-Sol Oh, and Ji-Eun Lee, "Industrial Security Technologies and Policies for Smart Logistics Utilizing Drones," Korean Journal of Industrial Security, Vol.11, No.1, pp. 221-243, 2021.
14. **Na-Eun Park**, Jongwan Kim, Tae-Seog Jeoung, "Cache Memory and Replacement Algorithm Implementation and Performance Comparison" Journal of the Korea Society of Computer and Information(JKSCI), Vol. 25 No.3, pp. 11-17, Mar. 2020.

Conference & Workshop - international

15. Seo-Yi Kim, **Na-Eun Park**, Il-Gu Lee, "Invisible Watermarking with DWT-SVD for Safeguarding Copyrighted Images against Unauthorized Generative AI Training," The 9th International Conference on Mobile Internet Security, Sapporo, Japan, Dec. 2025
16. Jung Min Moon, **Na-Eun Park**, Il-Gu Lee, "Real-time Channel Adaptive Guard Interval Adjustment and Secondary Data Transmission Framework," The 9th International Conference on Mobile Internet Security, Sapporo, Japan, Dec. 2025

17. Ga-Young Kim, **Na-Eun Park**, Il-Gu Lee, "Real-time Anomaly Detection-enhanced Defense for Dynamic Memory Allocation," The 9th International Conference on Mobile Internet Security, Sapporo, Japan, Dec. 2025 (Poster)
18. Seo-Yi Kim, **Na-Eun Park**, Il-Gu Lee, "Invisible Watermarking for Image Data Protection in Sensor Network Environments," The Nineteenth International Conference on Sensor Technologies and Applications (SENSORCOMM), Spain, Barcelona, Oct. 2025
19. Seo-Yi Kim, **Na-Eun Park**, Il-Gu Lee, "Invisible Watermarking Based on DWT-SVD for Protecting Generative AI Content," The 26th World Conference on Information Security Applications (WISA), Jeju Island, Korea, Aug. 2025 (Poster)
20. Jung Min Moon, **Na-Eun Park**, Il-Gu Lee, "Wireless Channel Delay Spread-Based Dynamic Guard Interval Adjustment and Secondary Data Transmission Technique," The 26th World Conference on Information Security Applications (WISA), Jeju Island, Korea, Aug. 2025 (Poster)
21. Ga Yeong Kim, **Na-Eun Park**, Il-Gu Lee, "Security Vulnerability Analysis of Real-time Content Popularity Prediction-based Dynamic Memory Allocation System," The 26th World Conference on Information Security Applications (WISA), Jeju Island, Korea, Aug. 2025 (Poster)
22. So-Yeon Kim, **Na-Eun Park**, Yu-Ran Jeon, Il-Gu Lee, "DFL: Differential Federated Learning for Enhancing Privacy and Efficiency of Multilink-Operation Wireless Communication Networks," The 8th International Conference on Mobile Internet Security (Mobisec), Sapporo, Japan, Dec. 2024 (🏆 Best Paper Award)
