

Haehyun Cho

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○ EDUCATION

Ph.D., Computer Science

Arizona State University, Tempe, AZ

Aug 2016–Present

M.S., Computer Science and Engineering

Soongsil University, Seoul, Korea

Feb 2015

- Thesis: *Mobile App Tamper Detection Scheme Based on Core Code Attestation*

B.S., Computer Science and Engineering

Soongsil University, Seoul, Korea

Feb 2013

○ PUBLICATIONS

• Conference/Workshop Papers with Proceedings (refereed)

1. Penghui Zhang, Adam Oest, **Haehyun Cho**, Zhibo Sun, RC Johnson, Brad Wardman, Shaown Sarker, Alexandros Kapravelos, Tiffany Bao, Ruoyu Wang, Yan Shoshitaishvili, Adam Doupé, and Gail-Joon Ahn, “CrawlPhish: Large-scale Analysis of Client-side Cloaking Techniques in Phishing,” in *Proceedings of the 42nd IEEE Symposium on Security and Privacy (IEEE S&P)*, San Francisco, CA, May 2021. (XX% acceptance rate.)
2. **Haehyun Cho**, Jinbum Park, Adam Oest, Tiffany Bao, Ruoyu Wang, Yan Shoshitaishvili, Adam Doupé, and Gail-Joon Ahn, “ViK: Practical Mitigation of Use-after-free Exploits through Object ID Inspection,” in *Proceedings of the 2021 Network and Distributed System Security Symposium (NDSS)*, San Diego, CA, Feb 2021. (XX% acceptance rate.)
3. **Haehyun Cho**, Jinbum Park, Joonwon Kang, Tiffany Bao, Ruoyu Wang, Yan Shoshitaishvili, Adam Doupé, and Gail-Joon Ahn, “Exploiting Uninitialized Stack Memory Uses in the Linux Kernel for Leaking Kernel Pointers,” in *Proceedings of the 14th USENIX Workshop on Offensive Technologies (Usenix WOOT)*, Boston, MA, Aug 2020. (XX% acceptance rate.)
4. **Haehyun Cho**, Jinbum Park, Donguk Kim, Ziming Zhao, Yan Shoshitaishvili, Adam Doupé, and Gail-Joon Ahn, “SmokeBomb: Effective Mitigation Against Cache Side-channel Attacks on the ARM Architecture,” in *Proceedings of the 18th ACM International Conference on Mobile Systems, Applications, and Services (ACM MobiSys)*, Toronto, Canada, Jun 2020. (19% acceptance rate.)
5. Penghui Zhang, **Haehyun Cho**, Ziming Zhao, Adam Doupé, and Gail-Joon Ahn, “iCORE: Continuous and Proactive Extrospection on Multi-core IoT Devices,” in *Proceedings of the 34th ACM/SIGAPP Symposium On Applied Computing (ACM SAC)*, Limassol, Cyprus, Apr 2019. (24% acceptance rate.)
6. **Haehyun Cho**, Penghui Zhang, Donguk Kim, Jinbum Park, Choong-Hoon Lee, Ziming Zhao, Adam Doupé, and Gail-Joon Ahn, “Prime+Count: Novel Cross-world Covert Channels on ARM Trust-Zone,” in *Proceedings of the 34th Annual Computer Security Applications Conference (ACSAC)*, San Juan, Puerto Rico, USA, Dec 2018. (20% acceptance rate.)
7. Jaejong Baek, Sukwha Kyung, **Haehyun Cho**, Ziming Zhao, Yan Shoshitaishvili, Adam Doupé, and Gail-Joon Ahn, “Wi Not Calling: Practical Privacy and Availability Attacks in Wi-Fi Calling,”

in *Proceedings of the 34th Annual Computer Security Applications Conference (ACSAC)*, San Juan, Puerto Rico, USA, Dec 2018. (20% acceptance rate.)

• Journal Papers (refereed)

1. **Haehyun Cho**, Jeong Hyun Yi, and Gail-Joon Ahn. “DexMonitor: Dynamically Analyzing and Monitoring Obfuscated Android Applications,” *IEEE Access*, Volume 6, pp.71229–71240 Nov 2018.
2. **Haehyun Cho**, Jiwoong Bang, Myeongju Ji, and Jeong Hyun Yi, “Mobile application tamper detection scheme using dynamic code injection against repackaging attacks,” *The Journal of Supercomputing*, Vol.72, No.9, pp.3629–3645, Sep 2016.
3. Yiming Jing, Gail-Joon Ahn, Hongxin Hu, **Haehyun Cho**, and Ziming Zhao, “TRIPLEMON: A Multi-layer Security Framework for Mediating Inter-Process Communication on Android,” *Journal of Computer Security*, Vol.24, No.4, pp.405–426, Sep 2016.
4. **Haehyun Cho**, Jiwoong Bang, Myeongju Ji, and Jeong Hyun Yi, “Anti-debugging scheme for protecting mobile apps on android platform,” *The Journal of Supercomputing*, Vol.72, No.1, pp.232–246, Jan 2016.
5. Jongwon Choi, **Haehyun Cho**, and Jeong Hyun Yi, “Personal Information Leaks with Automatic Login in Mobile Social Network Services,” *Entropy Journal*, Vol.17, No.6, pp.3947–3962, Jun 2015.

