

HYUNGJOON KOO

kevin.koo@skku.edu • <https://dandylife.net/blog>

Assistant Professor, Sungkyunkwan University, Department of Computer Science and Engineering,
College of Computing and Informatics Feb 2021 – Present

EDUCATION

- Postdoc., Georgia Tech, School of Computer Science, College of Computing** Jun 2019 – Dec 2020
- Adviser: Taesoo Kim (Systems Software & Security Lab)
 - Research Area: Software Security, Artificial Intelligence for Security
- Ph.D., Stony Brook University, Department of Computer Science** Aug 2013 – May 2019
- Adviser: Michalis Polychronakis (Hexlab)
 - Research Area: Binary Protection, Software Diversification against Code Reuse Attacks
 - Thesis: Practical Software Specialization against Code Reuse Attacks
- M.Sc., Korea University, Information Management and Security** Mar 2008 – Feb 2010
- Adviser: Sangjin Lee (Digital Forensic Lab)
 - Thesis: Pre-detection Model for Trusted Insider's Leaks and Manipulation from a Forensic Perspective
- B.Sc., Hanyang University, Industrial Engineering** Mar 1998 – Aug 2005
- Graduated with College Honors Cum Laude

PUBLICATIONS

- A Transformer-based Function Symbol Name Inference Model from an Assembly Language for Binary Reversing, Hyunjin Kim, Jinyeong Bak, Kyunghyun Cho, and **Hyungjoon Koo**, *In the 18th ACM Asia Conference on Computer and Communications Security (ASIACCS; To appear)*, 2023
- SmartMark: Software Watermarking Scheme for Smart Contracts, Taeyoung Kim, Yunhee Jang, Chanjong Lee, **Hyungjoon Koo** and Hyoungshick Kim, *In the 45th IEEE/ACM International Conference on Software Engineering (ICSE; To appear)*, 2023
- Practical Binary Code Similarity Detection with BERT-based Transferable Similarity Learning, Sunwoo Ahn, Seonggwon Ahn, **Hyungjoon Koo** and Yunheung Paek, *In the 38th Annual Computer Security Applications Conference (ACSAC)*, 2022
- DeView: Confining Progressive Web Applications by Debloating Web APIs, ChangSeok Oh, Sangho Lee, Chenxiong Qian, **Hyungjoon Koo**, and Wenke Lee, *In the 38th Annual Computer Security Applications Conference (ACSAC)*, 2022
- IoTivity Packet Parser for Encrypted Messages in Internet of Things Hyeonah Jung, **Hyungjoon Koo**, and Jaehoon (Paul) Jeong. *In the 24th International Conference on Advanced Communications Technology (ICTACT)*, 2022
- A Look Back on a Function Identification Problem **Hyungjoon Koo**, Soyeon Park, and Taesoo Kim. *In the 37th Annual Computer Security Applications Conference (ACSAC)*, 2021
- Software Watermarking via a Binary Function Relocation Honggoo Kang, Yonghwi Kwon, Sangjin Lee and **Hyungjoon Koo**. *In the 37th Annual Computer Security Applications Conference (ACSAC)*, 2021
- Slimium: Debloating the Chromium Browser with Feature Subsetting, Chenxiong Qian, **Hyungjoon Koo**, Changseok Oh, Taesoo Kim, and Wenke Lee. *In the 27th ACM Conference on Computer and Communications Security (CCS)*, 2020
- Compiler-assisted Code Randomization, **Hyungjoon Koo**, Yaohui Chen, Long Lu, Vasileios P. Kemerlis, and Michalis Polychronakis. *In the 39th IEEE Symposium on Security & Privacy (S&P)*, 2018
Top 10 Finalist, Cyber Security Awareness Week (CSAW), 2018
- Defeating Zombie Gadgets by Re-randomizing Code Upon Disclosure, Micah Morton, **Hyungjoon Koo**, Forrest Li, Kevin Z. Snow, Michalis Polychronakis, and Fabian Monrose. *In the 9th International Symposium on Engineering Secure Software and Systems (ESSoS)*, 2017
- Return to the Zombie Gadgets: Undermining Destructive Code Reads via Code-Inference Attacks, Kevin Z. Snow, Roman Rogowski, Jan Werner, **Hyungjoon Koo**, Fabian Monrose, and Michalis Polychronakis. *In the 37th IEEE Symposium on Security & Privacy (S&P)*, 2016
- Juggling the Gadgets: Binary-level Code Randomization using Instruction Displacement, **Hyungjoon Koo** and Michalis Polychronakis. *In the 11th ACM Asia Conference on Computer and Communications Security (ASIACCS)*, 2016

