YUJIN NAM

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EDUCATION

University of California, San Diego Aug. 2021 - present
Ph.D in Computer Science

Seoul National University Mar. 2015 - Aug. 2020
B.S. in Electrical and Computer Engineering
GPA: 3.80/4.30 *(Cum Laude)*

WORK EXPERIENCES

Researcher, *Crypto Lab Inc.* **Seoul, Korea**
- Software and hardware design of fully homomorphic encryption based application Aug. 2019 - Sep. 2020

Summer Intern, *Crypto Lab Inc.* Jun. 2019 - Aug. 2020

Winter Intern, *SK Hynix* Dec. 2018 - Feb. 2019

RESEARCH EXPERIENCES/ PROJECTS

Fully Homomorphic Encrypted Hyper-dimensional Computing
University of California, San Diego Nov. 2021 - present
- Advisor: Dr. Tajana Šimunić Rosing
- Secure hyper-dimensional training based on fully homomorphic encryption
- Investigated fully homomorphic encryption parameters for hyper-dimensional computing training and tested training performance.

Privacy-Preserving Statistical Analysis
Crypto Lab Inc. Jul. 2019 - Apr. 2020
- Advisor: Dr. Younho Lee, Dr. Jung Hee Cheon
- Privacy-preserving statistical analyzing toolkit development using the CKKS scheme.
- Proposed efficient data arrangement in ciphertext and analyzing functions.
- Implemented the toolkit, optimized codes, and evaluated the toolkit.

Hardware Architecture of a Number Theoretic Transform
Crypto Lab Inc. Aug. 2019 - Oct. 2019
- Advisor: Dr. Sunwoong Kim, Dr. Jung Hee Cheon
- Hardware accelerator design for NTT in the RNS-variant of the CKKS scheme.
- Modified SW code to match HW design and generated reference data for test.
- Generated test bench and debugged HW architecture.

PUBLICATION and PRE-PRINT

1. S. Kim, K. Lee, W. Cho, **Y. Nam**, J. H. Cheon, and R. A. Rutenbar. Hardware architecture of a number theoretic transform for a bootstrappable rns-based homomorphic encryption scheme. In *2020 IEEE 28th Annual International Symposium on Field-Programmable Custom Computing Machines (FCCM)*, pages 56–64, 2020.

PATENT in progress

1. "HEaaN.STAT: A Privacy-Preserving Statistical Analysis Toolkit For Large-Scale Numerical, Ordinal, And Categorical Data", U.S. Provisional Pat. Ser. No. 63/039,086

HONORS and AWARDS

National Scholarship For Science and Engineering (fully funded), Korea Student Aid Foundation 2019, 2018, 2017
3rd place, 9th College of Engineering UCC competition 2018 Fall
SNU Merit-Based Scholarship, SNU 2015, 2016

COURSE PROJECT

Bachelor's Thesis
Machine Learning Inference on Mobile Using Various Layers
- Advisor: Dr. Kyoung Mu Lee
- The principal goal was to lighten the VDSR model to implement it on iOS.
- Lightened VDSR model by applying lightweight layers.
- Implemented & experimented the models on iOS environment.

SKILLS

Programming Languages	C/C++, Python, Verilog, MATLAB, R
Frameworks	PyTorch
Developer Tools	Git, VS Code, Vivado

EXTRA-CURRICULAR ACTIVITIES

SNU's Tomorrow's Engineers Membership (STEM) 2017 Fall - 2019 Fall
honor society of college of engineering, SNU

Student Council of College of Engineering 2016 Spring
member of the department of human rights

Student Council of Department of Electrical and Computer Engineering 2015 Fall
member

VOLUNTEER EXPERIENCE

STEM Vision Mentoring Jul. 2019
- Worked as a staff in a national mentoring event hosted by STEM.

STEM Mini Vision Mentoring Apr. 2019
- Visited a middle school as a mentor.

STEM Gwanak-gu Vision Mentoring Nov. 2018
- Participated as an MC in a local mentoring event hosted by STEM.

Edushare (BNS) Sep. 2015 - Dec. 2015
- Worked as a math tutor for local middle school students.