

Jai Hyun Park

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OVERVIEW

I am a PhD student majoring in cryptography at Department of Mathematical Sciences, Seoul National University (SNU), Republic of Korea. My advisor is Prof. Jung Hee Cheon. I am interested in a broad range of topics in cryptography from theory to practice. Currently my research focus is on verifiable computation, homomorphic encryption, and their applications.

EDUCATION

Seoul National University, Seoul, Republic of Korea

- Ph.D. in Mathematical Sciences Mar 2020 – Present
 - Advisor: Prof. Jung Hee Cheon
 - Focus: Cryptography (Homomorphic Encryption, Verifiable Computation)
- B.S. in Mathematical Sciences Mar 2013 – Feb 2020

PUBLICATIONS

In the list below, first authors are indicated by asterisks(*) when authors are ordered by contribution; the symbol = indicates a paper with alphabetically-ordered authors.

CONFERENCES

- [C02] *G. Lee, *M. Kim, *J. H. Park, S. Hwang, J. H. Cheon, “Privacy-Preserving Text Classification on BERT Embeddings with Homomorphic Encryption,” *Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2022, short)*
- = [C01] J. H. Cheon, D. Kim, and J. H. Park, “Towards a Practical Cluster Analysis over Encrypted Data,” *International Conference on Selected Areas in Cryptography (SAC 2019)*

JOURNALS

- = [J05] J. H. Cheon, W. Kim, J. H. Park, “Efficient Homomorphic Evaluation on Large Intervals,” *IEEE Transactions on Information Forensics and Security*, 2022
 - Excellence Award, National Cryptography Contest 2020
- [J04] *J. H. Park, J. H. Cheon, D. Kim, “Efficient verifiable computation over quotient polynomial rings,” *International Journal of Information Security*, 2022
- [J03] *S. Hong, J. H. Park, W. Cho, H. Choe, J. H. Cheon, “Secure tumor classification by shallow neural network using homomorphic encryption,” *BMC Genomics*, 2022
 - First Place Prize, iDASH Genomic Data Privacy and Security Protection Competition 2020
- [J02] *H. Kim, S. Kang, J. H. Park, H. Ha, D. Lim “Noise Removal using Support Vector Regression in Noisy Document Images,” *The Korean Journal of Applied Statistics*, 2012
 - Bronze Award, 18th Samsung Humantech Paper Award for High Schools
- [J01] *H. Kim, S. Kang, J. H. Park, H. Ha, J. Lim, D. Lim “Robust Image Fusion Using Stationary Wavelet Transform,” *The Korean Journal of Applied Statistics*, 2011
 - Silver Award, 18th Samsung Humantech Paper Award for High Schools

HONORS & AWARDS

- Participation Prize, National Cryptography Contest Nov 2022
National Security Research Institute
“Arithmetic PCA for Encrypted Data”
- First Place Prize, iDASH Genomic Data Privacy and Security Protection Competition Dec 2020
Track I: Secure multi-label Tumor classification using Homomorphic Encryption
- Excellence Award, National Cryptography Contest Oct 2020
National Security Research Institute
“Polynomial Approximation on Wide Domain and Logistic Regression over Encrypted Data”
- Award for Excellence in Teaching Sep 2020
Seoul National University
For teaching Differential and Integral Calculus
- BK 21+ Scholarship Mar 2020 – Present
Ministry of Education of Korea

	<ul style="list-style-type: none"> ▪ The Presidential Science Scholarship Korea Student Aid Foundation Academic Grant: Tuition + \$5, 000/year for 4 years 	Mar 2013 – Dec 2018
	<ul style="list-style-type: none"> ▪ Silver Award, 18th Samsung Humantech Paper Award for High School Samsung Electronics “Robust Image Fusion Using Stationary Wavelet Transform” 	Feb 2012
	<ul style="list-style-type: none"> ▪ Bronze Award, 18th Samsung Humantech Paper Award for High School Samsung Electronics “Noise Removal using Support Vector Regression in Noisy Document Images” 	Feb 2012
	<ul style="list-style-type: none"> ▪ Silver Medal, Korean Mathematical Olympiad Korean Mathematical Society 	Sep 2011
CONFERENCE PRESENTATIONS	<ul style="list-style-type: none"> ▪ Secure Lookup Table with Homomorphic Encryption 2022 Korean Mathematical Society Spring Meeting, Virtual ▪ Polynomial Approximation on Wide Domain and Logistic Regression over Encrypted Data 2022 Korean Mathematical Society Fall Meeting, Virtual ▪ Towards a Practical Cluster Analysis over Encrypted Data 2019 Korean Mathematical Society Fall Meeting, Hong-ik University, Republic of Korea Selected Areas in Cryptography (SAC) 2019, University of Waterloo, Canada 	Apr 2022 Oct 2020 Oct 2019 Aug 2019
EXPERIENCES	<ul style="list-style-type: none"> ▪ Republic of Korea Army Sergeant 	Jul 2016 – Apr 2018
SKILLS	<ul style="list-style-type: none"> ▪ C/C++, \LaTeX, HEaaN: Proficient ▪ Python, HTML: Working Knowledge ▪ PyTorch, TensorFlow: Basic 	
LANGUAGES	<ul style="list-style-type: none"> ▪ Korean: Native language ▪ English: Fluent 	

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