

Seongmin Kim

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RESEARCH INTERESTS	Trusted Computing, System Security, Network Security, Cloud Computing	
WORK EXPERIENCE	Sungshin Women's University Assistant Professor, in Department of Convergence Security Engineering	SEP. 2020 ~ Present
	Samsung Research, Samsung Electronics Staff Engineer, in Security Team (Security 2 Lab)	SEP. 2019 ~ AUG. 2020
	Korea Advanced Institute of Science and Technology (KAIST) Postdoctoral Researcher, in Information & Electronics Research Institute	MAR. 2019 ~ AUG. 2019
EDUCATION	Korea Advanced Institute of Science and Technology (KAIST) Ph.D., in Graduate School of Information Security, School of Computing	MAR. 2015 ~ FEB. 2019
	Korea Advanced Institute of Science and Technology (KAIST) M.S., in Department of Electrical Engineering	MAR. 2012 ~ FEB. 2014
	Korea Advanced Institute of Science and Technology (KAIST) B.S., in Department of Electrical Engineering	FEB. 2007 ~ FEB. 2012
PUBLICATIONS	Conference & Workshop <ol style="list-style-type: none">1. Juhyeng Han, Seongmin Kim, Taesoo Kim, and Dongsu Han. "Toward scaling hardware security module for emerging cloud services". <i>In Proceedings of the 4th Workshop on System Software for Trusted Execution (SysTex'19)</i>.2. Byungkwon Choi, Jeongmin Kim, Daeyang Cho, Seongmin Kim, and Dongsu Han. "APPx: An Automated App Acceleration Framework for Low Latency Mobile App". <i>In Proceedings of the 14th International Conference on emerging Networking EXperiments and Technologies (CoNEXT'18)</i>.3. Juhyeng Han, Seongmin Kim, Jaehyeong Ha, and Dongsu Han. "SGX-Box: Enhancing Visibility on Encrypted Traffic using a Secure Middlebox Module". <i>In Proceedings of the 1st Asia-Pacific Workshop on Networking (APNet'17)</i>.4. Seongmin Kim, Juhyeng Han, Jaehyeong Ha, Taesoo Kim, and Dongsu Han. "Enhancing Security and Privacy of Tor's Ecosystem by using Execution Environments". <i>In Proceedings of the 14th USENIX Symposium on Networked Systems Design and Implementation (NDSI'17)</i>.5. Jaebaek Seo, Byoungyoung Lee, Seongmin Kim, Ming-Wei Shih, Insik Shin, Dongsu Han, and Taesoo Kim. "SGX-Shield: Enabling Address Space Layout Randomization for SGX Programs". <i>In Proceedings of the 24th Annual Network and Distributed System Security Symposium (NDSS'17)</i>.6. Prerit Jain, Soham Desai, Seongmin Kim, Ming-Wei Shih, Jaehyuk Lee, Changho Choi, Youjung Shin, Taesoo Kim, Brent Byunghoon Kang, Dongsu Han. "OpenSGX: An Open Platform for SGX Research". <i>In Proceedings of the 23rd Annual Network and Distributed System Security Symposium (NDSS'16), San Diego, United States, Feb 2016</i>.7. Seongmin Kim, Youjung Shin, Jaehyung Ha, Taesoo Kim, Dongsu Han. "A First Step Towards Leveraging Commodity Trusted Execution Environments for Network Applications". <i>In Proceedings of the</i>	

14th ACM Workshop on Hot Topics in Networks (ACM HotNets'15), Philadelphia, United States, Nov 2015.

