

# Hyounghshick Kim

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RESEARCH INTERESTS	Usable security, user authentication, software security and social network analysis	
EDUCATION	<b>Ph.D</b> Computer Laboratory, University of Cambridge, UK, <b>2008–2011</b> <ul style="list-style-type: none"><li>• Supervisor: Prof. Ross Anderson</li><li>• Thesis: Complex network analysis for secure and robust communications (Examiners – Prof. Jon Crowcroft and Prof. Alessandro Acquisti)</li></ul> <b>M.S.</b> Division of Computer Science, KAIST, Korea, <b>1999–2001</b> <ul style="list-style-type: none"><li>• Supervisor: Prof. Kyung-Yong Chwa</li><li>• Thesis: A Distributed Algorithm for Maintaining a Minimum Spanning Tree in Dynamic Network</li></ul> <b>B.S.</b> Department of Information Engineering, Sungkyunkwan University, Korea, <b>1995–1999</b> <ul style="list-style-type: none"><li>• Supervisor: Prof. Youngik Eom</li><li>• Thesis: Distributed Mutual Exclusion Algorithm for Maintaining Tree-Height Balance in Mobile Computing Environments</li></ul>	
PROFESSIONAL EXPERIENCE	<b>CSIRO Data61</b> , Marsfield, Australia <i>Distinguished Visiting Researcher</i> – Distributed Systems Security Group <b>2019–2020</b> <ul style="list-style-type: none"><li>• Is researching AI security and software security.</li></ul> <b>Sungkyunkwan University</b> , Suwon, Korea <i>Associate Professor</i> – Security Engineering Laboratory <b>2013–present</b> <ul style="list-style-type: none"><li>• Is researching security engineering.</li></ul> <b>University of British Columbia</b> , Vancouver, BC, Canada <i>Postdoctoral Fellow</i> – Laboratory for Education and Research in Secure Systems Engineering <b>2012</b> <ul style="list-style-type: none"><li>• Researched human authentication and information diffusion in online social networks.</li></ul> <b>Samsung Electronics</b> , Digital Media R&D Center, Suwon, Korea <i>Senior Engineer</i> – Core S/W Component Laboratory <b>2008</b> <ul style="list-style-type: none"><li>• Designed and developed DRM applications for home networks.</li></ul> <b>Samsung Electronics</b> , Software Laboratories, Seoul/Suwon, Korea <i>Engineer/Senior Engineer</i> – Home Software Platform Team <b>2004–2007</b> <ul style="list-style-type: none"><li>• Designed and developed DRM interoperability solutions (DLNA and Coral).</li></ul>	
TEACHING	<b>Lecturer</b> , Sungkyunwan University: Network Project (2019) <b>Lecturer</b> , Sungkyunwan University: Computer Security (2017) <b>Lecturer</b> , Sungkyunwan University: Special Topics in Computer Science (2017–2018) <b>Lecturer</b> , Sungkyunwan University: Security Engineering (2013–2019) <b>Lecturer</b> , Sungkyunwan University: Basic Programming Languages (2015–2016) <b>Lecturer</b> , Yonsei University: Database Security (2015–2017) <b>Lecturer</b> , Sungkyunwan University: Data Structures (2014–2018) <b>Lecturer</b> , Sungkyunwan University: Introduction to Information and Communication Engineering (2013) <b>Lecturer</b> , Sungkyunwan University: Engineering Computer Programming (2013–2014) <b>Organizer</b> , Sungkyunwan University: Freshmen Seminar (2013) <b>Guest Lecturer</b> , University of British Columbia: Computer Security (2012)	

ACADEMIC  
SERVICES  
(SELECTED)

**Consultant**

Technical Consultant at LG Electronics	2018–present
Privacy Policy Consultant at Kakao	2018–present
Technical Consultant at Financial Security Institute	2018–2019
Technical Consultant at Samsung Electronics	2013–2018

**Program Committee Member**

European Symposium on Research in Computer Security (ESORICS)	2021
Information Security Conference (ISC)	2020
Conference on Security and Privacy in Communication Networks (SecureComm)	2019–2020
Australasian Conference on Information Security and Privacy (ACISP)	2019, 2021
ACM Asia Conference on Computer & Communications Security (ASIACCS)	2018
International Conference on Advanced and Trusted Computing (ATC)	2016–2018
ACM/SIGAPP Symposium on Applied Computing (SAC)	2016–2021
International Symposium on Foundations and Practices of Security (FPS)	2012–2020
Workshop on Simplifying Complex Networks for Practitioners (SIMPELX)	2014–2015

**Chair**

World Conference on Information Security Applications (WISA)	2021
Asia Joint Conference on Information Security (AsiaJCIS)	2017
International Conference on Software Security and Assurance (ICSSA)	2015–2020
Workshop on Simplifying Complex Networks for Practitioners (SIMPLEX)	2014

