

CONTACT INFORMATION	Maryland Cybersecurity Center (MC2) 3400, A.V. Williams Bldg. College Park, MD 20732	Work: +1 (301) 771-1475 E-mail: shhong@cs.umd.edu
EDUCATION	<p>University of Maryland, College Park <i>Ph.D. student in Computer Science</i></p> <ul style="list-style-type: none"> • Academic advisor: Dr. Tudor Dumitras <p><i>M.S. in Computer Science</i></p> <ul style="list-style-type: none"> • Academic advisor: Dr. Tudor Dumitras <p>Seoul National University <i>B.S. in Electrical and Computer Engineering (magna cum laude)</i></p> <ul style="list-style-type: none"> • Academic adviser: Dr. Seongsoo Hong • Thesis: <i>A Power Saving Mechanism for the Smartphone Modem via Application-based Packet Piggybacking</i> 	<p>College Park, MD Sep. 2015 - Present</p> <p>Sep. 2015 - Dec.2017</p> <p>Seoul, South Korea Mar. 2007 - Feb. 2015</p>
CONFERENCE PUBLICATIONS	<p>C.1 S. Hong, S. Kwon, H. Kang, and N. Park, "PAGE: Pattern-Query Answering via Knowledge Graph Embedding". <i>International Conference on Big Data</i>, San Francisco, CA USA, 2018. [Link]</p> <p>C.2 H. Kang, S. Hong, K. Lee, N. Park, and S. Kwon, "On Integrating Knowledge Graph Embeddings into SPARQL Query Answering", <i>International Conference on Web Services</i>, San Francisco, CA USA, 2018. [Work in Progress Paper]</p> <p>C.3 S. Hong, T. Chakraborty, S. Ahn, G. Husari, and N. Park, "SENA: Preserving Social Structure for Network Embedding", <i>In Proceedings of the ACM Conference on Hypertext and Social Media (Hypertext)</i>, 2017. [Link]</p>	
JOURNAL PUBLICATIONS	J.1 S. Hong , A. Nicolae, A. Srivastava, and T. Dumitras, "Peek-a-Boo: Inferring Program Behaviors in a Virtualized Infrastructure without Introspection", <i>Computer & Security (COSE)</i> , 2018. [To appear]	
WORKSHOP PAPERS	<p>W.1 S. Hong, A. Srivastava, W. Shambrook, and T. Dumitras. "Go Serverless: Securing Cloud via Serverless Design Patterns", <i>2018 USENIX Workshop on Hot Topics in Cloud Computing (HotCloud 18)</i>, Boston, MA USA, 2018. [Link]</p> <p>W.2 R. Stevens, O. Suciuc, A. Ruef, S. Hong, M. Hicks, and T. Dumitras, "Summoning Demons: The Pursuit of Exploitable Bugs in Machine Learning", <i>Neural Information Processing Systems (NIPS) Workshop on Crowdsourcing and Machine Learning</i>, Barcelona, Spain, 2016. [Link]</p>	
RESEARCH EXPERIENCE	<p>Maryland Cybersecurity Center (University of Maryland) <i>Graduate Research Assistant</i></p> <ul style="list-style-type: none"> • Secure Deep Learning: Currently working on solving security and privacy problems in deep learning systems, which can be caused by micro-architectural vulnerabilities ([W.2]). • Cloud Security: Conducted research on isolating suspicious program behaviors in a virtualized infrastructures without virtual machine introspection (VMI) methods by utilizing supervised machine learning techniques with lower-level indicators as features ([J.1, W.1]). 	College Park, MD Jan. 2016 - Present
PROFESSIONAL EXPERIENCE	<p>Frame.io <i>Security Research Intern</i></p>	New York, NY, USA Nov. 2017 - May. 2018

- Implemented a threat-intelligence system that monitors various indicators and detects attacks or unauthorized accesses to our application infrastructure running on the cloud.
 - Identified suspicious actions against our infrastructure such as port scanning, brute force attacks (ssh/login), NTP DDoS attacks, IPv4 address scanning, and accesses via Tor.
 - Identified and fixed deviations from the best security practices in the cloud, e.g., misconfiguration of access policies, privilege escalation actions by an account, etc.
- Mentor: Abhinav Srivastava [[Google Scholar](#)][[LinkedIn](#)]

Openwise Inc. (Mobile Solution Start-up)

Seoul, South Korea

Co-founder and Chief Technology Officer

Dec. 2011 - Aug. 2014

- Developed a light-weight real-time operating system (RTOS) for Samsung's new mobile healthcare devices that provide various wireless connectivity to other Samsung's electronics and appliances. It was highly commended at the Mobile World Congress (MWC) 2014.
- Found a lagging issue in word searching at our English-dictionary Android application and resolved the issue by improving the searching time from 1 second to 0.3 seconds by creating a novel lookup table in the SQLite database of over thousand words.
- Shortened the development time of organizing the graphical interface for Android applications by introducing a new way of Android UI composition that supports all sizes of Android device screens with only 1-specific-sized design architecture.

MBridge Systems Inc. (Middleware and Mobile Software Developer)

Seoul, South Korea

Lead Researcher, R&D Department

Dec. 2010 - Dec. 2013

- Finished the Android OS upgrade project (GingerBread to IceCreamSandwich) by resolving all the audio/video architecture issues with a team comprised of 3 software developers.
- Implemented the MHL and HDMI close caption (CC) feature in Android OS with expertise in the video framework architecture of the OS. The project term dramatically shortened by implementing the feature in 3.5 months, which had been expected 5 months.
- Developed software solution for Infrared Ray (IR) touchscreen for Linux which consists of new device drivers and X-window drivers supporting multi-touch for the 1st time in Korea.

EXTRA CURRICULAR ACTIVITIES

Google

- *2nd Place* from Google for Entrepreneurs at Startup Weekend - Bay Area, 2015

Seoul National University (SNU)

- *3rd Prize* from A Rocket Launch for International Student Satellites (ARLISS), 2010
- *Grand Prize* from Ministry of Knowledge Economy at Mobile Application Fair , 2010

SERVICES

2018: Reviewer at the [USENIX](#), [CCS](#), [RAID](#), and [IEEE S&P](#).

2017: Chair, National Math and Science Competition (NMSC), Washington Metro Chapter.

2017: Reviewer at the [USENIX](#), [ACM CCS](#), [NDSS](#), and [IEEE S&P](#).

2016: Reviewer at the [USENIX](#)

AWARDS

2018: 2nd Place at the Research Competition for Korean Graduate Students

2017: KSEA-KUSCO Scholarships for Korean Graduate Students in the United States

2016: Summer Research Fellowship from the Department of Computer Science at UMD

2015: 2-year Dean's Fellowship from UMD for outstanding academic achievement

2015: Full 2-year Graduate Teaching Assistantship from UMD for academic excellence

2010: Full 1-year scholarship from KEPKO for academic excellence

2007: Full 4-year scholarship from KOFAC for academic excellence

INVITED TALKS

T.1 S. Hong "The Matrix: Toward More Safe & Secure Environment for Cloud-Infrastructures", In: *UMD KGSA-KESA Biannual Symposium*, Nov., 2015. (**Best Presentation Award**)

CERTIFICATES

Technical and Business Professional Accreditation from Amazon Web Services, 2010