23. Yeon-Jin Kim, **Na-Eun Park**, Il-Gu Lee, "Fuzzing based side-channel data leakage attack in air-gapped," The 8th International Conference on Mobile Internet Security (Mobisec Workshop), Sapporo, Japan, Dec. 2024 (Poster)
24. **Na-Eun Park**, Yeon-Jin Kim, Il-Gu Lee, "Dataset Characterization-Guided Machine Learning," The 8th International Conference on Mobile Internet Security (Mobisec Workshop), Sapporo, Japan, Dec. 2024 (Poster)
25. Yeon-Jin Kim, **Na-Eun Park**, Il-Gu Lee, "Air-Fuzz: Feasibility Analysis of Fuzzing-Based Side-Channel Information Leakage Attack in Air-Gap Networks," The 25th World Conference on Information Security Applications (WISA), Jeju, Korea, Aug. 2024
26. So-Yeon Kim, **Na-Eun Park**, Yu-Ran Jeon, Il-Gu Lee, "Multi-Link Operation-Based Group Selection Technique for Enhancing Privacy and Efficiency in Federated Learning," The 25th World Conference on Information Security Applications (WISA), Jeju, Korea, Aug. 2024 (🏆 Best Poster Award)
27. Yeon-Jin Kim, **Na-Eun Park**, Il-Gu Lee, "Machine learning detection model for identifying IoT resource exhaustion attacks," The 7th International Conference on Mobile Internet Security (Mobisec), Okinawa, Japan, Dec. 2023 (Poster)
28. Yeon-Ji Lee, **Na-Eun Park**, Il-Gu Lee, "Lightweight Abnormal Detection Techniques Using Low-Cost Surveillance Cameras," The 26th Annual International Conference on Information Security and Cryptology (ICISC), Seoul, Korea, Nov. 2023
29. Yu-Ran Jeon, Jung-Hwa Ryu, So-Yeon Kim, **Na-Eun Park**, Il-Gu Lee, "CaliProb: Probability-based Calibration Model for Robust Predictions in Environments with Data Biases," 33rd International Telecommunication Networks and Applications Conference (ITNAC), Melbourne, Australia, Nov. 2023 (Student Travel Grant)
30. Seo-Yi Kim, **Na-Eun Park**, Il-Gu Lee, "Reliable and Low-Latency Intrusion Detection System for Lightweight Internet of Things Environment," IEEE 98th Vehicular Technology Conference (VTC), Hong Kong, Oct. 2023
31. **Na-Eun Park**, So-Yeon Kim, Yuran Jeon, Seoyi Kim and Il-Gu Lee, "Data Calibration to Enhance Security and Accuracy of Federated Learning," The 24rd World Conference on Information Security Applications, Jeju Island, South Korea, Aug. 2023 (Poster)
32. Yu-Rim Lee, **Na-Eun Park**, Seoyi Kim, Il-Gu Lee, "Malicious traffic classification techniques utilizing compressed sensing and learning for secure Internet of Things," 6th International Symposium on Mobile Internet Security (MobiSec'22), Jeju Island, South Korea, Dec. 2022

