

Hyeonmin LEE

I'm a Ph.D. candidate at Seoul National University (SNU), supervised by Prof. Taekyoung "Ted" Kwon ([Network Convergence and Security Lab](#)). My research interests lie in network security and its measurement: Are we using the network correctly and securely? How can we make the network (more) secure?

CONTACT INFORMATION

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

RESEARCH INTERESTS

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

EDUCATION

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

PROFESSIONAL EXPERIENCES

MAY 2019 - AUG 2019	Visiting Researcher The Center for Cybersecurity, Rochester Institute of Technology, Rochester, USA <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• Class: Engineering Frontiers and Leadership 2

PUBLICATIONS

- **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

- Dataset [<https://dane-study.github.io>]

- **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
- Dataset [<https://dane-study.github.io>]
- **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

APR 2020 - PRESENT	Research on Traceability for Data Stability on Cloud-edge Lifecycle <ul style="list-style-type: none">• Supported by Institute for Information and Communication Technology Promotion (IITP)• Role: Researcher / Programmer
MAR 2021 - NOV 2021	Abnormal Detection and Forensic Techniques using IoT Network Traffic Analysis <ul style="list-style-type: none">• Supported by Korea Institute of Information Security & Cryptology (KIISC)• Role: Project Manager (Lab.) / Researcher / Programmer
APR 2016 - DEC 2020	Versatile Network System Architecture for Multi-dimensional Diversity <ul style="list-style-type: none">• Supported by Institute for Information and Communication Technology Promotion (IITP)• Role: Project Manager (Lab.) / System Designer / Programmer
FEB 2020 - NOV 2020	Research on GPU Acceleration for Fully Homomorphic Encryption <ul style="list-style-type: none">• Supported by Korea Institute of Information Security & Cryptology (KIISC)• Role: Programmer
SEP 2019 - APR 2020	Developing High-performance Programming Environments and Computing Systems <ul style="list-style-type: none">• Supported by National Research Foundation of Korea (NRF)• Role: Programmer
AUG 2019 - NOV 2019	Research on Distributed Web Structure and Counterplan <ul style="list-style-type: none">• Supported by Korea Internet and Security Agency (KISA)• Role: Researcher
SEP 2018 - NOV 2018	Research on Trust and Security Scheme for Interconnection of Heterogeneous Networks <ul style="list-style-type: none">• Supported by Electronics and Telecommunications Research Institute (ETRI)

	<ul style="list-style-type: none"> • Role: Researcher
AUG 2016 - FEB 2019	Research and Development of Open 5G Reference Model <ul style="list-style-type: none"> • Supported by Giga KOREA Foundation • Role: System Designer / Programmer
MAR 2016 - MAY 2016	Content Delivery Framework Using Spatial and Temporal Dynamics in Mobile Networks <ul style="list-style-type: none"> • Supported by National Research Foundation of Korea (NRF) • Role: Programmer
JUL 2015 - DEC 2015	Development of Network Security Acceleration for Next-generation Low-power SoC <ul style="list-style-type: none"> • Supported by Samsung Electronics • Role: Programmer

PATENTS

- **Network System and Method for Performing Message Security Thereof**
Ted “Taekyoung” Kwon, Hyunwoo Lee, Myungchul Kwak, Hyeonmin Lee, Junghwan Lim, Yoojung Shin
 - Registration No. 1022656110000
 - Republic of Korea, Jun. 10, 2021
- **Communication Method Based on Integrated Flat ID and System**
Ted “Taekyoung” Kwon, Hyunwoo Lee, Myungchul Kwak, Hyeonmin Lee, Dongjun Lee, Hyunchul Oh
 - Registration No. 1020231150000
 - Republic of Korea, Sep. 11, 2019

TALKS & PRESENTATIONS

- Aug 2020, USENIX Security, Online, “A Longitudinal and Comprehensive Study of the DANE Ecosystem in Email”
 - Slides [https://www.usenix.org/system/files/sec20_slides_lee-hyeonmin.pdf]
 - Video [https://www.youtube.com/watch?v=amklb5UqBNE&ab_channel=USENIX]

MISCELLANEOUS

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.
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REFERENCES

- Taekyoung “Ted” Kwon** (tkkwon@snu.ac.kr)
- Professor, Department of Computer Science and Engineering, Seoul National University, Seoul, Republic of Korea
- Taejoong (Tijay) Chung** (tijay@vt.edu)
- Assistant Professor, Department of Computer Science, Virginia Tech, Blacksburg, VA, United States