

SOYEON PARK

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School of Computer Science
Georgia Institute of Technology
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EMPLOYMENT

Georgia Institute of Technology, Atlanta, GA Aug 2017–Present
Graduate Research Assistant
Advisor: Prof. Taesoo Kim

Samsung Research, Seoul, South Korea Sep 2021–Apr 2022
Research Intern
Worked on Security Team

IBM Research, Remote May 2021–Aug 2021
Research Intern
Worked on Cyber Security Intelligence Team

Microsoft, Remote May 2020–Jul 2020
Security Engineering Intern
Worked on Platform Security Assurance & Vulnerability Research Team

EDUCATION

Georgia Institute of Technology, Atlanta, GA Aug 2017–Present
Ph.D. in Computer Science
Advisor: Prof. Taesoo Kim

POSTECH, Pohang, South Korea Mar 2013–Feb 2017
B.S. in Computer Science and Engineering
graduated with top honor (Major GPA : 3.96/4.0)

RESEARCH INTERESTS

Fuzzing, Binary Analysis, Software Security, Systems Security, Hardware-assisted Security

PUBLICATIONS

Conference Proceedings

- [1] **A Look Back on a Function Identification Problem.**
Hyungjoon Koo, **Soyeon Park**, and Taesoo Kim.
In *Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, December 2021.

- [2] **Revisiting Function Identification with Machine Learning.**
Hyungjoon Koo, Soyeon Park, and Taesoo Kim.
In *Proceedings of the Machine Learning for Program Analysis (MLPA)*, January 2021.
- [3] **FREEDOM: Engineering a State-of-the-Art DOM Fuzzer .**
Wen Xu, Soyeon Park, and Taesoo Kim.
In *Proceedings of the ACM Conference on Computer and Communications Security (CCS)*, November 2020.
- [4] **Fuzzing JavaScript Engines with Aspect-preserving Mutation .**
Soyeon Park, Wen Xu, Insu Yun, Daehee Jang, and Taesoo Kim.
In *Proceedings of the IEEE Symposium on Security and Privacy (Oakland)*, May 2020.
* This paper is nominated as the top 10 papers in CSAW’20.
- [5] **libmpk: Software Abstraction for Intel Memory Protection Keys.**
Soyeon Park, Sangho Lee, Wen Xu, Hyungon Moon, and Taesoo Kim.
In *Proceedings of the USENIX Annual Technical Conference (ATC)*, July 2019.
- [6] **VeriCount: Verifiable Resource Accounting Using Hardware and Software Isolation.**
Shruti Tople, Soyeon Park, Min Suk Kang, and Prateek Saxena.
In *Proceedings of the International Conference on Applied Cryptography and Network Security (ACNS)*, July 2018.

Journal Articles

- [7] **Semantic-aware Binary Code Representation with BERT.**
Hyungjoon Koo, Soyeon Park, Daejin Choi, and Taesoo Kim.
arXiv 2106.05478, June 2021.
- [8] **Heterogeneous Distributed Shared Memory for Lightweight Internet-of-Things Devices.**
Bongjun Kim, Seonyeong Heo, Gyeongmin Lee, Soyeon Park, Hanjun Kim, and Jong Kim.
IEEE Micro, 36(6), November–December 2016.

Granted Patents

- [9] **Heterogeneous Distributed Shared Memory For IoT Devices.**
Bongjun Kim, Jong Kim, Soyeon Park, Hanjun Kim, Seonyeong Heo, and Gyeongmin Lee.
Registration, Korea, 10-1857907, May 2018.

HONORS AND AWARDS

Kwanjeong Educational Foundation Scholarship for Graduate Studies (\$25k/yr)	2017-2021
Google JavaScript Fuzzing Research Grant (\$5k)	2021
3rd place (r00timentary) at zer0pts CTF 2021	2021
Georgia Tech IISP CyberSecurity Fellowship	2020
13th place (r00timentary) at Google CTF 2020	2020
8th place (r00timentary) at DEFCON CTF 2019	2019
10th place (r00timentary) at Trend Micro CTF 2018 Final	2018
3rd place (r00timentary) at Trend Micro CTF 2018 Online Qualifier	2018
1st place (DEFKOR00T) at DEFCON CTF 2018	2018
Top 30 (individual) at NSA Codebreaker 2017	2017

4th place (individual) at Hungry Hungry Hacker CTF 2017	2017
Korea National Science & Technology Scholarship (\$5,000/1yr)	2013-2017

REPORTED VULNERABILITIES AND EXPLOITS

Microsoft (7)

• **Script engine (ChakraCore)**: CVE-2019-0609 (\$15K, w/ Wen Xu), CVE-2019-0990, CVE-2019-1023 (w/ Wen Xu), CVE-2019-1092, CVE-2019-1300

• **Network File System**: CVE-2020-17047, CVE-2020-17051

Apple (4)

• **Safari (WebKit)**: CVE-2019-8673 (w/ Wen Xu), CVE-2019-8676 (w/ Wen Xu), CVE-2019-8811, CVE-2019-8816

Google (3)

• **Chrome**: CVE-2019-13730 (\$5K, w/ Wen Xu), CVE-2019-13764 (\$5K, w/ Wen Xu), CVE-2020-6382 (\$2K, w/ Wen Xu)

ACTIVITIES AND SERVICES

External Reviewer

ACM SOSP	2021
NDSS	2020
ACM CCS	2019
USENIX OSDI	2018
USENIX ATC	2018
USENIX Security	2018, 2022, 2023

Reviewer

Computers & Security	2021
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Program Committee

NYU's CSAW Applied Research Competition	2021, 2022
Organizer of 6265 CTF 2018	2018
Organizer of inc0gnito CTF 2015	2015
Member of PLUS (POSTECH Laboratory for Unix Security) CTF Team	2013-2017

INVITED TALKS

Fuzzing JavaScript Engine for fun and profit

Sungshin Women's University, Seoul, South Korea	Jan 2022
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Fuzzing JavaScript Engines with Aspect-preserving Mutation

Samsung Research, Virtual	Aug 2021
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Fuzzing JavaScript Engines with Aspect-preserving Mutation

IBM Research, Virtual	Aug 2021
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Fuzzing JavaScript Engines with Aspect-preserving Mutation

Seoul National University, Seoul, South Korea Jan 2021

Fuzzing JavaScript Engines with Aspect-preserving Mutation

IEEE Symposium on Security and Privacy, Virtual May 2020

libmpk: Software Abstraction for Intel Memory Protection Keys

USENIX Annual Technical Conference, Seattle, USA Jul 2019

Software Abstraction for Intel Memory Protection Keys

KAIST, Daejeon, South Korea Apr 2019

Comprehensive Browser Fuzzing: From DOM to JS

w/ Wen Xu, ZeroCon 2019, Seoul, South Korea Apr 2019

TEACHING EXPERIENCE

Teaching Assistant, Information Security Lab, Georgia Tech, Fall 2022

Teaching Assistant, Information Security Lab, Georgia Tech, Fall 2018

Tutor, Microprocessor and Assembly Language Programming, POSTECH, Spring 2016

Teaching Assistant, C Programming, Pohand Jecheol High School, Spring and Fall 2015

Tutor, Microprocessor and Assembly Language Programming, POSTECH, Spring 2015

Last updated: August 25, 2022