YUJIN NAM

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RESEARCH INTERESTS

secure/private system, privacy-enhancing technologies, hardware based security, applied cryptography

EDUCATION

Seoul National University (SNU)   Mar. 2015 - Aug. 2020
B.S. in Electrical and Computer Engineering

WORK EXPERIENCES

Researcher, *Crypto Lab Inc.*   Aug. 2019 - Sep. 2020
  - Crypto Lab is a cryptography technology company applying HEaaN (a SW version of the CKKS scheme, a homomorphic encryption scheme), led by Dr. Jung Hee Cheon of SNU.
  - Worked on developing and improving speed and accuracy of HEaaN.
  - participated in research projects applying HEaaN.
  - Used C++, Python, and Verilog.

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

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

RESEARCH EXPERIENCES/ PROJECTS

Privacy-Preserving Statistical Analysis, *Crypto Lab Inc.*   Jul. 2019 - Apr. 2020
  - Advisor: Dr. Younho Lee, Dr. Jung Hee Cheon
  - The principal goal is to develop a privacy-preserving statistical analyzing tool using the CKKS scheme.
  - Proposed how to arrange data in ciphertexts and developed 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
  - The principal goal is to design a hardware accelerator 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.
2. Y. Lee, J. Seo*, **Y. Nam***, S. Kim*, J. Chae, and J. H. Cheon. HEaaN.STAT: a privacy-preserving statistical analysis toolkit for large-scale numerical, ordinal, and categorical data. pre-print (* equal contribution), 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
2. (working title) ”HEaaN Format Converter”, Domestic Patent

HONORS and AWARDS

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

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 other 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 collage of engineering, SNU

Dream Start   2017 Fall
a social networking club for university students in Seoul

Spanish Camp   2017 Summer
a summer program for learning Spanish and Hispanic culture, Department of Hispanic Language and Literature, 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.

- "BNS" is short for 'people who share learning' in Korean.