Seunghoon Woo

(+82)10-8147-9308 | seunghoonwoo@korea.ac.kr | LinkedIn | https://wooseunghoon.github.io

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 — Mar 2016 - Present
Developed automated software security analysis tools (https://iotcube.net) — *Seoul, Korea*

National University of Singapore, Research Intern — Jan 2017 - Feb 2017
Developed a DDoS attack simulation tool (advisor: Prof. Minsuk Kang) — *Singapore*

DoDotDo (startup), Core Developer — Jan 2015 - Sep 2015
Developed a smart watch-based hotel management system — *Seoul, Korea*

Samsung Electronics, Employee — Dec 2015 - Jan 2016
Developed a multi-platformed application for supporting Smart TV — *Suwon, Korea*

Samsung Electronics, Student Internship — Jun 2014 - Aug 2014
Developed a multi-platformed application for supporting Smart TV — *Suwon, Korea*

Publications

[1] 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%)

[2] **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%)

[3] 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%)

[4] **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%)

[5] 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%)

[6] 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 — Jun 2019 - Present
Development of Automated Vulnerability Discovery Technologies for Blockchain Platform Security

Researcher & Developer, University of Southern California & LA City — Nov 2017 - Present
The Intelligent IoT Integrator (I3): LA Smart City Project

Main Researcher, - — Apr 2020 - Oct 2020
Verifying Open-Source Software Reliability for Reinforcing Operating System Security

Main Researcher, - — May 2018 - Oct 2018
Development of DNS-based Lightweight Framework for Addressing Abnormal Network Behaviors

Project Manager, Office of Naval Research — Sep 2017 - Sep 2019
A Study of a DDoS-resilient Network Architecture through Traffic Classification and Isolation

Researcher & Developer, International Joint Research — Feb 2016 - May 2018
Development of Vulnerability Discovery Technologies for IoT Software Security

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

XPDF, Fixing security vulnerabilities (CVE-2020-35376 assigned) — Dec 2020
https://www.xpdfreader.com

Redis, Fixing security vulnerabilities (CVE-2020-14147 assigned) — Feb 2020
https://github.com/redis/redis

Stepmania, Fixing security vulnerabilities (CVE-2020-20412 assigned) — Sep 2019
https://github.com/stepmania/stepmania

Godot, Fixing security vulnerabilities — Jul 2019
https://github.com/godotengine/godot

LibGDX, Fixing security vulnerabilities — Jul 2019
https://github.com/libgdx/libgdx

Talks and Presentations

IoTcube Conference 2021 — Aug 2021
Analysis of Reused Open-Source Software Components for Software Bill of Materials

USENIX Security 2021, Paper Presentation — Aug 2021
V0Finder: Discovering the Correct Origin of Publicly Reported Software Vulnerabilities

ICSE 2021, Paper Presentation — May 2021
CENTRIS: A Precise and Scalable Approach for Identifying Modified Open-Source Software Reuse

KIISC Online Short Course 2021 — Nov 2020
Verification Technology for Open-Source Software Security

IoTcube Conference 2019 Aug 2019
Automatic Vulnerability Analysis Framework Applied to LA Smart City Projects

Workshop among Asian Information Security Labs (WAIS) 2018 Jan 2018
Identifying Constituent OSS in Software through Code Similarity Detection

IEEE S&P Poster 2017 May 2017
Poster presentation: "IoTcube: an automated analysis platform for finding security vulnerabilities"

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