• Invited Paper

1. Bernard Ngabonziza, Daniel Martin, Anna Bailey, **Haehyun Cho**, and Sarah Martin. “Trustzone explained: Architectural features and use cases.” in *Proceedings of the IEEE 2nd International Conference on Collaboration and Internet Computing*, Pittsburgh, PA, Nov 2016.

○ PATENTS

1. Jeong Hyun Yi, **Haehyun Cho**, Jiwoong Bang, and Myeongju Ji, “Application Code Analysis Apparatus and Method for Code Analysis Using the Same,” KR Patent, Patent No.: 10–1557455, Sep 2015.
2. Jeong Hyun Yi and **Haehyun Cho**, “User Terminal to Detect the Tampering of the Applications Using Core Code and Method for Tamper Detection Using The Same,” KR Patent, Patent No.: 10–1518689, Apr 2015.

○ EXPERIENCE SUMMARY

SEFCOM - Security Engineering for Future Computing — Graduate Research Associate	Arizona State University, Tempe, AZ Mar 2016–Present
Secure Systems Group — PhD Intern	Qualcomm, San Diego, CA May 2020–Aug 2020
Qualcomm Security Product Initiative (QPSI) — PhD Intern	Qualcomm, San Diego, CA May 2019–Aug 2019
Cyber Security Research Center — Research Associate	Soongsil University, Seoul, Korea Mar 2015–Feb 2016

Cyber Security Research Center

— Graduate Research Associate

Republic of Korea Army

Soongsil University, Seoul, Korea

Mar 2013–Feb 2015

Feb 2007–Feb 2009

○ RESEARCH/PROJECT EXPERIENCE

Computers and humans Exploring Software Security (CHESS)

Source: Defense Advanced Research Projects Agency (DARPA)

Jan 2019–Present

ASU–Samsung Research Membership Projects

Source: Samsung Research

Jan 2017–Present

Development of Security Technology for Mobile System Software

Source: National Research Foundation of Korea

Aug 2014–Feb 2017

Vulnerability Analyses and Countermeasures of Mobile Obfuscation

Source: Samsung Electronics

Nov 2013–Sep 2014

Credential Management for Smart Device Apps

Source: Supreme Prosecutors' Office of Korea

Aug 2013–Jan 2014

○ HONORS AND AWARDS

• **The Engineering Graduate Fellowship**

by Ira A. Fulton Schools of Engineering, Arizona State University, May 2020.

• **The CIDSE Doctoral Fellowship**

by the School of Computing, Informatics, and Decisions Systems Engineering (CIDSE), Arizona State University, Mar 2020.

• **The Cybersecurity Fellowship**

by the School of Computing, Informatics, and Decisions Systems Engineering (CIDSE), Arizona State University, Aug 2019.

• **Scholarship for Human Resources Development**

by Soongsil University, Seoul, Korea, Oct 2018.

• **Academic Excellence Scholarship**

by Soongsil University, Seoul, Korea.

• **Travel Grant**

by the 25th ACM Conference on Computer and Communications Security (CCS '18).

○ INVITED TALKS

• **“Introduction and Security Concerns of Cache on ARM architecture”**

· Samsung Research, Seoul, Korea, Jun 2018.

· Soongsil University, Seoul, Korea, May 2018.

○ TEACHING EXPERIENCE

- **Teaching Assistant**

- System Security Principles, Samsung Electronics, Jan 2015.
- Android Security, LG Electronics, Jul 2014.
- System Security Principles, Samsung Electronics, Jan 2014.
- Network Security and Practice, Samsung Electronics, Aug 2013.

○ SERVICE

- **Journal Reviewer**

- IEEE Transactions on Information Forensics & Security (TIFS)

- **External Reviewer**

- 2019 ACM Conference on Computer and Communications Security (CCS)
- 2019 ACM Conference on Data and Application Security and Privacy (CODASPY)
- 2018 ACM Conference on Computer and Communications Security (CCS)
- 2018 European Symposium on Research in Computer Security (ESORICS)
- 2017 ACM Conference on Computer and Communications Security (CCS)
- 2017 ACM Asia Conference on Computer and Communications Security (AsiaCCS)
- 2017 ACM Conference on Data and Application Security and Privacy (CODASPY)

○ TECHNICAL STRENGTHS

- | | |
|---------------------------------|--|
| • Skills & Tools | System Programming, Program Analysis, LLVM |
| • Computer Languages | C, C++, Python, Java, Assemblies |
| • Operating Systems | Linux, OP-TEE OS, Android, Tizen, Windows |
| • Computer Architectures | ARM, Intel |

○ REFERENCES

Gail-Joon D. Ahn

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Professor of Computer Science
Fulton Entrepreneurial Professor
Director, Center for Cybersecurity and Digital Forensics
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