

# Hwang In Tak

Email: sp301415@gmail.com

Website: sp301415.com

## RESEARCH INTERESTS

---

Mathematical Cryptography

## EDUCATION

---

**Sangsan High School** 2015 — 2017

**DGIST** 2018 — 2022  
B.S. in School of Undergraduate Studies *Summa Cum Laude*

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

**Seoul National University** 2023 — Present  
Integrated M.S./Ph.D. in Computer Science & Engineering  
Advisor: Prof. Yongsoo Song

## 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*  
SSTF Hacker's Playground *5th 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)** 2019.06. — 2019.08.  
Mentors: Prof. Dae Hoon Kim (DGIST)  
During internship, I studied various CPU Side Channel Attacks, such as Flush+Reload and Row

Hammering.

### **DGIST Division of Intelligent Robotics**

2020.06. — 2020.08.

Mentors: Dr. Sang Chul Lee (DGIST)

During internship, I studied algorithms for solving localization problems, i.e. determining the local position of autonomous robots.

### **DGIST Undergraduate Group Research Program (UGRP)**

2020

Mentors: Prof. Hyo Sang Kang (DGIST)

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)**

2022.01. — 2022.06.

Mentors: Prof. Yong June Kim (DGIST)

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

### **SNU Cryptography & Privacy Lab (Internship)**

2022.07. — 2022.08.

Mentors: Prof. Yong Soo Song (SNU)

During Intership, I studied Homomorphic Encryption. I participated in a research about accelerating algorithms over Homomoprhc Encryption, and encryption itself.

## **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 Clubs**

Solving Integer Problems Using Lattices

2021.11.

A Short Introduction to Approximation Theory

2022.04.

Game Development Using Godot Engine

2022.05.

Introduction to Homomorphic Encryption

2022.10.

## **SKILLS**

---

### **Languages**

Korean (native), English (fluent)

## Programming Languages

Python (SageMath), Go,  $\text{\LaTeX}$ , GDScript

## 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 — 2022

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 three short films in college, and I still write screenplays as a hobby!