Soyeon Park

Ph.D. Student
School of Computer Science
Georgia Institute of Technology
E1054, CODA Bldg, Georgia Tech - IISP.
756 West Peachtree Street NW
Atlanta, GA 30332-4016

Email: spark720@gatech.edu
Web: https://thdusdl1219.github.io

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] **Memory Protection Keys: facts, key extension perspectives, and discussions**.
Soyeon Park, Sangho Lee, and Taesoo Kim.
IEEE Security & Privacy, 2023.

[8] **Binary Code Representation with Well-balanced Instruction Normalization**.
Hyungjoon Koo, **Soyeon Park**, Daejin Choi, and Taesoo Kim.
IEEE Access, 2023.

[9] **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

[10] **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

High Performer (individual) at NSA Codebreaker 2022 2022

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

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

Reviewer

Program Committee

Invited Talks

Fuzzing JavaScript Engine for fun and profit
Sungshin Women's University, Seoul, South Korea ....Jan 2022

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

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

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: March 25, 2023