# 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*

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

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

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

## PUBLICATIONS

[1] 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%)

[2] 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%)

[3] **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%)

[4] 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%)

[5] **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%)

[6] 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%)

[7] 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 (Selected)

**Apple,** Fixing security vulnerabilities (with Haram Park)                              Dec 2021

Discovered DoS vulnerabilities in Apple tvOS, watchOS, iOS, iPadOS, and macOS Monterey Bluetooth stack

**XPDF,** Fixing security vulnerabilities (CVE-2020-35376 assigned)                       Dec 2020

Detected a stack consumption vulnerability in XPDF (https://www.xpdfreader.com)

**Redis,** Fixing security vulnerabilities (CVE-2020-14147 assigned)                      Feb 2020

Detected a possible stack-based buffer overflow vulnerability in Redis (https://github.com/redis/redis)

**Stepmania,** Fixing security vulnerabilities (CVE-2020-20412 assigned)                  Sep 2019

Detected a improper validation vulnerability in Stepmania (https://github.com/stepmania/stepmania)

**Godot,** Fixing security vulnerabilities                                               Jul 2019

Detected a possible remote code execution vulnerability in Godot (https://github.com/godotengine/godot)

**LibGDX,** Fixing security vulnerabilities                                              Jul 2019

Detected a possible remote code execution vulnerability in LibGDX (https://github.com/libgdx/libgdx)

## Talks and Presentations (Selected)

**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