

# Hyeonmin LEE

I'm a Ph.D. candidate at Seoul National University (SNU), advised by Prof. Taekyoung "Ted" Kwon ([Network Convergence and Security Lab](#)).

My research interests focus on network security and its measurement: Are we using the network correctly and securely? How can we make the network (more) secure?

## PERSONAL INFORMATION

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HOMEPAGE: <https://hyeonmin-lee.github.io/>

## RESEARCH INTERESTS

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NETWORK SECURITY — (especially) DNS security, Mail security  
SECURITY MEASUREMENT

## EDUCATION

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MAR 2016 - FEB 2022	<b>Ph.D. Candidate</b> , Computer Science and Engineering, Seoul National University (SNU), Seoul, Republic of Korea <ul style="list-style-type: none"><li>Dissertation: "Understanding the DANE Ecosystem in Email: How Is It Deployed and Managed?"</li><li>Advisor: Prof. Taekyoung "Ted" Kwon</li></ul>
MAR 2011 - FEB 2016	<b>B.S.</b> , Computer Science and Engineering, Seoul National University (SNU), Seoul, Republic of Korea
FALL 2014	<b>Visiting Student</b> , Information Technology, Uppsala University, Uppsala, Sweden

## PUBLICATIONS

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### Under the Hood of DANE Mismanagement in SMTP (to appear)

**Hyeonmin Lee**, Md. Ishtiaq Ashiq, Moritz Müller, Roland van Rijswijk-Deij, Taekyoung "Ted" Kwon, Taejoong Chung  
In Proceedings of the USENIX Security Symposium (**USENIX Security**),  
Boston, United States, Aug 2022

### A Longitudinal and Comprehensive Study of the DANE Ecosystem in Email

**Hyeonmin Lee**, Aniketh Gireesh, Roland van Rijswijk-Deij, Taekyoung "Ted" Kwon, Taejoong Chung  
In Proceedings of the USENIX Security Symposium (**USENIX Security**),  
Boston, United States, Aug 2020

### Development of Cellular Core Network Enabling Network Function Virtualization

**Hyeonmin Lee**, Junghwan Song  
The 28th Joint Conference on Communication and Information (**JCCI**),  
Yeosu, Korea, May 2018

## **TwinPeaks: An Approach for Certificateless Public Key Distribution for the Internet and Internet of Things**

Eunsang Cho, Jeongnyeo Kim, Minkyung Park, **Hyeonmin Lee**, Chorom Hamm, Soobin Park, Sungmin Sohn, Minhyeok Kang, Ted “Taekyoung” Kwon  
Elsevier Computer Networks (SCI-E)

## **RESEARCH EXPERIENCES**

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APR 2020 - PRESENT	<b>Research on Traceability for Data Stability on Cloud-edge Lifecycle</b> <ul style="list-style-type: none"><li>• Supported by Institute for Information and Communication Technology Promotion (IITP)</li><li>• Role: Researcher / Programmer</li></ul>
MAR 2021 - NOV 2021	<b>Abnormal Detection and Forensic Techniques using IoT Network Traffic Analysis</b> <ul style="list-style-type: none"><li>• Supported by Korea Institute of Information Security &amp; Cryptology (KIISC)</li><li>• Role: Project Manager (Lab.) / Researcher / Programmer</li></ul>
APR 2016 - DEC 2020	<b>Versatile Network System Architecture for Multi-dimensional Diversity</b> <ul style="list-style-type: none"><li>• Supported by Institute for Information and Communication Technology Promotion (IITP)</li><li>• Role: Project Manager (Lab.) / System Designer / Programmer</li></ul>
FEB 2020 - NOV 2020	<b>Research on GPU Acceleration for Fully Homomorphic Encryption</b> <ul style="list-style-type: none"><li>• Supported by Korea Institute of Information Security &amp; Cryptology (KIISC)</li><li>• Role: Programmer</li></ul>
SEP 2019 - APR 2020	<b>Developing High-performance Programming Environments and Computing Systems</b> <ul style="list-style-type: none"><li>• Supported by National Research Foundation of Korea (NRF)</li><li>• Role: Programmer</li></ul>
AUG 2019 - NOV 2019	<b>Research on Distributed Web Structure and Counterplan</b> <ul style="list-style-type: none"><li>• Supported by Korea Internet and Security Agency (KISA)</li><li>• Role: Researcher</li></ul>
SEP 2018 - NOV 2018	<b>Research on Trust and Security Scheme for Interconnection of Heterogeneous Networks</b> <ul style="list-style-type: none"><li>• Supported by Electronics and Telecommunications Research Institute (ETRI)</li><li>• Role: Researcher</li></ul>
AUG 2016 - FEB 2019	<b>Research and Development of Open 5G Reference Model</b> <ul style="list-style-type: none"><li>• Supported by Giga KOREA Foundation</li><li>• Role: System Designer / Programmer</li></ul>
MAR 2016 - MAY 2016	<b>Content Delivery Framework Using Spatial and Temporal Dynamics in Mobile Networks</b> <ul style="list-style-type: none"><li>• Supported by National Research Foundation of Korea (NRF)</li><li>• Role: Programmer</li></ul>
JUL 2015 - DEC 2015	<b>Development of Network Security Acceleration for Next-generation Low-power SoC</b> <ul style="list-style-type: none"><li>• Supported by Samsung Electronics</li><li>• Role: Programmer</li></ul>

## PATENTS

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### **Network System and Method for Performing Message Security Thereof**

- Registration No. 1022656110000
- Republic of Korea, Jun. 10, 2021

### **Communication Method Based on Integrated Flat ID and System**

- Registration No. 1020231150000
- Republic of Korea, Sep. 11, 2019

## EXPERIENCES

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MAY 2019  
- AUG 2019

### **Visiting Researcher**

The Center for Cybersecurity, Rochester Institute of Technology, Rochester, USA

- Topic: Measuring and analyzing the ecosystem of DANE protocol in Email

SPRING 2016

### **Teaching Assistant**

Dept. of Computer Science and Engineering, Seoul National University, Seoul, Korea

- Class: Engineering Frontiers and Leadership 2

## MISCELLANEOUS

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MAR 2019  
- FEB 2022

### **Expert Research Personnel (military service)**

Seoul National University, Seoul, Republic of Korea

The expert research personnel system is a form of alternative military service in Republic of Korea, where the military service is fulfilled by conducting research at a domestic university or company for three years. I had not been involved in any military research project throughout the service.