

Seonyoung Cheon

Curriculum Vitae

CONTACT INFORMATION

School of Electrical and Electronic Engineering
Yonsei University
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EDUCATION

Yonsei University, Seoul, Republic of Korea
M.S./Ph.D. Student, September 2021 to Present
Advisor: Prof. Hanjun Kim
Research Project: “Accelerating Homomorphic Encryption Library on GPU”
Research Project: “Fully Homomorphic Encryption Compiler”

Yonsei University, Seoul, Republic of Korea
Bachelor of Engineering in Electrical and Electronic Engineering, March 2017 to August 2021

Busan Science High School(BSS), Busan, Republic of Korea
High school, March 2014 to February 2017

EXPERIENCE

Research Assistant, September 2021 to Present
Compiler Research Laboratory (Corelab), *Yonsei University*, Seoul, Republic of Korea

- Optimize Homomorphic Encryption Compiler on GPU

Undergraduate Research Assistant, July 2020 to August 2021
Compiler Research Laboratory (Corelab), *Yonsei University*, Seoul, Republic of Korea

- Make Deep-Learning Benchmark of Homomorphic Encryption compiler

Internship, July 2020 to August 2020
Cloud Security Platform Team, LG CNS, Seoul, Republic of Korea

- Make checking compliance program Cloud Assessment Tool(CAT)

RECOGNITION

- Best Poster Award at KIISE Computer System Society Winter Workshop, January 2024
- Grand Prize for FHE Compiler for Privacy-preserving Machine Learning at ICT Challenge hosted by Ministry of Science and ICT, Republic of Korea, Sep 2023
- Scholarship of YUHA PUREUN Foundation, Sep 2017 - June 2021
- Honors And Awards - Honors (Academic excellence award), spring 2017
- Honors And Awards - Honors (Academic excellence award), fall 2017
- Honors And Awards - Honors (Academic excellence award), spring 2018

ACTIVITIES

INTERNATIONAL CONFERENCE COMMITTEE

- Artifact Evaluation Committee, Languages, Compilers, Tools and Theory of Embedded Systems (LCTES), June 2023
- Sub-reviewer, The 20th ACM/IEEE International Symposium on Code Generation and Optimization (CGO), 2022
- Sub-reviewer, The 19th ACM/IEEE International Symposium on Code Generation and Optimization (CGO), 2021

- Sub-reviewer, 2023 IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2023
- Sub-reviewer, 2022 IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2022
- Sub-reviewer, 2021 IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2021
- Sub-reviewer, ACM SIGBED International Conference on Embedded Software (EMSOFT), 2022
- Sub-reviewer, ACM SIGPLAN 2022 International Conference on Compiler Construction (CC), 2022

TEACHING

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PUBLICATIONS

REFEREED CONFERENCE PUBLICATIONS

- [1] Seonyoung Cheon, Yongwoo Lee, Dongkwan Kim, Ju Min Lee, Sunchul Jung, Taekyung Kim, Dongyoon Lee, and Hanjun Kim, “DaCapo: Automatic Bootstrapping Management for Efficient Fully Homomorphic Encryption,” to appear in *33rd USENIX Security Symposium (USENIX Security)*, August 2024.
- [2] Yongwoo Lee, Seonyoung Cheon, Dongkwan Kim, Dongyoon Lee, and Hanjun Kim, “Performance-aware Scale Analysis with Reserve for Homomorphic Encryption,” to appear in *ACM International Conference on Architectural Support for Programming Languages and Operating Systems 2024 (ASPLOS)*, April 2024.
- [3] Yongwoo Lee, Seonyoung Cheon, Dongkwan Kim, Dongyoon Lee, and Hanjun Kim, “ELASM: Error-Latency-Aware Scale Management for Fully Homomorphic Encryption,” in *32nd USENIX Security Symposium (USENIX Security)*, August 2023.
- [4] Yongwoo Lee, Seonyeong Heo, Seonyoung Cheon, Shinnung Jeong, Changsu Kim, Eunkyung Kim, Dongyoon Lee, and Hanjun Kim, “HECATE: Performance-Aware Scale Optimization for Homomorphic Encryption Compiler,” in *Proceedings of the 2022 International Symposium on Code Generation and Optimization (CGO)*, April 2022.

REFEREED POSTER PUBLICATIONS

- [5] Dongkwan Kim, Yongwoo Lee, Seonyoung Cheon, Heelim Choi, Jaeho Lee, Dongyoon Lee, and Hanjun Kim, “Privacy Authority-Aware Compiler for Homomorphic Encryption on Edge-Cloud,” in *32nd USENIX Security Symposium - (Poster) (USENIX Security)*, August 2023.

PATENTS

- [6] Hanjun Kim, Yongwoo Lee, Seonyoung Cheon, and Dongkwan Kim, “System and Method of Homomorphic Encryption Based on Scale Optimization,” KR Patent App. 10-2024-0008916, January 2024.