

Seonhong Min

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RESEARCH INTERESTS

Lattice-based Cryptography, especially Fully Homomorphic Encryption (FHE).

EDUCATION

Seoul National University Mar. 2022 – Present
Integrated M.S./Ph.D. in Computer Science & Engineering
Advisor: Prof. Yongsoo Song

Seoul National University Mar. 2018 - Feb. 2022
B.S. in Mathematics

Daegu Science High School Mar. 2015 – Feb. 2018

PUBLICATIONS

Authors are listed in alphabetical order by last name, unless an asterisk(*) is indicated.

Efficient Full Domain Functional Bootstrapping from Recursive LUT Decomposition

Intak Hwang, Shinwon Lee, Seonhong Min, Yongsoo Song

SAC 2025

2025/382

On the Security and Privacy of CKKS-based Homomorphic Evaluation Protocols

Intak Hwang, Seonhong Min, Jinyeong Seo, Yongsoo Song

In Submission

2025/216

Practical (Malicious) Circuit Privacy / Sanitization for TFHE

Intak Hwang, Seonhong Min, Jinyeong Seo, Yongsoo Song

CCS 2025

2025/203

Ciphertext-Simulatable HE from BFV with Randomized Evaluation

Intak Hwang, Seonhong Min, Yongsoo Song

In Submission

2024/2032

Carousel: Fully Homomorphic Encryption from Slot Blind Rotation Technique

Intak Hwang, Seonhong Min, Yongsoo Song

In Submission

2025/429

Enhanced CKKS Bootstrapping with Generalized Polynomial Composites Approximation

Seonhong Min, Joon-woo Lee, Yongsoo Song

AsiaCCS 2025

2024/1534

More Efficient Lattice-based OLE from Circuit-private Linear HE with Polynomial Overhead

Leo de Castro, Duhyeong Kim, Miran Kim, Keewoo Lee, Seonhong Min, Yongsoo Song

In Submission

2024/1502

MatriGear: Accelerated Authenticated Matrix Triple Generation with Scalable Prime Fields via Optimized HE Packing

Hyunho Cha, Intak Hwang, Seonhong Min, Jinyeong Seo, Yongsoo Song

S&P 2025

2406.14372

***Ring-LWE based encrypted controller with unlimited number of recursive multiplications and effect of error growth**

Yeongjun Jang, Joowon Lee, Seonhong Min, Hyesun Kwak, Junsoo Kim, Yongsoo Song

IEEE Trans. on Control of Network Systems, under revision

2024/181

Funtional Bootstrapping for Packed Ciphertexts via Homomorphic LUT Evaluation

Dongwon Lee, Seonhong Min, Yongsoo Song

In Submission

2023/958

Faster TFHE Bootstrapping with Block Binary Keys

Changmin Lee, Seonhong Min, Jinyeong Seo, Yongsoo Song

AsiaCCS 2023

2022/1460

Towards Practical MK-TFHE: Parallelizable, Key-Compatible, Quasi-Linear Complexity

Hyesun Kwak, Seonhong Min, Yongsoo Song

PKC 2024

PRESENTATION

Youtube

Faster TFHE Bootstrapping with Block Binary Keys

FHE.org Meetup

Faster TFHE Bootstrapping with Block Binary Keys

AsiaCCS 2023

Youtube

Functional Bootstrapping for Packed Ciphertexts via Homomorphic LUT Evaluation
FHE.org Meetup

Youtube

Towards Practical MK-TFHE: Parallelizable, Key-Compatible, Quasi-Linear Complexity
PKC 2024

POSTERS

Practical MK-TFHE: Parallelizable, Key-Compatible, Quasi-Linear Complexity
FHE.org 2023

Fully Homomorphic Encryption from Slot Blind Rotation Technique
FHE.org 2024

Practical Sanitization for TFHE
FHE.org 2024

MatriGear: Accelerated Authenticated Matrix Triple Generation with Scalable Prime Fields via Optimized HE Packing
FHE.org 2024

EXPERIENCES

Cryptolab Inc. (Intern) 2024.11 – 2025.02

GITHUB REPOSITORIES

Multi-key TFHE
<https://github.com/SNUCP/MKTFHE>

Carousel.jl
<https://github.com/SNUCP/Carousel.jl>

HIENAA.jl
<https://github.com/snu-lukemin/HIENAA.jl>

Ciphertext Simulatable BFV
<https://github.com/SNUCP/simct>

SKILLS

Languages

Korean (native), English (fluent), Japanese (conversational)

Programming Languages

Julia, Python, Java, Go, \LaTeX

OTHER INTERESTS

My hobby is to write songs and to draw digital paintings. I have a few albums and singles released; I would love to share them if you contact me personally.