**Editorial Board Member**

IEEE Consumer Electronics Magazine	2015–Present
KSII Transactions on Internet and Information Systems	2017–Present
International Journal of Privacy and Health Information Management	2012–Present
International Journal of Computer & Software Engineering	2016–Present

HONOURS AND  
AWARDS

The best paper prize, Cybersecurity research competition	2020
The 2nd prize, Cybersecurity research competition	2018–2019
The best impacts, joint award, IEEE Consumer Electronics Magazine	2017
The excellent paper award, ISS	2017
The 1st prize, Cybersecurity research competition	2017
The award for research excellence, Sungkyunkwan University	2016–2019
The runner-up award, ICSSA 2016	2016
The best paper award, CISC 2016	2016
The Korean Ministry of Interior award for research excellence, NETSEC-KR 2016	2016
The best student paper award, ICCSA 2015	2015
The best paper award, WISA 2014	2014
The runner-up award, SIMPEX 2014	2014
The 2nd place winner of the Facebook Hackathon, University of British Columbia	2012
NSERC Postdoctoral Fellowship Award, NSERC ISSNNet	2012–2013
Research Studentship, Northrop Grumman Corporation	2010–2011
Silver Medal in Samsung Electronics Annual Award, Samsung Electronics	2007

Siqi Ma, Juanru Li, **Hyoungshick Kim**, Elisa Bertino, Surya Nepal, Diet Ostry, and Cong Sun, “Fine with “1234”? An Analysis of SMS One-Time Password Randomness in Android Apps”, *ICSE: The 43rd International Conference on Software Engineering*, 2021.

Beomjin Jin, Jusop Choi, **Hyoungshick Kim** and Jin B. Hong, “FUMVar: A Practical Framework for Generating Fully-working and Unseen Malware Variants”, *SAC: The 26th ACM/SIGAPP Symposium On Applied Computing*, 2021.

Sharif Abuadbbba, **Hyoungshick Kim** and Surya Nepal, “DeepiSign: Invisible Fragile Watermark to Protect the Integrity and Authenticity of CNN”, *SAC: The 26th ACM/SIGAPP Symposium On Applied Computing*, 2021.

Alsharif Abuadbbba, Kyuyeon Kim, Minki Kim, Chandra Thapa, Seyit A. Camtepe, Yansong Gao, **Hyoungshick Kim**, and Surya Nepal, “Can We Use Split Learning on 1D CNN Models for Privacy Preserving Training?”, *ASIACCS: The 13rd ACM Asia Conference on Computer and Communications Security*, 2020.

Joon Kuy Han, Simon Woo, and **Hyoungshick Kim**, “A Graphical-Textual Hybrid Fallback Authentication System”, *ASIACCS: The 13rd ACM Asia Conference on Computer and Communications Security*, 2020.

Yansong Gao, Minki Kim, Sharif Abuadbbba, Yeonjae Kim, Chandra Thapa, Kyuyeon Kim, Seyit A. Camtepe, **Hyoungshick Kim**, and Surya Nepal, “End-to-End Evaluation of Federated Learning and Split Learning for Internet of Things”, *SRDS: The 39th International Symposium on Reliable Distributed Systems*, 2020.

Geumhwan Cho, Jun Ho Huh, Soolin Kim, Junsung Cho, Heesung Park, Yenah Lee, Konstantin Beznosov, and **Hyoungshick Kim**, “On the Security and Usability Implications of Providing Multiple Authentication Choices on Smartphones: The More, the Better?”, *ACM Transactions on Privacy and Security*, 2020.

Muhammad Ejaz Ahmed, Ilyoup Kwak, Jun Ho Huh, Iljoon Kim, Taekkyung Oh and **Hyoungshick Kim**, “Void: A fast and light voice liveness detection system”, *USENIX Security: The 29th USENIX Security Symposium*, 2020.

Eun yong Cheon, Yonghwan Shin, Jun Ho Huh, **Hyoungshick Kim** and Ian Oakley, “Gesture Authentication for Smartphones: Evaluation of Gesture Password Selection Policies”, *S&P: The 41th IEEE Symposium on Security and Privacy*, 2020.

Simon Woo, Hanbin Jang, Woojung Ji and **Hyoungshick Kim**, “I’ve Got Your Packages: Harvesting customers’ delivery order information using package tracking number enumeration”, *WWW: The 29th International World Wide Web Conference*, 2020.

Jusop Choi, Soolin Kim, Junsung Cho, Kuyju Kim, Seok Hong and **Hyoungshick Kim**, “ACIDroid: A Practical App Cache Integrity Protection System on Android Runtime”, *SAC: The 35th ACM/SIGAPP Symposium On Applied Computing*, 2020.

