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Research

Database Forensics

Deleted-record recovery in SQL Server, memory and buffer pool analysis, cloud databases (Azure SQL)

Dark Web and Cybercrime Investigation

Tor hidden service vulnerability taxonomy, de-anonymization, crypto wallets

Incident Response and ICS Security

PLC and EWS forensics, security assessment of nuclear and power facilities

Mobile and Application Forensics

Local artifacts of messengers, web browsers and generative AI apps

Education

Feb 2022 Ph.D. in Engineering, Dept. of Information Security & Engineering, Soonchunhyang University

Feb 2015 M.S. in Engineering, Dept. of Digital Forensics, School of Cybersecurity, Korea University

Experience

2026~Present Mokwon University, Division of Computer Science Convergence, Assistant Professor

2018~2026 Police Science Institute, Cybercrime Research Center, Research Fellow

2015~2018 Korean National Police University, International Cybercrime Research Center, Research Police Officer

2008~2015 Gyeonggi Nambu Provincial Police Agency, Cybercrime Investigator, Digital Forensic Examiner

2002~2007 Software industry (4 companies), Web and mobile applications, research institute IT systems
M&B Co., Ltd. Staff, Bio-resource IT infrastructure for KRIBB (2005~2007) · Tomico Co., Ltd. Assistant Manager,
Mobile platform (2005) · Interwindow Co., Ltd. Staff, Mobile wired and wireless integration (2004~2005) ·
Newmedicom Co., Ltd. Staff, Web application development (2002~2004)

Adjunct Professor, Dept. of Cyber Investigation, Police Investigation Academy (2013~present) · Lecturer, Chung-Ang University
Graduate School of Public Administration (2017) · Digital forensics lectures at Gachon Univ., Kookmin Univ., KNPU, NIS, Korea
Customs Service and others

Research Projects

2026 (ongoing) Practical digital forensics training content for countering crimes by senior officials and AI misuse
(Corruption Investigation Office for High-ranking Officials, Co-investigator)

2026 (ongoing) Policy study on expanding the role of KNPA digital forensic examiners (Korean National Police Agency,
Co-investigator)

2026 (ongoing) Assessment of the national digital forensics infrastructure and mid- to long-term policy directions
(KIISC Digital Forensics Research Group, Researcher)

2024~2026 Self-evolving deepfake detection to prevent social harms of generative AI (Ministry of Science and ICT,
Researcher)

2024~2026 Data drift management to overcome performance degradation of analysis models (Ministry of Science
and ICT, Researcher)

2022	Future strategy for smart railway policing (Ministry of Land, Infrastructure and Transport, Co-investigator)
2018-2019	ICT-based crime risk prediction and response for early recognition of dangerous situations (Ministry of Science and ICT, Researcher)
2017	Cryptocurrency-related crime and criminal policy (Korean Institute of Criminology and Justice, Co-investigator)
2016	Emerging financial fraud: status analysis and criminal policy responses (Korean Institute of Criminology and Justice, Researcher)

Four KNPA national R&D planning and evaluation projects

International Development 12 projects · 2016~2025 · KOICA, UNDP

2025	KOICA feasibility study, Timor-Leste police public safety and crime prevention capacity building (Lead of feasibility study)
2024	Planning study, Sri Lanka police digital forensics capacity building (Digital forensics survey)
2024	KOICA fellowship, digital forensics capacity building for international police cooperation (Digital forensics lecturer)
2024	UNDP in-country training, Timor-Leste response to technology-facilitated gender-based violence (TFGBV) (Digital forensics lecturer)
2021~2023	KOICA Bangladesh digital investigation capacity expansion project (Digital forensics equipment expert)
2018	KOICA end-of-project evaluation, Bangladesh cybercrime investigation capacity building (Digital forensics evaluator)
2017	Royal Oman Police cybercrime investigation capacity building course (Curriculum developer and lecturer)
2016~2017	KOICA global program, cybercrime response capacity building for 11 Asian countries (Curriculum developer and lecturer, years 1 and 2)
2016~2017	KOICA Tunisia National Police cybercrime capacity building project (Curriculum developer and lecturer, fellowship and in-country training)
2016	KOICA Mongolia cybercrime response capacity building (Curriculum developer and lecturer)
2016	KOICA Colombia cybercrime investigation capacity building project (Curriculum developer and lecturer)
2016	KOICA Sri Lanka Police digital forensics fellowship program (Curriculum developer and lecturer)

