

YUJIN NAM

✉ yujinnam@ucsd.edu ☎ +1 (858) 531 8487

EDUCATION

University of California, San Diego Aug. 2021 - present
Ph.D in Computer Science
Advisor: Tajana Šimunić Rosing

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. Aug. 2019 - Sep. 2020
- Software and hardware design of fully homomorphic encryption based application

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: 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: Younho Lee, 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: Sunwoong Kim, 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

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: 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) <i>honor society of college of engineering, SNU</i> | 2017 Fall - 2019 Fall |
| Student Council of College of Engineering <i>member of the department of human rights</i> | 2016 Spring |
| Student Council of Department of Electrical and Computer Engineering <i>member</i> | 2015 Fall |

VOLUNTEER EXPERIENCE

| | |
|--|-----------------------|
| STEM Vision Mentoring - Worked as a staff in a national mentoring event hosted by STEM. | Jul. 2019 |
| STEM Mini Vision Mentoring - Visited a middle school as a mentor. | Apr. 2019 |
| STEM Gwanak-gu Vision Mentoring - Participated as an MC in a local mentoring event hosted by STEM. | Nov. 2018 |
| Edushare (BNS) - Worked as a math tutor for local middle school students. | Sep. 2015 - Dec. 2015 |