Kang Hoon Lee

hoot55@korea.ac.kr

Education

2022.3 – 2026.2 (Expected) **Ph.D. in Information Security**, Korea University, Seoul, South Korea.
Thesis: -

2020.3 – 2022.2 **M.S. in Information Security**, Korea University, Seoul, South Korea.
Thesis: *Practical Improvements and Applications for Homomorphic Encryption over the Torus*.

2016.3 – 2020.2 **B.E. in Mathematics Education**, Korea University, Seoul, South Korea.
GPA: 3.90/4.50

Research Publications

Journal Articles

1. M. Y. Hong, **K. H. Lee**, J. H. Jung, and J. W. Yoon, "Tomas: Torus-based secure multi-factor biometric authentication system," *Computational and Structural Biotechnology Journal*, 2025.

Conference Proceedings

1. **K. H. Lee** and J. W. Yoon, "Homomorphic field trace revisited: Breaking the cubic noise barrier," in *Cryptology ePrint Archive, To appear in CHES*, 2026.
2. **K. H. Lee**, Y. Jeon, and J. W. Yoon, "Faster homomorphic dft and speech analysis for torus fully homomorphic encryption," in *2024 IEEE 9th European Symposium on Security and Privacy (EuroS&P)*, IEEE, 2024, pp. 486–505.
3. J. S. Yoo, M. Y. Hong, J. W. Heo, **K. H. Lee**, and J. W. Yoon, "Fast private location-based information retrieval over the torus," in *2024 IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS)*, IEEE, 2024, pp. 1–7.
4. T. M. Ahn, **K. H. Lee**, J. S. Yoo, and J. W. Yoon, "Cheap and fast iterative matrix inverse in encrypted domain," in *European Symposium on Research in Computer Security (ESORICS)*, Springer, 2023, pp. 334–352.
5. **K. H. Lee** and J. W. Yoon, "Discretization error reduction for high precision torus fully homomorphic encryption," in *IACR International Conference on Public-Key Cryptography (PKC)*, Springer, 2023, pp. 33–62.
6. **K. H. Lee** and J. W. Yoon, "Efficient adaptation of tfhe for high end-to-end throughput," in *International Conference on Information Security Applications (WISA)*, Springer, 2021, pp. 144–156.
7. H. Han, **K. H. Lee**, Y. Jeon, and J. W. Yoon, "Comparison of various interpolation techniques to infer localization of audio files using enf signals," in *2020 International Conference on Software Security and Assurance (ICSSA)*, IEEE, 2020, pp. 46–51.

Skills

Languages English, Korean

Coding C, C++, GoLang, Python, LaTeX, …

Miscellaneous Experience

Awards and Achievements

2022.3 - 2025.8 **[BK21FOUR] Graduate Student Research Scholarship**

2020.9 - 2021.8 **[BK21FOUR] Graduate Student Research Scholarship**

2020-1 **New Student Excellence Scholarship, Graduate School of Cyber Security**

Academic Services

2023.09 - 2023.12 **Teaching** [Subject 16, Algorithms] in Department of Cyber Defense, Korea University.

Interships

2019.03 - 2020.02 **Signal Processing and Advanced Intelligence (SPAI) LAB**, Seoul, Korea.