

Seunghoon Woo

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OPEN-SOURCE SOFTWARE SECURITY; SOFTWARE COMPOSITION ANALYSIS;
SOFTWARE VULNERABILITY DETECTION; CODE CLONE DETECTION.

EARNED DEGREES

M.S. & Ph.D. in Computer Science and Engineering, Korea University	Sep 2016 - Present
B.S. in Computer Science and Engineering, Korea University	Mar 2010 - Aug 2016

WORKING EXPERIENCES

Center for Software Security and Assurance , Researcher & Developer Developed automated software security analysis tools (https://iotcube.net)	Mar 2016 - Present <i>Seoul, Korea</i>
National University of Singapore , Research Intern Developed a DDoS attack simulation tool (advisor: Prof. Minsuk Kang)	Jan 2017 - Feb 2017 <i>Singapore</i>
Samsung Electronics , Employee Developed a multi-platformed application for supporting Smart TVs	Dec 2015 - Jan 2016 <i>Suwon, Korea</i>
DoDotDo (startup) , Core Developer Developed a smart watch-based hotel management system	Jan 2015 - Sep 2015 <i>Seoul, Korea</i>
Samsung Electronics , Student Intern Developed a multi-platformed application for supporting Smart TVs	Jun 2014 - Aug 2014 <i>Suwon, Korea</i>

PUBLICATIONS

- [1] **Seunghoon Woo**, Hyunji Hong, Eunjin Choi, and Heejo Lee, "MOVERY: A Precise Approach for Modified Vulnerable Code Clone Discovery from Modified Open-Source Software Components (TO APPEAR)," *In Proceedings of the 31st USENIX Security Symposium (Security 2022)*, August 2022.
- [2] Haram Park, Carlos Nkuba Kayembe, **Seunghoon Woo**, and Heejo Lee, "L2Fuzz: Discovering Bluetooth L2CAP Vulnerabilities Using Stateful Fuzz Testing (TO APPEAR)," *In Proceedings of the 52nd IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2022)*, June 2022. (Acceptance rate: 18.7%)
- [3] Hyunji Hong, **Seunghoon Woo**, and Heejo Lee, "DICOS: Discovering Insecure Code Snippets from Stack Overflow Posts by Leveraging User Discussions," *In Proceedings of the Annual Computer Security Applications Conference (ACSAC 2021)*, December 2021. (Acceptance rate: 24.5%)
- [4] **Seunghoon Woo**, Dongwook Lee, Sunghan Park, Heejo Lee, and Sven Dietrich, "V0Finder: Discovering the Correct Origin of Publicly Reported Software Vulnerabilities," *In Proceedings of the 30th USENIX Security Symposium (Security 2021)*, August 2021. (Acceptance rate: 19.0%)
- [5] Seongkyeong Kwon, **Seunghoon Woo**, Gangmo Seong, and Heejo Lee, "OctoPoCs: Automatic Verification of Propagated Vulnerable Code Using Reformed Proofs of Concept," *In Proceedings of the 51st IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2021)*, June 2021. (Acceptance rate: 16.3%)
- [6] **Seunghoon Woo**, Sunghan Park, Seulbae Kim, Heejo Lee, and Hakjoo Oh, "CENTRIS: A Precise and Scalable Approach for Identifying Modified Open-Source Software Reuse," *In Proceedings of the 43rd International Conference on Software Engineering (ICSE 2021)*, May 2021. (Acceptance rate: 22.4%)

- [7] Seulbae Kim, **Seunghoon Woo**, Heejo Lee, and Hakjoo Oh, “VUDDY: A Scalable Approach for Vulnerable Code Clone Discovery,” *In Proceedings of the 38th IEEE Symposium on Security and Privacy (S&P 2017)*, May 2017. (Acceptance rate: 12.9%)
- [8] Seulbae Kim, **Seunghoon Woo**, Heejo Lee, and Hakjoo Oh, “Poster: IoTcube: an automated analysis platform for finding security vulnerabilities”, *In 2017 IEEE Symposium on Poster presented at Security and Privacy (S&P Poster 2017)*, May 2017.