Mohsen Alawami and **Hyoungshick Kim**, “LocAuth: A Fine-grained Indoor Location-based Authentication System using Wireless Networks Characteristics”, *Computers & Security*, 2020.

Seungjin Lee and **Hyoungshick Kim**, “On the robustness of Lightning Network in Bitcoin”, *Pervasive and Mobile Computing*, 2020.

Yujin Kwon, **Hyoungshick Kim**, Yung Yi and Yongdae Kim, “An Eye for an Eye: Economics of Retaliation in Mining Pools”, *AFT: The 1st ACM conference on Advances in Financial Technologies*, 2019.

Yuri Son, Geumhwan Cho, **Hyoungshick Kim** and Simon Woo, “Understanding Users Risk Perceptions about Personal Health Records Shared on Social Networking Services”, *ASIACCS: The 12th ACM Asia Conference on Computer and Communications Security*, 2019.

Yujin Kwon, **Hyoungshick Kim**, Jinwoo Shin and Yongdae Kim, “Bitcoin vs. Bitcoin Cash: Co-existence or Downfall of Bitcoin Cash?”, *S&P: The 40th IEEE Symposium on Security and Privacy*, 2019.

Mahdi D Firoozjaei, Minchang Kim, Jaeseung Song and **Hyoungshick Kim**, “O2TR: Offline OTR Messaging System under Network Disruption”, *Computers & Security*, 2019.

Jusop Choi, Jaegwan Yu, Sangwon Hyun and **Hyoungshick Kim**, “Digital forensic analysis of encrypted database files in instant messaging applications on Windows operating systems”, *DFRWS EU: Digital Forensic Research Workshop EU*, 2019.

Muhammad Ejaz Ahmed, Saeed Ullah and **Hyounghick Kim**, “Statistical Application Fingerprinting for DDoS Attack Mitigation”, *IEEE Transactions on Information Forensics and Security*, 2019.

Humberto Cervantes, Rick Kazman, Jungwoo Ryoo, Junsung Cho, Geumhwan Cho, **Hyounghick Kim** and Jina Kang, “Data-driven selection of application frameworks during architectural design”, *HICSS: The 52nd Hawaii International Conference on System Sciences*, 2019.

Julian Rauchberger, Sebastian Schrittwieser, Tobias Dam, Robert Luh, Damjan Buhov, Gerhard Pötzelsberger and **Hyounghick Kim**, “The Other Side of the Coin: A Framework for Detecting and Analyzing Web-based Cryptocurrency Mining Campaigns”, *ARES: The 13th International Conference on Availability, Reliability and Security*, 2018.

DaeHun Nyang, **Hyounghick Kim**, Woojoo Lee, Sung-bae Kang, Geumhwan Cho, Mun-Kyu Lee and Aziz Mohaisen, “Two-Thumbs-Up: Physical Protection for PIN Entry Secure against Recording Attacks”, *Computers & Security*, 2018.

Ian Oakley, Jun Ho Huh, Junsung Cho, Geumhwan Cho, MD. Rasel Islam and **Hyounghick Kim**, “The Personal Identification Chord: A Four Button Authentication System for Smartwatches”, *ASIACCS: The 11th ACM Asia Conference on Computer and Communications Security*, 2018.

Youngbae Jeon, Minchul Kim, Hyunsoo Kim, **Hyounghick Kim**, Jun Ho Huh and Ji Won Yoon, “I’m Listening to your Location! Inferring User Location with Acoustic Side Channel”, *WWW: The 27th International World Wide Web Conference*, 2018.

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Soyoung Kim, Sora Lee, Geumhwan Cho, Muhammad Ejaz Ahmed, Jaehoon Paul Jeong and **Hyounghick Kim**, “Preventing DNS amplification attacks using the history of DNS queries with SDN”, *ESORICS: The 22nd European Symposium on Research in Computer Security*, 2017.

Geumhwan Cho, Jun Ho Huh, Junsung Cho, Seongyeol Oh, Youngbae Song and **Hyounghick Kim**, “SysPal: System-guided Pattern Locks for Android”, *S&P: The 38th IEEE Symposium on Security and Privacy*, 2017.

Jun Ho Huh, **Hyounghick Kim**, Rakesh B. Bobba, Konstantin Beznosov and Swathi Sri V Rayala, “I’m too busy to reset my LinkedIn password: On the effectiveness of password reset emails”, *CHI: The 35th ACM SIGCHI Conference on Human Factors in Computing Systems*, 2017.

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Junsung Cho, Jaegwan Yu, Sanghak Oh, Jungwoo Ryoo, Jaeseung Song and **Hyounghick Kim**, “Wrong Siren! A location spoofing attack on indoor positioning systems: the Starbucks case study”, *IEEE Communications Magazine*, 2017.

Andrea Bianchi, Ian Oakley and **Hyounghick Kim**, “PassBYOP: Bring Your Own Picture for Securing Graphical Passwords”, *IEEE Transactions on Human-Machine Systems*, 2016.