	<ul style="list-style-type: none"> Identifying Traffic Differentiation in Mobile Networks, Arash Molavi Kakhki, Abbas Razaghpanah, Anke Li, Hyungjoon Koo, Rajeshkumar Golani, David Choffnes, Phillipa Gill, and Alan Mislove. <i>In the 15th ACM Internet Measurement Conference (IMC)</i>, 2015 	
WORKSHOPS, POSTERS	<ul style="list-style-type: none"> Inference of Compiler Provenance from Malware, Hohyun Jang and Hyungjoon Koo, Poster in the the 22nd World Conference on Information Security Applications (WISA '21) Semantic-aware Binary Code Representation with BERT, Hyungjoon Koo, Soyeon Park, Daejin Choi and Taesoo Kim (ArXiv '21) Configuration-Driven Software Debloating, Hyungjoon Koo, Seyedhamed Ghavamnia, and Michalis Polychronakis. <i>In the 12th European Workshop on Systems Security (EuroSec)</i>, 2019 The Politics of Routing: Investigating the Relationship between AS Connectivity and Internet Freedom, Rachee Singh, Hyungjoon Koo, Najmehalsadat Miramirkhani, Fahimeh Mirhaj, Leman Akoglu, and Phillipa Gill. <i>In the 6th USENIX Workshop on Free and Open Communications on the Internet (FOCI)</i>, 2016 	
WORK EXPERIENCE	<p>Research Assistant, <i>Stony Brook University</i> May 2014 – May 2019</p> <ul style="list-style-type: none"> System / Software Security (Michalis Polychronakis) Traffic Differentiation / Internet Censorship (Philipa Gill) <p>Intern, <i>Fujitsu Laboratories of America</i> Jun 2018 – Aug 2018</p> <p>Teaching Assistant, <i>Stony Brook University</i> Aug 2013 – Dec 2017</p> <ul style="list-style-type: none"> [CSE102] Introduction to Web Design and Programming (Ahmad Esmaili), Fall 2013 [CSE130] Introduction to Programming in C (Ahmad Esmaili), Fall 2013 [CSE312] Legal, Social, and Ethical Issues in Information Systems (Robert Johnson), Spring 2014 [CSE408] Network Security (Undergraduate level; Robert Johnson), Spring 2014 [CSE508] Network Security (Graduate level; Michalis Polychronakis), Fall 2017 <p>Intern, <i>Fujitsu Laboratories of America</i> Jun 2016 – Aug 2016</p> <p>Lecturer Mar 2013 – Jul 2013</p> <ul style="list-style-type: none"> Security Essentials, Korea Productivity Center, July 2013 Network Security for Rwanda government officials, KISA, Mar 2013 <p>Security Researcher at Security Compliance Team, <i>Shinhan Bank</i> Jul 2011 – Sep 2012</p> <p>Assistant Manager at Information Security Team, <i>Samsung SDS</i> Jan 2006 – Jul 2011</p>	
PROFESSIONAL ACTIVITIES	<p>Invited Talks</p> <ul style="list-style-type: none"> Understanding of Advanced Code Reuse Attacks and Defenses, UNIST Seminar (Nov. 2022) A Practical Binary Similarity Detection Approach, Sejong Cybersecurity Workshop 0x01 (Oct. 2022) Binary Code Representation for Deep Learning and its Applications, Software Convergence Symposium (SWCS '22) (Apr. 2022) Semantic-aware Binary Code Representation with Deep Learning, Fall KAIST Security Colloquium (Nov. 2021) Executable Binary Code Representation with Deep Learning, In the 21ST KOCSEA Technical Symposium Program (Nov. 2021) Crash Course on Deep Learning for Security, Soongsil University (Jul. 2021) Toward (Better) Binary Code Representation with Deep Learning, Seoul National University (Jun. 2021) Software Protection via Code Randomization, University of Tennessee (Nov. 2020) Practical Software Specialization against Code Reuse Attacks, Sungkyunkwan University and KAIST (Feb. 2019) Practical Software Hardening against Code Reuse Attacks, Georgia Tech (Nov. 2018) Software Hardening with Code Diversification, CS Colloquium at SUNY Korea (Jun. 2018), Korea University and Samsung Research (May 2018) Software Hardening, Cyber Symposium by the Stony Brook Computing Society (Apr. 2018) Elaborate Attacks with Existing Tools, National Computing & Information Agency (May 2013) Anonymizing Yourself with Tor, Korea Internet & Security Agency (Apr. 2013) <p>Invited Lectures</p> <ul style="list-style-type: none"> Software Security, Seoul Science High School (Jan. 2022) Security with AI, Kepco KDN (Nov. 2021) 	