Service

- Board Member, Korean Digital Forensics Society (2021~)
- Lifetime Member, Korea Institute of Information Security and Cryptology (2019~)
- Examiner, KNPA experienced-hire recruitment (2018)

Certifications

- EnCase Certified Examiner (2012)
- KNPA Cyber (Digital Forensics) Specialist Investigator (2014)
- ISO 27001/19011/22301 Auditor Course (2018)
- Industrial Engineer Information Processing, and others

Publications Total 56 · Journal 28 · Conference 24 · Report 4

Journal 28

1. Jiho Shin, Byoung Hun Moon, "Forensic Recoverability of Deleted Records Under Database Shrink in Microsoft SQL Server 2025: A Version-Comparative Experimental Study," *Applied Sciences*, vol. 16, no. 13, 6416, 2026.

2. Jiho Shin, Inkyoung Shin, "A Vulnerability Taxonomy for Tor-Based Hidden Services: Toward a De-Anonymization Framework for Cybercrime Investigation," *Electronics*, vol. 15, no. 11, 2370, 2026.
3. Jiho Shin, Byoung Hun Moon, "Cloud Database Forensics in Practice: Structural Challenges and Investigative Lessons from Azure SQL Database," *IEEE Access*, vol. 13, 204168-204178, 2025.
4. Jiho Shin, "Memory-Driven Forensic Analysis of SQL Server: A Buffer Pool and Page Inspection Approach," *Sensors*, vol. 25, no. 11, 3512, 2025.
5. Jiho Shin, In-Kyoung Shin, "Challenges and Countermeasures in Video Synthesis Technology for Policing," *The Journal of Police Policies*, vol. 38, no. 4, 417-448, 2024.
6. Mingyu Lee, Jiho Shin, Jung Taek Seo, "Programmable Logic Controller Block Monitoring System for Memory Attack Defense in Industrial Control Systems," *Computers, Materials & Continua*, vol. 77, no. 2, 2427-2442, 2023.
7. Ju Hyeon Lee, Jiho Shin, Jung Taek Seo, "Solar Power Plant Network Packet-Based Anomaly Detection System for Cybersecurity," *Computers, Materials & Continua*, vol. 77, no. 1, 757-779, 2023.
8. Donghyun Kim, Seungho Jeon, Jiho Shin, Jung Taek Seo, "Design the IoT Botnet Defense Process for Cybersecurity in Smart City," *Intelligent Automation & Soft Computing*, vol. 37, no. 3, 2979-2997, 2023.
9. Daun Jung, Jiho Shin, Chaechang Lee, Kookheui Kwon, Jung Taek Seo, "Cyber Security Controls in Nuclear Power Plant by Technical Assessment Methodology," *IEEE Access*, vol. 11, 15229-15241, 2023.
10. Donghyun Kim, Jiho Shin, Jung Taek Seo, "A Study on Log Collection to Analyze Causes of Malware Infection in IoT Devices in Smart City Environments," *Journal of Internet Computing and Services*, vol. 24, no. 1, 17-26, 2023.
11. Jiho Shin, Jung Taek Seo, "Verification of Privacy Protection Reliability Through Mobile Forensic Approach Regarding iOS-based Instant Messenger," *Sustainability*, vol. 14, no. 20, 13281, 2022.
12. Junwon Kim, Jiho Shin, Jung Taek Seo, "Detection and Blocking Method against DLL Injection Attack Using PEB-LDR of ICS EWS in Smart IoT Environments," *Journal of Internet Technology*, vol. 23, no. 4, 875-888, 2022.
13. Hyunpyo Choi, Jiho Shin, Jung Taek Seo, "Artifacts Analysis and Utilization of Decentralized Web Service ZeroNet for Digital Forensics," *Security and Communication Networks*, vol. 2022, 1-10, 2022.
14. Abdul Wahid Khan, Shah Zaib, Faheem Khan, Ilhan Tarimer, Jung Taek Seo, Jiho Shin, "Analyzing and Evaluating Critical Cyber Security Challenges Faced by Vendor Organizations in Software Development: SLR Based Approach," *IEEE Access*, vol. 10, 65044-65054, 2022.
