

# Geumhwan CHO

## PERSONAL DATA

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GENDER: Male  
CITIZENSHIP: South Korea  
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## STATUS

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SEPTEMBER 2014 – *present*  
**PhD Candidate** in Department of Computer Science and Engineering,  
College of Information and Communication Engineering, Sungkyunkwan University  
Supervisor: Prof. Hyoungshick Kim

## EDUCATION

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2011.3–2013.2 **M.S.** in DEPARTMENT OF COMPUTER ENGINEERING,  
**Kyung Hee University**, Korea  
Supervisor: Prof. Sungyoung Lee  
Thesis: Activity Recognition and Energy-Efficient Optimization based on  
Accelerometer Sensor in Smartphone Environment

2004.3–2011.2 **B.S.** in DEPARTMENT OF COMMUNICATION ENGINEERING,  
**Cheongju University**, Korea  
Supervisor: Prof. Nam-Soo Kim

## RESEARCH INTERESTS

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Usable security  
Data-driven security  
User authentication  
AI/ML security

## EXPERIENCE

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- **2014.9–present:** Department of Computer Science and Engineering, College of Information and Communication Engineering, Sungkyunkwan University, Korea  
PhD Candidate – Security Engineering Laboratory
- **2011.3–2013.2:** Department of Computer Engineering, College of Electronics and Information, Kyung Hee University, Korea  
Research Assistant – Ubiquitous Computing Laboratory

## TEACHING EXPERIENCE

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- Teaching Assistant: Engineering Computer Programming (GEDB030), Department of Computer Science and Engineering, Sungkyunkwan University, Spring 2019. Undergraduate level course for understanding of computer security technology lectured by Yungyung Cheong.
- Teaching Assistant: Engineering Computer Programming (GEDB030), Department of Computer Science and Engineering, Sungkyunkwan University, Fall 2018. Undergraduate level course for understanding of computer security technology lectured by Yungyung Cheong.
- Teaching Assistant: Security Engineering (ECE5967), Department of Computer Science and Engineering, Sungkyunkwan University, Spring 2018. Graduate level course for understanding of computer security technology lectured by Hyoungshick Kim.
- Teaching Assistant: Introduction to Data Structure (SWE2015), Department of Software, Sungkyunkwan University, Fall 2017. Undergraduate level course on the introduction to data structures lectured by Hyoungshick Kim.
- Teaching Assistant: Introduction to Data Structure (SWE2015), Department of Software, Sungkyunkwan University, Spring 2017. Undergraduate level course for introducing to data structures lectured by Hyoungshick Kim.
- Teaching Assistant: Data Structure (ICE2002), Department of Computer Science and Engineering, Sungkyunkwan University, Fall 2016. Undergraduate level course for data structures lectured by Hyoungshick Kim.

## APPOINTMENTS

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- **2015:** Member of Organizing Committee In International Conference on Software Security and Assurance (ICSSA)

## AWARDS AND GRANTS

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- **2018:** The 3rd prize of the cyber security competition.
- **2017:** NAVER Ph.D. Fellowship Award

## TECHNICAL/SPECIAL SKILLS

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**OS:** Windows and Linux (Ubuntu)

**Programming:** C and Python

**Simulation and Math package:** Matlab and R

**Languages:** English and Korean (native language)

## PUBLICATIONS

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- **Refereed Publications**
  - **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 Multiple Authentication Choices", ACM Transactions on Privacy and Security, 2019. (in minor revision).