Committee / (External) Review Services

- NYU's CSAW '22 Program Committee (2022)
- IEEE Security & Privacy Magazine (S&P, 2019-21)
- NYU's CSAW '21 Program Committee (2021)
- NYU's CSAW '20 Program Committee (2020)
- Frontiers of Information Technology & Electronic Engineering (FITEE, 2020)
- International Journal of Information Security (IJIS, 2020)
- The Network and Distributed System Security Symposium (NDSS, 2020)
- NYU's CSAW '19 Program Committee (2019)
- IEEE Access (2019)
- IEEE/ACM Transactions on Networking (TON, 2019)

Translation of Technical Books/Articles into Korean

- Gray Hat C# (ISBN: 1593277598, 2018)
- Logging and Log Management (ISBN: 1597496359, 2014)
- Practical Malware Analysis (ISBN: 1593272901, 2013)
- Malware Analyst's Cookbook and DVD (ISBN: 0470613033, 2011)
- Cryptography Engineering (ISBN: 0470474246, 2010)
- OWASP Top10, SANS Top20 and ISM Top10 (2007, 2010)

Grant/Participation

- International Symposium on Research in Attacks, Intrusions, and Defenses in Crete (Sep 2018)
- ACM Asia Conference on Computer & Communications Security in Incheon (Jun 2018)
- NSF Cybersecurity TTP Workshop in New York (Apr 2018)
- Student Grant for the 26th USENIX Security Symposium in Vancouver (Aug 2017)

Poster Presentation

- CSAW '18 North America Applied Research Competition (Nov 2018)
- Young Faculty Award Meeting, DARPA Conference Center (Jul 2018)

Write-ups

- Keychain Analysis for Mac OS X, Kyeongsik Lee and **Hyungjoon Koo** (2013)
- Hunting OS X Rootkit in Memory, Kyeongsik Lee, Jinkook Kim, and **Hyungjoon Koo** (2013)
- A Guidebook for Building and Operating CERT by KISA (2007)

CERTIFICATIONS

- EnCE (EnCase® Certified Examiner), Guidance Software (2010)
- CHFI (Computer Hacking Forensic Investigator), EC-Council (2010)
- RHCT (Red Hat Certified Technician), RedHat (2009)
- CC (Common Criteria Evaluation), NCSC (2009)
- GCIH (Certified Incident Handler), GIAC (2008)
- CISA (Certified Information Systems Auditor), ISACA (2008)
- CISSP (Certified Information Systems Security Professional), (ISC)2 (2008)
- SIS (Specialist for Information Security), KISA (2007)
- CCNA (Cisco Certified Network Associate), Cisco (2006)