15. Junwon Kim, Jiho Shin, Ki-Woong Park, Jung Taek Seo, "Improving Method of Anomaly Detection Performance for Industrial IoT Environment," *Computers, Materials & Continua*, vol. 72, no. 3, 5377-5394, 2022.
16. Jiho Shin, Hyunpyo Choi, Jung Taek Seo, "A Study on Command Block Collection and Restoration Techniques through Detection of Project File Manipulation on Engineering Workstation of Industrial Control System," *Forensic Science International: Digital Investigation*, vol. 40, 301354, 2022.
17. Jiho Shin, Hyunpyo Choi, Kwang Sun Park, "A Digital Investigation Method for Secondary Crime Exploiting Audio Record of Spy Camera Video in Digital Sex Crime," *Journal of Digital Forensics*, vol. 16, no. 3, 102, 2022.
18. Kwang Sun Park, Dong-hui Choi, Jiho Shin, "A study on mnemonic words exposure risk of a web browser-based decentralized cryptocurrency wallet Kaikas," *The Journal of Police Policies*, vol. 36, no. 3, 349-380, 2022.
19. Jiho Shin, Ilsun You, Jung Taek Seo, "Investment Priority Analysis of ICS Information Security Resources in Smart Mobile IoT Network Environment Using the Analytic Hierarchy Process," *Mobile Information Systems*, vol. 2020, 1-11, 2020.
20. Joo Chan Lee, Hyun Pyo Choi, Jang Hoon Kim, Jun Won Kim, Daun Jung, Jiho Shin, Jung Taek Seo, "Identifying and Verifying Vulnerabilities through PLC Network Protocol and Memory Structure Analysis," *Computers, Materials & Continua*, vol. 65, no. 1, 53-67, 2020.
21. Yo-Han Park, Jiho Shin, "Development and Application of a Cybercrime Response Training Model for Developing Countries in Asia," *The Journal of Police Policies*, vol. 34, no. 4, 313-339, 2020.
22. Jang Hoon Kim, Joo Chan Lee, Jiho Shin, Jung Taek Seo, "A Study on the Security Threat Analysis and Countermeasures of Electric Safety Management Platform," *The Transactions of The Korean Institute of Electrical Engineers*, vol. 69, no. 7, 1136-1143, 2020.
23. Jiho Shin, Jung Taek Seo, "Research Trends of SCADA Digital Forensics and Future Research Proposal," *Journal of The Korea Institute of Information Security and Cryptology*, vol. 29, no. 6, 1351-1364, 2019.

24. Jang Mook Kang, Choel Hee Yoon, Jiho Shin, "A Study on Development of IoT Software Vulnerability (Using Fake Information) Response System Based on Artificial Intelligence," *International Journal of Engineering & Technology*, vol. 7, no. 3.33, 157, 2018.
25. Jiho Shin, "Comparing Recoverability of Deleted Data According to Original Source Collection Methods on Microsoft SQL Server," *Journal of The Korea Institute of Information Security and Cryptology*, vol. 28, no. 4, 859-868, 2018.
26. Jiho Shin, "Comparison of Remaining Data According to Deletion Events on Microsoft SQL Server," *Journal of The Korea Institute of Information Security and Cryptology*, vol. 27, no. 2, 223-232, 2017.
27. Jiho Shin, Nakbum Choi, "A Study on Improving of Digital Forensic Organization and Work Procedures in Police," *The Journal of Police Science*, vol. 16, no. 3, 231-262, 2016.
28. Jiho Shin, "A Study on the Initial Action for the non-Proliferation of Damage Caused by Smishing," *Journal of Digital Forensics*, vol. 9, no. 1, 33-46, 2015.