33. Sun-Woo Yun, **Na-Eun Park**, Il-Gu Lee, "Low Power High Performance Security Mechanism for Internet of Things," 6th International Symposium on Mobile Internet Security (MobiSec'22), Jeju Island, South Korea, Dec. 2022 (presenter)
34. **Na-Eun Park**, Tae-Rim Park, Hye-Yeon Shim, Yeon-Ji Lee and Il-Gu Lee, "Network Traffic Aware Memory Attestation for Low Power Internet of Things," The 23rd World Conference on Information Security Applications, Jeju Island, South Korea, Aug. 2022 (Poster)

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35. Jung-Min Moon, **Na-Eun Park**, Il-Gu Lee, "Wireless Channel Delay Spread Estimation Using a One-Dimensional Convolutional Neural Network," Annual Symposium of KIPS 2026, Gangneung, Korea, May. 2026 //문정민, 박나은, 이일구, "일차원 합성곱 신경망을 활용한 무선 채널 딜레이 스프레드 추정 기법," 한국정보처리학회 ASK, 강릉, 한국, 2026.5
36. Ga-Yeong Kim, **Na-Eun Park**, Il-Gu Lee, "ATB-Insider: A Real-Time Insider Threat Detection Model Using Time-Series Anomaly Detection," Korea Institute of Information Security & Cryptology (KIISC) CISC-S'25, Gyeongnam, South Korea, Dec. 2025 //김가영, 박나은, 이일구, "ATB-Insider: 시계열 이상 탐지를 활용한 실시간 내부자 위협 탐지 모델," 한국정보보호학회 CISC-S'25, Gyeongnam, South Korea, Nov. 2025
37. Ga-Yeong Kim, **Na-Eun Park**, Il-Gu Lee, "ADE-DMA: Anomaly Detection Enhanced Dynamic Memory Allocation with Input Sanitization," Korea Convergence Security Association Fall Conference, Wiryu, Korea, 2025.11. //김가영, 박나은, 이일구, "ADE-DMA: 이상 감지 및 입력 데이터 정제 기반의 향상된 동적 메모리 할당 기법," 한국융합보안학회 추계학술대회, 위례, Nov. 2025
38. Ga-Yeong Kim, **Na-Eun Park**, Il-Gu Lee, "An Adaptive Defense System Against Power Line Modulation-Based Covert Channel Attacks in Air-Gapped Environments," Korea Institute of Information Security & Cryptology (KIISC) CISC-S'25, Gyeongju, South Korea, June. 2025 //김가영, 박나은, 이일구, "에어갭 환경에서 전원선 변조 기반 암묵적 채널 공격에 대한 적응형 방어 시스템,"
39. **Na-Eun Park**, Yeon-Jin Kim, Il-Gu Lee, "Enhancing Machine Learning via Dataset Characterization-Driven Feature Selection," Annual Symposium of KIPS 2025, Kyungpook National Univ., Korea, May. 2025
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40. Ga-Yeong Kim, Jung-Min Moon, **Na-Eun Park**, Il-Gu Lee, "Content Popularity Prediction-Based Dynamic Memory Allocation Mechanism," Annual Symposium of KIPS 2025, Kyungpook National Univ., Korea, May. 2025 // 김가영, 문정민, 박나은, 이일구, "콘텐츠 인기도 예측 기반의 동적 메모리 할당 메커니즘,"
41. Ju-Yeong Shin, Yeon-Jin Kim, **Na-Eun Park**, Il-Gu Lee, "Rule-based High-efficiency Parallel Fuzzing Framework for Lightweight IoT," Korea Institute of Information Security & Cryptology (KIISC) CISC-W'24, Gyeongnam Resort, South Korea, Nov. 2024 //신주영, 김연진, 박나은, 이일구, "경량 IoT를 위한 규칙 기반 고효율 병렬 퍼징 프레임워크," 한국정보보호학회 동계학술대회 (CISC-W'24), 곤지암 리조트, 한국, 2024.11.
42. **Na-Eun Park**, Seo-Yi Kim, Il-Gu Lee, "Selfish attack and response techniques in wireless sensor networks," Korea Convergence Security Association Summer Conference, Naju, Korea, 2024.06.
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43. **Na-Eun Park**, Yeon Jin Kim, Il-Gu Lee, "Testcase Selection Technique for Lightweight Fuzzing," Annual Symposium of KIPS 2024, Pyeongchang, Korea, May. 2024 (🏆 Best Paper Award)
//박나은, 김연진, 이일구, "경량 퍼징을 위한 테스트케이스 선택 기법,"
44. Yeon-Jin Kim, **Na-Eun Park**, Il-Gu Lee, "Autoencoder-based Data Compression Technique for Lightweight IoT," Annual Symposium of KIPS 2024, Pyeongchang, Korea, May. 2024
// 김연진, 박나은, 이일구, "경량 IoT를 위한 오토 인코더 기반의 데이터 압축 기법,"
45. Yerim Jeong, **Na-Eun Park**, Il-Gu Lee, "Grouping-based cooperative transmit power control against selfish attack," Conference on Information Security and Cryptography-Winter 2023 (CISC-W'23), Seoul, Korea, Dec. 2023. //정예림, 박나은, 이일구, "이기적 공격에 대응하기 위한 그룹핑 기반 협력적 송신 파워 제어 기법,"
46. Seo-Yi Kim, **Na-Eun Park**, Il-Gu Lee, "Brute Force Attack Detection Technique Using Open Source EDR in Remote Work Environments," Korea Institute of Information Security & Cryptology (KIISC) CISC-W'22, Seoul, South Korea, Nov. 2022
//김서이, 박나은, 이일구, "원격 근무 환경에서 오픈소스 EDR을 활용한 무차별 대입 공격 탐지 기법

