Hwang In Tak

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Research interests	Mathematical Cryptography, Quantum Computing

Education

Sangsan High School	2015 — 2017

DGIST	2018 — Present
B.S. in School of Undergraduate Studies	GPA: 4.00/4.3

UC Berkeley	2018 Summer
Summer Sessions, in part of DGIST Freshmen Global Leadership Program (FGLP)	

Honors and scholarships

DGIST Dean's List	2020

CTF Security Competitions	2020 — Present
DEF CON CTF 2020	*Finalist*
TokyoWesterns CTF 2020 Finals	*3rd place*
Midnight Sun CTF 2020 Finals	*7th place*
Real World CTF 2020/2021 (Media Coverage)	*1st place*
PlaidCTF 2021	*5th place*
DEF CON CTF 2021	*Finalist*
WhiteHat Contest 2021	*3rd place*

Research experience

NIMS Academy for Industrial Mathematics 2019.08
I studied text-based modeling and big data mining, along with its use in industrial mathematics.

DGIST Computer Architecture and Systems Lab (CASLAB)
Mentors: Prof. Dae Hoon Kim (DGIST) 2019 Summer
During intership, I studied various CPU Side Channel Attacks, such as Flush+Reload and Row Hammering.

DGIST Division of Intelligent Robotics
Mentors: Dr. Sang Chul Lee (DGIST) 2020 Summer
During internship, I studied algorithms for solving localization problems, i.e. determining the local position of autonomous robots.

DGIST Undergraduate Group Research Program (UGRP)
Mentors: Prof. Hyo Sang Kang (DGIST) 2020
I participated in two research teams as a part of UGRP. The topics were *Developing Games with Multiple Genres* and *Designing Surface Code with Uniform Hyperbolic Tiling*.

For the former, I developed several games using Godot Engine. For the latter, I studied Quantum Error Correction, Hyperbolic Geometry and developed Uniform Hyperbolic Tiling Generator using Python.

DGIST Information, Computing, and Intelligence Lab (ICIL)

Mentors: Prof. Yong June Kim (DGIST) · · · · · · · · · · · · · · · 2021 Winter

During intership, I studied Privacy-Preserving Machine Learning(PPML) and Homomorphic Encryption.

Teaching experience	**Tutor at DGIST**	
	SE102 Multivariate Calculus	2019 Fall
	SE201 Linear Algebra	2020 Spring

Teaching Assistant at KAIST PRE-URP

Making a Quantum Error Correction Game	2020 Winter
Drawing Escherian Image Using Hyperbolic Tiling	2021 Summer
Decrypting RSA using Shor's Algorithm	2021 Winter

Seminars at DGIST Math Club

Solving Integer Problems Using Lattices	2021.11.

Skills

Programming

Proficient in: Python, SageMath, Go, LaTeX, Godot Engine

Currently Learning: Rust

Languages

Korean (native), English (fluent)

Other activities

Translator of elementaryOS · · · · · · · · · · · · · 2018 — Present

I translated several parts of elementaryOS, including the website.

Member of CTF team CodeRed · · · · · · · · · · · · · 2020 — Present

I am actively participating in CTF competitions, mostly solving crypto challenges.

Developer/Writer of INVERTIBLE (working title) · · · · 2020 — Present

I am working as a lead developer/writer of INVERTIBLE, a sokoban style puzzle game. We recently ran our first closed-beta test, and the final product is expected to be released in 2023.

President of DGIST Math Club · · · · · · · · · · · · · 2021 — Present

I founded DGIST Math Club in 2021. We hold seminars and meetings on a regular basis.

Other interests

I love watching films. I wrote and directed two short films in college, and I still write screenplays as a hobby!