Conference 24

1. Hyeonbin Park, Jiho Shin, "A Study on Memory Forensics of Chrome Remote Desktop (CRD): Volatile Artifact Analysis of the Controlled PC," *Korea Digital Contents Society Summer Conference 2026*, 2026. (Silver Prize)
2. Yejun Shin, Jiho Shin, "A Study on Local Data Storage Structure Analysis and Conversation History Reconstruction in Generative AI Applications," *Korea Digital Forensics Society Summer Conference 2026*, 2026.
3. Hyeonbin Park, Jiho Shin, "A Forensic Approach to Tracing Target PC Artifacts via the Host PC in Chrome Remote Desktop under Anti-Forensics Scenarios," *Korea Digital Forensics Society Summer Conference 2026*, 2026. (President's Award, Korean Digital Forensics Society)
4. Donghyun Kim, Seungho Jeon, Jiho Shin, Jung Taek Seo, "OCR meets the Dark Web: Identifying the Content Type Regarding Illegal and Cybercrime," *World Conference on Information Security Applications (WISA)*, 2024.
5. Donghyun Kim, Jiho Shin, Jung Taek Seo, "Deriving IoT Botnet Defense Technique Using MITRE ATT&CK-D3FEND," *International Conference on Mobile Internet Security (Mobisec)*, 2022.
6. Hohun Jin, Jiho Shin, Jung Taek Seo, "A Study on Botnet Attack Formulation Technique for 5G Massive IoT Targets," *International Conference on Mobile Internet Security (Mobisec)*, 2022.
7. Changhyung Roh, Ilhwan Ji, Jiho Shin, Jung Taek Seo, "A Study on PLC Data Integrity Verification Using Private Blockchain," *International Conference on Mobile Internet Security (Mobisec)*, 2022.
8. Jaehyeok Choi, Jiho Shin, Choel Hee Yoon, Jung Taek Seo, "Security Threat Analysis and Countermeasures for Over-the-Air (OTA) Update Environments of Autonomous Vehicles," *Korea Convergence Security Association Summer Conference 2022*, 2022. (Excellent Paper Award)
9. Junwon Kim, Jiho Shin, Jung Taek Seo, "Anomaly Detection Method using Machine Learning Based on Feature-Specific Correlation in Industrial Control System," *International Conference on Internet (ICONI)*, 2021.
10. Daun Jung, Jiho Shin, Jung Taek Seo, "Analysis of Research Trends on the Legal Characteristics of Virtual Assets," *International Conference on Internet (ICONI)*, 2021.
11. Insung Song, Daun Jung, Jiho Shin, Jung Taek Seo, "A Study on Training Cyber Attack Scenario at Industrial Control System," *International Conference on Internet (ICONI)*, 2021.
12. H. Choi, Jiho Shin, Jung Taek Seo, "Proposal of ZeroNet's Peer Target-Specific File Ownership Verification Method for Digital Forensics Investigation," *International Conference on Internet (ICONI)*, 2021.
13. Junwon Kim, Hyunpyo Choi, Jiho Shin, Jung Taek Seo, "Anomaly Detection Methods using Power Plant Packet Data with Machine Learning in IoT Environment," *International Conference on Mobile Internet Security (Mobisec)*, 2021. (KISA Award)
14. Junwon Kim, Jiho Shin, Jung Taek Seo, "A Study on Improving Clustering-Based Anomaly Detection Performance for Industrial Control Systems," *Conference on Information Security and Cryptography-Winter 2021 (CISC-W'21)*, 2021.
15. Hyunpyo Choi, Jiho Shin, Jung Taek Seo, "Analysis of a Project Password Bypass Vulnerability in Engineering Workstation (EWS) Software of Industrial Control Systems," *Conference on Information Security and Cryptography-Winter 2021 (CISC-W'21)*, 2021.
16. Daun Jung, Jiho Shin, Jung Taek Seo, "Deriving Security Requirements and Security Controls for Wireless Communications in Critical Infrastructure," *Conference on Information Security and Cryptography-Winter 2021 (CISC-W'21)*, 2021.
17. Donghyun Kim, Jiho Shin, Jung Taek Seo, "Identification of IoT Security Threats and Analysis of Security Technologies," *Conference on Information Security and Cryptography-Winter 2021 (CISC-W'21)*, 2021.

