**IITP K-SW Square Purdue Program Application**

**(Soongsil University)**

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| E:\1파티션\깃허브용\Portfolio_Web\images\minZZ.jpg◇ Name : Hyunsoo, Ha  Photo  ◇ Affiliation : Soongsil University  ◇ Major : Software Science  ◇ Date of Birth : 1997.1. 15. |

* **Curriculum Vitae**
* Education

**B.S. in Software Science and Engineering**

Soongsil University, Seoul, Korea (2015 – Now)

* Research experience
* **Blockchain Anonymous Protocol Research With Sungkyunkwan University**

Research about Blockchain Anonymous Protocol.  
There are many anonymous protocol in cryptocurrency such as Ring Signature, Confidential Transaction and Stealth Addressing.  
The purpose of this research is define our own anonymous protocol by using cryptography.

* **An Implementation of Flexible Blockchain Framework for Construct Own Blockchain Network**

Research about Blockchain Framework.  
Most of blockchain projects such as Bitcoin, Litecoin, Ethereum are non-flexible. They have fixed parameter, and fixed seed node value.

We implemented Flexible Blockchain Framework(FBF) to make change blockchain’s parameter and Construct their own blockchain network easily.

I’m lead author in this paper. And I’ll have oral presentation about this paper at KCC2018 : Korean Computer Congress in June.

* **Anonymity Electronic Voting Blockchain Platform Model Based on Public Blockchain**

Research About Anonymity Electronic Voting Blockchain Platform.

There are many projects apply blockchain technology in Electronic Voting because of **Immutability of blockchain.** However, If we use public Blockchain, maybe voters can check their ballot status in public blockchain. On the other hand, it has privacy problem.  
So we apply Cryptographic Technology such as Ring Signature, Tor, Diffie-Hellman and Elliptic Curve.

I’m lead author of this paper and I had poster presentation in KSC2017 : Korea Software Congress. And paper is published like below  
“Anonymity Electronic Voting Blockchain Platform Model Based on Public Blockchain”, KSC : Korea Software Congress, 2017.

* Project(R&D) experience
* **Chainerator, Blockchain Core Framework (2017 – NOW)**

This is my main project. I’m interested in Network Programming and Recently,

I’m absorbed Developing Blockchain Core.   
Chainerator is a blockchain framework that make construct own blockchain network more easily, efficiently. It’s not just Dapp with Smart Contract. Anyone can make own blockchain core by using Chainerator.

Chainerator provides three functions. First of all, we provide more flexible architecture. You can change blockchain’s parameter easily by changing config file. Second of all, You can change Blockchain’s Consensus Algorithm by changing consensus type in config file. Finally, you can construct your own network so simply by changing Seednode’s IP, maybe you can use cloud service such as google cloud, AWS EC2.

It developed by C++ and Reference CryptoNote V2.0

* **KISA-BET, Ethereum based (2018)**

Lottery System developed by Solidity.   
Smart contract’s content is simple. Lottery Game is started when 5 players have sent their bets. Each bet is1 ether.

Contract chooses one address at random and pays 80% of the total payout available to the winner. And rest ether goes to Charity Foundation.

* **Ethereum based Electronic Voting System (2018)**

Electronic Voting System developed by Solidity.  
Each coin is used as ballot.

Voters can delegate their ballot.

* **HScoin (2017)**

construct own blockchain network. By using CryptoNote Open source.  
Developed by C++

* **Map Of Us**

Location Based SNS Android App using Google Map API.  
User can register marker information that not registered on Google Map.  
Such as Smoking Zone, Non-Smoking Zone, Toilet and Landmarks.

It provide review service on the mark. For example, if toilet is too dirty or locked, user can write review on that marker. It is very helpful information for other people.

I get awarded in Capstone Hackerton in Soongsil University with this project.

* Award

**2018**

* Blockchain Hackerton 1st Place, Blockparty(Sponsored by Ethereum Foundation, DapperNetwork)

**2017**

* TOPCIT Grade Award(Ranked within top 1%), The Air Force Chief of Staff
* TOPCIT Grade Award(Ranked within top 1%), President of Soongsil University
* Capstone Project Hackerton 3rd Place, Soongsil University
* Patent Competition 1st Place, DN Patent Law Firm Seoul Accord

**2015**

* Capstone Project Hackerton 2nd Prize, Soongsil University
* Undergraduate Scholarship (merit-based), Soongsil University
  + - Admission with highest distinction
    - Full Tuition (Granted for full semester)
* Certificate (Including TOFEL, TOPCIT, etc.)

- TOEIC Speaking Level 6 : 130 Point

- TOPCIT Level 3, 469 Point (Ranked within top 1%)

- Machine Learning Certificate, Stanford Online

- Certificate of Open Source Software Expert, KITPM(Korea Society of Information

Technology Policy & Management)

- Certificate of Ethereum Dapp Development Course, KISA(Korea Internet &  
 Security Agency)

- ICT Mentoring Certificate, IITP(Institute for Information & Communication

Techonology Promotion)

- Web programming course “Code-Night” Certificate, Google Korea

- Certificate of Intellectual Property Rights Education, DN Patent Law Firm

- Certificate of Blockchain Developer, DapperNetwork - UCLA Blockchain Lab

* Etc.