- Yuri Son, **Geumhwan Cho**, Hyoungshick Kim and Simon S. 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, Auckland, New Zealand, 2019 (acceptance rate: 22.5%).
- Humberto Cervantes, Rick Kazman, Jungwoo Ryoo, Junsung Cho, **Geumhwan Cho**, Hyoungshick Kim and Jina Kang, "Data-driven Selection of Security Application Frameworks During Architectural Design", HICSS: The 52nd Hawaii International Conference on System Sciences, 2019.
- DaeHun Nyang, Hyoungshick 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, Volume 78, Pages 1-15, September 2018.
- **Geumhwan Cho**, Jusop Choi, Hyoungshick Kim, Sangwon Hyun, Jungwoo Ryoo, "Threat modeling and analysis of voice assistant applications", WISA: The 19th World Conference on Information Security Applications, Jeju Island, Korea, 2018 (acceptance rate: 11/44 = 25%).
- Sangwon Hyun, Junsung Cho, **Geumhwan Cho** and Hyoungshick Kim, "Design and Analysis of Push Notification-Based Malware on Android", Security and Communication Networks, Volume 2018, Article ID 8510256, 12 pages, July 2018.
- Ian Oakley, Jun Ho Huh, Junsung Cho, **Geumhwan Cho**, MD. Rasel Islam and Hyoungshick Kim, "The Personal Identification Chord: A Four Button Authentication System for Smartwatches", ASIACCS: The 11th ACM Asia Conference on Computer and Communications Security, Incheon, Korea, 2018 (acceptance rate: 52/310 = 17%).
- Junsung Cho, **Geumhwan Cho**, Sangwon Hyun and Hyoungshick Kim, "Open Sesame! Design and Implementation of Backdoor to Secretly Unlock Android Devices", MobiSec: The 2nd International Symposium on Mobile Internet Security, Jeju Island, Korea, 2017.
- Soyoung Kim, Sora Lee, **Geumhwan Cho**, Muhammad Ejaz Ahmed, Jaehoon Paul Jeong and Hyoungshick Kim, "Preventing DNS amplification attacks using the history of DNS queries with SDN", ESORICS: The 22nd European Symposium on Research in Computer Security, Oslo, Norway, 2017 (acceptance rate: 54/339 = 16%).
- **Geumhwan Cho**, Jun Ho Huh, Junsung Cho, Seongyeol Oh, Youngbae Song and Hyoungshick Kim, "SysPal: System-guided Pattern Locks on Android", S&P: The 38th IEEE Symposium on Security and Privacy, San Jose, USA, 2017 (acceptance rate: 60/419 = 14.3%).
- Seunghun Cha, Jaewoo Park, **Geumhwan Cho**, Jun Ho Huh and Hyoungshick Kim, "WiPING: Wi-Fi signal-based PIN Guessing attack", CCS: The 23rd ACM Conference on Computer and Communications Security (Poster), Vienna, Austria, 2016.
- **Geumhwan Cho**, Junsung Cho, Youngbae Song, Donghyun Choi and Hyoungshick Kim, "Combating online fraud attacks in mobile-based advertising", EURASIP Journal on Information Security, Vol. 2016(1), 2016.
- **Geumhwan Cho**, Junsung Cho, Youngbae Song and Hyoungshick Kim, "An empirical study of click fraud in mobile advertising networks", IWCC: The 4th Workshop on Cyber Crime held in conjunction with ARES, Toulouse, France, 2015.
- Junsung Cho, **Geumhwan Cho** and Hyoungshick Kim, "Keyboard or Keylogger?: a security analysis of third-party keyboards on Android", PST: The 13rd International Conference on Privacy, Security and Trust, Izmir, Turkey, 2015.

- Youngbae Song, **Geumhwan Cho**, Seongyeol Oh, Hyoungshick 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, Seoul, Korea, 2015 (acceptance rate: 565/2435 = 23%).
- Jaehoon Jeong, Jihyeok Seo, **Geumhwan Cho**, Hyoungshick Kim and Jung-Soo Park, "A Framework for Security Services Based on Software-Defined Networking", DC2: The 2nd Workshop on Device Centric Cloud held in conjunction with IEEE AINA, Gwangju, Korea, 2015.

- **Patents**

- Hyoungshick Kim, **Geumhwan Cho**, Junsung Cho, "Secure Drone communication protocol ", Korea Patent application (10-2017-0168298), Dec. 2017.
- **Geumhwan Cho**, Junsung Cho, Hyoungshick Kim, "METHOD, APPARATUS, AND SYSTEM FOR AUTOMATICALLY GENERATING RULE FOR DETECTING VIRUS CODE, AND COMPUTER READABLE RECORDING MEDIUM FOR RECIRING THE SAME", Korea Patent (10-2017-0024455), Feb. 2017.
- **Geumhwan Cho**, Seongyeol Oh, Youngbae Song, Jun Ho Huh and Hyoungshick Kim, "Pattern generating method for pattern lock", Korea Patent (10-2016-0114369), Sep. 2016.
- Tai-Myoung Chung, Hyoungshick Kim, KIM, Nam-Uk Kim, Jun-Kwon Jung, **Geumhwan Cho** and Youngbae Song, "Cyber inspection system and method using SDN", Korea Patent application (10-2015-0000), Dec. 2015.

## REFERENCES

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### **Hyoungshick Kim**

Associate Professor, Sungkyunkwan University, Suwon, Korea

hyoung@skku.edu

### **Jun Ho Huh**

Staff Engineer, Samsung Research, Samsung Electronics, Seoul, Korea

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### **Simon S. Woo**

Assistant Professor, Sungkyunkwan University, Suwon, Korea

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