18. Hojun Jin, Hyunpyo Choi, Jiho Shin, Jung Taek Seo, "Security Threat Analysis of Lightweight Foldable Drones," *Conference on Information Security and Cryptography-Winter 2021 (CISC-W'21)*, 2021.
19. Junwon Kim, Jiho Shin, Jung Taek Seo, "Research on PEB-LDR Data Analysis Technique for DLL Injection Detection on ICS Engineering Workstation," *International Conference on Intelligent Computing and its Emerging Applications (ICEA)*, 2020.
20. Hyunpyo Choi, Jiho Shin, Jung Taek Seo, "A Study on the Digital Forensic Method for Decentralized Web Service," *International Conference on Intelligent Computing and its Emerging Applications (ICEA)*, 2020.
21. Daun Jung, Jiho Shin, Chaechang Lee, Kookheui Kwon, Jung Taek Seo, "A Study on the Application of Technical Assessment Methodology(TAM) for Cyber Security in Nuclear Power Plant," *International Conference on Intelligent Computing and its Emerging Applications (ICEA)*, 2020.
22. Joochan Lee, Hyunpyo Choi, Jiho Shin, Jung Taek Seo, "Detection and Analysis Technique for Manipulation Attacks on PLC Control Logic," *International Conference on Intelligent Computing and its Emerging Applications (ICEA)*, 2020.
23. Janghoon Kim, Hyunpyo Choi, Jiho Shin, Jung Taek Seo, "Study on Anomaly Detection Technique in an Industrial Control System Based on Machine Learning," *International Conference on Intelligent Computing and its Emerging Applications (ICEA)*, 2020.
24. J. Lee, H. Choi, J. Kim, J. Kim, D. Jung, Jiho Shin, Jung Taek Seo, "Memory Modulation Attack through PLC Vulnerability," *International Conference on Internet (ICONI)*, 2019. (Outstanding Paper Award)

Report 4

1. Jiho Shin, "Limitations of and Responses to Digital Forensic Investigation in Cloud Environments: Focusing on PaaS-Based Databases," *Police Science Technology Review*, 2026.
2. Daun Jung, Jiho Shin, Chaechang Lee, Kookheui Kwon, Jung Taek Seo, "An Analysis of the Technical Assessment Methodology (TAM) for Cybersecurity Assessment of Power Generation Facilities," *Review of KIISC*, 2020.
3. J.S. Bang, W.J. Park, S.Y. Yoon, Jiho Shin, Y.T. Lee, "Trends of Intelligent Public Safety Service Technologies," *Electronics and Telecommunications Trends*, 2019.
4. Sangyun Lee, Gyeongrok Yeom, Jiho Shin, Junseong Bang, Seunghui Kim, Yeongsu Park, Wonju Park, Yongtae Lee, "A Study on Non-identification of Sensitive Information for Construction of Police Information Databank," *Conference on Information and Control Systems (CICS'18)*, 2018.