- Patent : Blockchain Electronic Voting Management System(10-2017-0128049)

- Patent : Blockchain Pedigree Platform (Expected)

- Experience : Visit CES in Las Vegas as representative of University

- Verge Korea : I worked in Verge Cryptocurrency foundation in 2017

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- English : I have TOEIC SPEAKING Level 6. Although it’s not highest level. It means I can communicate with English enough. In Fact, I attend many meetups such as Ethereum Foundation Meetup, IBM Meetup, and normally, in that meetup, Speakers speak in English without translation and I can understand contents. And I also listen English lecture in MOOC like coursera, udacity, udemy. I can understand them too.

- DapperNetwork : I’m member of DapperNetwork. DapperNetwork is blockchain developer’s global network. Founder is Eric Chung, who is Co-Founder of UCLA Blockchain Lab.

I met Eric in BlockParty Hackerton, and I join the network.

* **Project Applicant**
* Background

- I’m interested in network programming. Because network programming’s ecosystem evolves most dynamically. I learned various network programming technology such as blockchain, PWA, Anonymous Protocol and I have presentation every Friday with ALOE. ALOE is student open seminar group and I’m founder of ALOE. I can learn many knowledges by ALOE’s Friday Seminar. That’s the reason why I can get TOPCIT Award ranked within top 1%.

Nowadays, I have been studying blockchain for 2 years. Because I believe blockchain can change our world. So, I do many activities about blockchain in Korea.   
 I attend various meetup such as IBM Blockchain Meetup, Ethereum Foundation Special Meetup. By attending these meetups, I can communicate with many companies about blockchain. I meet company’s developer once a week for sharing information. And I make Soongsil University Blockchain Academic Group for researching with various point. For example, even though my major is Software, but I can learn “Token Economy” with group member who has major economics. by this effort, I can win 1st place in Blockparty hackerton which sponsored by Ethereum Foundation.

I make my own blockchain opensource “Chainerator”.

Most of blockchain projects are using other blockchain’s source code such as bitcoin, Litecoin. I think it is very inefficient. Litecoin and Bitcoin has fixed architecture. And complex dependency. So, although I changed just 1 line in source code. It makes plenty of compile error. I want to solve this problem. By Refactoring code with more flexible and making more convenient Structure for develop.

* Applicant Motive

- I have question about “Why Korea can’t make original technology in IT, such as

Blockchain, PWA?”. “Then How American makes original technology a lot?”

I think answer is “Education” & “Attitude for Solving Problem.” I want to learn

From Purdue’s students and professor’s aspect for solving problem by communi-

cating with them and listening Purdue’s lecture.

Actually, for these reasons I’m planning to study abroad to U.S.A. for master  
 degree and Ph.D.

So I want to experience before studying abroad to U.S.A.

And I’ll prepare to be real scholar.

* **Describe your Study plan in Purdue University.**

I want to Listen three lecture in Purdue’s Core courses.

* TECH 12000 – Design Thinking In Technology

My Applicant Motive is learned Purdue’s aspect of solving problem. In this standpoint, Design Thinking In Technology is the best lecture in my case.

May this lecture can be clue of find good answer to problem solve.

And I want to talk with students who attend this lecture about how to solve social problem with technology.

* CNIT 31500 – System Programming

I learned System Programming before, but it wasn’t real study. I memorize all book paragraph, for good grade and other students are also doing like me.

And now, I can’t remember anything in System Programming.

I want to listen Purdue’s System Programming Lecture. It makes me expect.

* CNIT 32500 – Object-Oriented Application Development

In my university case, we don’t have Object-Oriented Development Class. We have only “Object Oriented Theory”. So, I want to learn Object-Oriented Development Skill. And I want to see difference with our university’s programming lecture.

When Lecture is done, I’ll talk with many students in Purdue about Blockchain. I guess blockchain is hot topic in Purdue too. I want to be heard various opinion, and discuss about blockchain’s problem.

And my own time, I’ll develop my open source project “Chainerator”. Because I want to develop this project before graduate. I’ll communicate my team members everyday even though I’m in USA.

* **Describe your own prediction regard to Future of ICT Technology and Society.**

I think in future, the distinction between ICT Technology and Society is evaporated.

For example, Blockchain which is my favorite technology, makes “Decentralized Social”. It is unique case, Infrastructure and Social Structure are changed by IT technology. Many peoples doesn’t believe central agency such as company and government. If Blockchain is applied real world in future, it will be more efficient social. Because there are no third party, and fee, and time.

And if we apply smart contract all around world, there are less conflict between Customer and Company. Because smart contract is just machine code. And if some situation occurs, machine will just run code. So there are no reason to conflict customer and Insurance agent.

Likewise, in my opinion, in future if IT technology is changed or substituted, society will be change. Like blockchain makes society decentralized.

So in this situation, IT Engineers have to know economics and politics also.

it will be more important to research own innovative original technology with their knowledge about economics and politics .