47. **Na-Eun Park**, Yeon-Ji Lee, and Il-Gu Lee, "Performance evaluation of machine learning algorithms for anomaly detection," Korea Convergence Security Association (KCSA) Conference, Seoul, South Korea, Jul. 22, 2022. //박나은, 이연지, 이일구, "이상 행위 탐지를 위한 머신러닝 알고리즘의 성능 평가,"
48. Sun-Woo Yun, **Na-Eun Park**, and Il-Gu Lee, "Low Power Security Architecture for the Internet of Things," The 50th Korea Institute of Information and Communication Engineering (KIICE) Conference, Seoul, South Korea, Oct. 28, 2021. //윤선우, 박나은, 이일구, "사물인터넷을 위한 저전력 보안 아키텍처"
49. Yeon-Ji Lee, Ye-Sol Oh, **Na-Eun Park**, and Il-Gu Lee, "A Study on Harmful Media Filtering Techniques by Image Information Extraction," Korea Convergence Security Association (KCSA) Conference, Seoul, South Korea, Aug. 20, 2021.
//이연지, 오예솔, 박나은, 이일구, "영상 정보 추출을 통한 유해 매체 필터링 기법에 대한 연구,"
50. Jung-Yeon Oh, **Na-Eun Park**, and Il-Gu Lee, "Analysis of Domestic and Foreign Legal Systems and Standardization Technologies for Disaster Communication Network," Korea Convergence Security Association (KCSA) Conference, Seoul, South Korea, Aug. 20, 2021 (Best Paper Award).
//오정연, 박나은, 이일구, "재난통신망을 위한 국내외 법 체계 및 표준화 기술에 대한 분석,"
51. So-Eun Jeon, **Na-Eun Park**, and Il-Gu Lee, "Comparative Analysis of Open Source Forensic Tools and Internetworking Techniques for Expanding Response Coverage," KAIS/KAF Joint Conference, Seoul, South Korea, Aug. 19, 2021.
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52. **Na-Eun Park**, So-Eun Jeon, and Il-Gu Lee, "Efficient Remote Memory Attestation Technique for Massive Internet of Things," The 31st Joint Conference on Communications and Information (JCCI), Busan, South Korea, Apr. 2021.
//박나은, 전소은, 이일구, "대규모 사물인터넷을 위한 효율적인 원격 메모리 검증 기술,"
53. So-Eun Jeon, **Na-Eun Park**, and Il-Gu Lee, "A Study on Distributed Encryption Method for Lightweight Internet of Things," The 31st Joint Conference on Communications and Information (JCCI), Busan, South Korea, Apr. 2021.
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PATENTS

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1. Il-Gu Lee, Yu-Rim Lee, **Na-Eun Park**, "Method and apparatus for adaptive data processing of homomorphic encryption," Korea, Patent, Appl. No. 10-2940336, Mar. 12, 2026 (Filed on Sep. 1, 2022.)
2. (Software Copyright) Il-Gu Lee, Yeon-Jin Kim, **Na-Eun Park**, "Simulation of an attack model in an air-gap environment", Feb. 2025.
3. Il-Gu Lee, So-Hyun Park, Hye-Yeon Shim, **Na-Eun Park**, Yeon-Ji Lee, Yu-Ran Jeon, "Apparatus for watermarking encoding and decoding using error correction code and method for the same," Korea, Patent No. 10-2925240, Feb. 04, 2026 (Filed on Aug. 01, 2024.)
4. Il-Gu Lee, **Na-Eun Park**, So-Eun Jeon, So-Young Joo, So-Yeon Kim, "Method and systems for transmitting secure data between nodes," Korea, Patent, Appl. No. 10-2384949, Apr. 5, 2022 (Filed on Feb. 26, 2021).
5. Il-Gu Lee, So-Hyun Park, Sun-Woo Yun, **Na-Eun Park**, So-Yeon Kim, Eun-Young Lee, So-Hyun Bae, Ye-Sol Oh, Jung-Hyun Moon, "Network information security method and apparatus," Korea, Patent. No. 10-2421722, Jul. 12, 2022 (Filed on Sep. 28, 2020).
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7. Il-Gu Lee, **Na-Eun Park**, So-Eun Jeon, Se-Young Lee, "Method of learning sensing data based on sensor and method of providing service," Korea, Patent. No. 10-2255076, May. 17, 2021 (Filed on Aug. 30, 2019).
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