8. Byeoksan Lee, **Seongmin Kim**, Eru Park, Dongsu Han. "MemScope: Analyzing memory Duplication on Android Systems". *In Proceedings of the 6th ACM Asia-Pacific Workshop on Systems (ACM APSys'15), Tokyo, Japan, Jul 2015.*
9. Jong-Hun Choi, **Seong-Min Kim**, Chulmin kim, Ki-Woomg Park, Kyu Ho Park. "OPAMP: Evaluation Framework for Optimal Page Allocation of Hybrid main Memory Architecture". *In Proceedings of the 18th IEEE International Conference on Parallel and Distributed Systems (IEEE ICPADS'12), Singapore, Dec 2012.*
10. Dong-Jae Shin, Sung Kyu Park, **Seong Min Kim**, Kyu Ho Park. "Adaptive Page Grouping for Engery Efficiency in Hybrid PRAM-DRAM Main Memory". *In Proceedings of the 2012 ACM Research in Applied Computation Symposium (ACM RACS'12), San Antonio, United States, Oct 2012.*

Journals

1. Juhyeong Han, **Seongmin Kim**, Daeyang Cho, Byungkwon Choi, Jaehyeong Ha, and Dongsu Han. "A Secure Middlebox Framework for Enabling Visibility Over Multiple Encryption Protocols". *IEEE/ACM Transactions on Networking*. vol. 28, no. 6, pp. 2727-2740. December 2020.
2. **Seongmin Kim**, Juhyeong Han, Jaehyeong Ha, Taesoo Kim, and Dongsu Han. "SGX-Tor: A Secure and Practical Tor Anonymity Network With SGX Enclaves". *IEEE/ACM Transactions on Networking*. vol. 26, no. 5, pp. 2174-2187. October 2018.
3. Kyu Ho Park, Woomin Hwang, Hyunchul Seok, Chulmin Kim, Dong-jae Shin, Dong Jin Kim, Min Kyu Maeng, **Seong Min Kim**. "MN-MATE: Elastic Resource Management of Manycores and a Hybrid Memory Hierarchy for a Cloud Node". *ACM Journal on Emerging Technologies in Computing Systems*. vol. 12, no. 1, article 5. July 2015.

TEACHING

Sungshin Women's University, Seoul, Korea

- Contribution in undergraduate education in the department of Convergence Security Engineering
- Contribution in graduate education in the department of Future Convergence Technology Engineering

Undergraduate Course

- LB003800 Introduction to Convergence Security
 - Spring 2021: 100 students
- LC001800 Java Programming
 - Spring 2021: 35 students
 - Spring 2021 (Given in English): 35 students
- LB001700 System Security
 - Fall 2020: 50 students, evaluation rating 4.77/5.0
 - Spring 2021: 60 students
- LB002700 Hacking Laboratory 2
 - Fall 2020: 40 students, evaluation rating 4.55/5.0
- LB002400 Information Security Consulting
 - Fall 2020: 66 students, evaluation rating 4.25/5.0

Graduate Course

- 290508 Cyber Forensics
 - Spring 2021: 40 students

Students Supervised/Under-supervision

Undergraduate Internship

Daeun Kim

Yuji Park

SOFTWARE
PUBLISHED

1. SGX-Tor: Intel SGX-enabled Tor anonymity network (<https://github.com/kaist-ina/SGX-Tor/>)
2. OpenSGX: Open-source Intel SGX emulator (<https://github.com/sslab-gatech/opensgx>)
3. MemScope: Memory duplication analysis tool for x86-android (<https://github.com/kaist-ina/MemScope>)

INVITED TALKS

1. Networking System Implementation (NSI) talk, ACM APNet, August 2017.
2. Institute for Information Security & Privacy, Georgia Tech, February 2016.

RESEARCH
FUNDING
RECEIVED

Totaling 1.5B KRW in research fund (PI: 0.1B KRW)

1. "Secure and Privacy-Preserving Multi-Tenancy for 5G Network Services and Edge Cloud" (90,000,000 KRW), funded by National Research Foundation of Korea (NRF), Mar. 2021 - Feb. 2024. **(PI)**
2. "Training R&D professionals to protect industrial technology based on the 4th industrial revolution" (1,402,200,000 KRW), funded by Ministry of Trade, Industry and Energy (MOTIE), Mar. 2021 - Feb. 2024.
3. "Toward enhancing security of runtime and system software for emerging 5G network" (20,000,000 KRW), Sungshin Women's University, Sep. 2020 - Aug. 2021. **(PI)**