Eunjo Lee, Jiyoung Woo, **Hyounghick Kim**, Aziz Mohaisen and Huy Kang Kim, “You are a Game Bot!: Uncovering game bots in MMORPGs via self-similarity in the wild”, *NDSS: The 23rd Network and Distributed System Security Symposium*, 2016.

Jun Ho Huh, Seongyeol Oh, **Hyounghick Kim**, Konstantin Beznosov, Apurva Mohan, and S. Raj Rajagopalan, “Surpass: System-initiated user-replaceable passwords”, *CCS: The 22nd ACM Conference on Computer and Communications Security*, 2015.

Jun Ho Huh, **Hyounghick Kim**, Rakesh B. Bobba, Masooda Bashir and Konstantin Beznosov, “On the Memorability of System-generated PINs: Can Chunking Help?”, *SOUPS: The 11st Symposium On Usable Privacy and Security*, 2015.

Jaeseung Song, **Hyounghick Kim** and Soojin Park, “Enhancing Conformance Testing using Symbolic Execution for Network Protocols”, *IEEE Transactions on Reliability*, 2015.

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*puters & Security*, 2015.

Youngbae Song, Geumhwan Cho, Seongyeol Oh, **Hyounghshick Kim** and Jun Ho Huh, “On the Effectiveness of Pattern Lock Strength Meters Measuring the Strength of Real World Pattern Locks”, *CHI: The 33rd ACM SIGCHI Conference on Human Factors in Computing Systems*, 2015.

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John Tang, **Hyounghshick Kim**, Cecilia Mascolo and Mirco Musolesi, “STOP: Socio-Temporal Opportunistic Patching of Short Range Mobile Malware”, *WoWMoM: The 13th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks*, 2012.

Antoine Boutet, **Hyounghshick Kim** and Eiko Yoneki, “Whats in Your Tweets? I Know Who You Supported in the UK 2010 General Election”, *ICWSM: The 6th International AAAI Conference on Weblogs and Social Media*, 2012.

**Hyounghshick Kim** and Jun Ho Huh, “PIN selection policies: are they really effective”, *Computers & Security*, Vol. 31(4), 2012.

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**Hyounghshick Kim**, John Tang, Ross Anderson and Cecilia Mascolo, “Centrality Prediction in Dynamic Human Contact Networks”, *Computer Networks*, Vol. 56(3), 2012.

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PATENTS

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**Hyounghshick Kim** and S. Jae Oh, “Method of and Apparatus for Sharing Secret Information between Devices in Home Network”, *EP Patent (2181521B1)*, 2016.

Seong-Ho Cho and **Hyounghshick Kim**, “Authentication information management method in home network and an apparatus therefor”, *EP Patent (2264940B1)*, 2016.

**Hyounghshick Kim** and S. Jae Oh, “Method of and Apparatus for Sharing Secret Information between Devices in Home Network”, *US Patent (9094192)*, 2015.

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**Hyounghshick Kim**, “Method and System for Providing DRM License”, *US Patent (8805742)*, 2014.

**Hyounghshick Kim**, Seongho Cho, Ho-Yeon Park, Dongshin Jung and Wonseok Kwon, “Method and apparatus for generating a mashup graph, and method and apparatus for recommending mashup services”, *US Patent (8813102)*, 2014.

**Hyounghshick Kim** and Myungsoo Chang, “Method and apparatus for providing content service”, *US Patent (8582759)*, 2013.

**Hyounghick Kim** and Sanghyeon Kim, “Apparatus and Method for Providing Domain Information”, *US Patent* (8526445), 2013.

**Hyounghick Kim** and Joo-yeol Lee, “Method and apparatus of ensuring security of communication in home network”, *US Patent* (8464055), 2013.

Seong-Ho Cho and **Hyounghick Kim**, “Method and apparatus for managing authentication information in home network”, *US Patent* (8347079), 2013.

**Hyounghick Kim**, Kyung-mo Park and Myungsoo Chang, “Device and method for providing video stream having integrity”, *US Patent* (8185742), 2012.

**Hyounghick Kim**, “Method and system for providing DRM license”, *US Patent* (8103593), 2012.

Kyung-mo Park, S. Jae Oh, **Hyounghick Kim** and Yungsun Ryu, “Apparatus and Method for Providing Security Service in Home Network”, *US Patent* (8060739), 2011.

**Hyounghick Kim**, Myungsoo Chang and Sanghyeon Kim, “Method and apparatus for providing content service”, *US Patent* (8019080), 2011.

**Hyounghick Kim**, “Method and apparatus for electronic commerce using digital ticket to provide anonymity” *US Patent* (7730314), 2010.

REFEREES

**Professor Ross Anderson**

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**Professor Konstantin Beznosov**

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