# 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

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|---|---|
| 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!