PROJECTS

Project Manager , International Joint Research Development of Automated Vulnerability Discovery Technologies for Blockchain Platform Security	Jun 2019 - Present
Researcher & Developer , University of Southern California & LA City The Intelligent IoT Integrator (I3): LA Smart City Project	Nov 2017 - Present
Main Researcher Verifying Open-Source Software Reliability for Reinforcing Operating System Security	Apr 2020 - Oct 2020
Main Researcher Development of DNS-based Lightweight Framework for Addressing Abnormal Network Behaviors	May 2018 - Oct 2018
Project Manager , Office of Naval Research A Study of a DDoS-resilient Network Architecture through Traffic Classification and Isolation	Sep 2017 - Sep 2019
Researcher & Developer , International Joint Research Development of Vulnerability Discovery Technologies for IoT Software Security	Feb 2016 - May 2018

PATENT

- [1] METHOD FOR IDENTIFYING OPEN-SOURCE SOFTWARE COMPONENTS AT THE SOURCE-CODE LEVEL, Heejo Lee and **Seunghoon Woo** (17525126, Nov 2021), APPLICATION, US
- [2] METHOD FOR IDENTIFYING OPEN-SOURCE SOFTWARE COMPONENTS AT THE SOURCE-CODE LEVEL, Heejo Lee and **Seunghoon Woo** (EP21202849.2, Oct 2021), APPLICATION, EUROPE
- [3] METHOD FOR IDENTIFYING OPEN-SOURCE SOFTWARE COMPONENTS AT THE SOURCE-CODE LEVEL, Heejo Lee and **Seunghoon Woo** (10-2021-0010585, Jan 2021), APPLICATION, KOREA

OPEN-SOURCE CONTRIBUTIONS (SELECTED)

Apple , Fixing security vulnerabilities (with Haram Park) Discovered DoS vulnerabilities in Apple tvOS, watchOS, iOS, iPadOS, and macOS Monterey Bluetooth stack	Dec 2021
XPDF , Fixing security vulnerabilities (CVE-2020-35376 assigned) Detected a stack consumption vulnerability in XPDF (https://www.xpdfreader.com)	Dec 2020
Redis , Fixing security vulnerabilities (CVE-2020-14147 assigned) Detected a possible stack-based buffer overflow vulnerability in Redis (https://github.com/redis/redis)	Feb 2020
Stepmania , Fixing security vulnerabilities (CVE-2020-20412 assigned) Detected a improper validation vulnerability in Stepmania (https://github.com/stepmania/stepmania)	Sep 2019
Godot , Fixing security vulnerabilities Detected a possible remote code execution vulnerability in Godot (https://github.com/godotengine/godot)	Jul 2019
LibGDX , Fixing security vulnerabilities Detected a possible remote code execution vulnerability in LibGDX (https://github.com/libgdx/libgdx)	Jul 2019

TALKS AND PRESENTATIONS (SELECTED)

IoTcube Conference 2021 Analysis of Reused Open-Source Software Components for Software Bill of Materials	Aug 2021
USENIX Security 2021 , Paper Presentation V0Finder: Discovering the Correct Origin of Publicly Reported Software Vulnerabilities	Aug 2021
ICSE 2021 , Paper Presentation CENTRIS: A Precise and Scalable Approach for Identifying Modified Open-Source Software Reuse	May 2021
KIISC Online Short Course 2021 Verification Technology for Open-Source Software Security	Nov 2020
IoTcube Conference 2019 Automatic Vulnerability Analysis Framework Applied to LA Smart City Projects	Aug 2019
Workshop among Asian Information Security Labs (WAIS) 2018 Identifying Constituent OSS in Software through Code Similarity Detection	Jan 2018
IEEE S&P Poster 2017 Poster presentation: "IoTcube: an automated analysis platform for finding security vulnerabilities"	May 2017

HONORS (SELECTED)

Academic Scholarship , Korea University	2010 2R, 2011 1R, 2013 2R
Foreign Regular Course Major Study Scholarship , Korea University	2013 2R
National Excellence Scholarship (Science and Engineering) , Korea University	2014 1R - 2015 2R
BK21PLUS Scholarship , Brain Korea 21	2017 1R - 2021 1R