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) 2019.06. — 2019.08.
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) 2020.06. — 2020.08.
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 and Intelligence Lab (IIL)
Mentors: Prof. Yong June Kim (DGIST) 2022.01. — 2022.06.
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 2020.12. — 2021.02.
Drawing Escherian Image Using Hyperbolic Tiling 2021.06. — 2021.08.
Decrypting RSA using Shor's Algorithm 2021.12. — 2022.02.

Seminars at DGIST Math Club
Solving Integer Problems Using Lattices 2021.11.
A Short Introduction to Approximation Theory 2022.04.

Skills

Programming
Proficient in: Python (SageMath), Go, LaTeX, Godot
Currently Learning: Rust

Languages
Korean (native), English (fluent)

Other Activities

Translator of elementaryOS 2018 — Present
I translated Several Parts of elementaryOS, most notably the main website, elementary.io.

Member of CTF Team CodeRed 2020 — Present
I participate in CTF competitions from time to time, mostly solving crypto challenges.

Developer & Writer of Team Invertible 2020 — Present
I am actively working on INVERTIBLE, a sokoban puzzle game. We recently ran our first closed beta test. We are planning to release the game on Steam 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!