

# Course Overview

# Class Community Overview

*Lecture 0 (2023-03-08)*

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*By chatGPT*

# Course Overview

# Course Logistics

- Title: Building Web3 & Blockchain Applications  
(CS492 Special Topics in Computer Science)
- Date: Every Wednesdays (8 March - 7 June)
  - 19 April no class and no exam
- Time: 16:00 – 18:50 KST(GMT+9)
  - 16:00 – 17:20 session 1
  - 17:20 – 17:30 break
  - 17:30 – 18:50 session 2
- Place: Online zoom (Live)
  - The last lecture(7 June) will be face-to-face in KAIST  
(+ online zoom for participants who can't join offline)
- Language: Lectures in English
- No textbook
- Credit: 3 (Pass / Fail)
- Grading: A final project (No homework, no exam, no quiz)
- Professors: Jaesun Han, Min Suk Kang, Sukyoung Ryu

# Instructors



**Jason Jaesun Han**

Adjunct Professor  
KAIST School of Computing



**Min Suk Kang**

Assistant Professor  
KAIST School of Computing



**Sukyoung Ryu**

Professor  
KAIST School of Computing  
Head of the School of Computing



# Min Suk Kang (<https://netsp.kaist.ac.kr>)

- Assistant Prof., School of Computing, KAIST (Since Aug 2020)
- Assistant Prof., School of Computing, NUS (2016-2020)
- Ph.D. ECE, Carnegie Mellon Univ (2016)
- MS & BS, EE, KAIST, South Korea (2008 & 2006)

[ACSAC'18]

[WiSec'13]

## List of blockchain research projects:

- Partitioning Bitcoin peer-to-peer networks
- Guaranteeing partition-resistant blockchain p2p
- Low-cost eclipse attacks in Ethereum
- Mixing Bitcoin transactions for better privacy
- Discovering consensus bugs in Bitcoin and Ethereum
- Enforcing network service guarantees for public blockchains
- ...

Privacy



# Sukyoung Ryu

(<https://plrg.kaist.ac.kr>)

- Head, School of Computing, KAIST (Since March 2021)
- Assistant/Associate/Full Professor, School of Computing, KAIST (Since December 2009)
- Ph.D., CS, KAIST (2001)

## Preventing/Finding/Fixing Bugs & Vulnerabilities

<https://plrg.kaist.ac.kr/research/publications>

Automatic Translation of C to Rust  
[ICSE 2023]

Programming Language Tools  
[FSE 2022 & PLDI 2023]

Finding Bugs in JavaScript Apps  
[IEEE SW 2019 & FSE 2021]

Automatic Software Generation  
[ASE 2020/2021 & ICSE 2021]

Vulnerabilities in Various Langs  
[ASE 2020 & ICSE 2020/2021]

Preventing Bugs by Type System  
[POPL 2019 & ICSE 2019]

Please call me **Jason**



**Web3@KAIST**

Building Web3 Apps to Solve Real Problems

2023 – Present  
KAIST School of Computing  
Adjunct Professor

**Web3**



2018 – 2022  
Founder & CEO

**Blockchain**



2014 – 2018  
Cofounder & CTO

**VC &  
Accelerator**



2011 – 2014  
CEO

2007 – 2011  
Founder & CEO  
(Acquired by KT)

**Big Data  
Cloud  
Computing**



2007 – 2015  
KAIST IM MBA Adjunct Professor



2000 – 2005  
KAIST EECS Ph.D

**Distributed  
Computing**



# Teaching Assistant



## Mingyu Jo (Aaron)

- Undergraduate of KAIST School of Computing
- Co-Founder of ATIV
- Vice-President of Decipher

### Contact

- [jomingue2107@gmail.com](mailto:jomingue2107@gmail.com)
- telegram: @jmg2107

# Course Objectives

- Understanding the principles and concepts of web3
- Understanding the full stack of web3 technology
- Exploring real-world use cases
- Applying web3 to real-world problems
- Building and deploying web3 applications



- Use this class as a starting point for your Web3 journey
- Add blockchain and Web3 to your skillset (It's rare!)

# Course Culture and Policy

- **Learn by doing**
  - The best way to learn Web3 is to dive into it
- **Do it yourself**
  - You get what you put into it. No one will push you.
  - No homework, no exam, no quiz
  - Only a final project implementing a Web3 app
- **Be respectful**
  - Everyone has different ideas and goals
- **Try to accept first, criticize later**
  - If you criticize from the start, you will learn nothing.

# Course Curriculum

- **The first half(by mid-term): the basic and development of web3**
  - web3 concept and use cases
  - blockchain technology basic and advanced topics
  - smart contract programming with solidity
  - web3 app development
  - web3 tokenomics and governance
- **The second half: the web3 stacks and applications**
  - Fungible asset application (crypto, stablecoins, DeFi)
  - Non-fungible asset application (NFT, SBT, etc)
  - web3 in creator economy, IP business and metaverse
  - web3 games and DAO(decentralized autonomous organization)
  - Guest lectures on real-world web3 apps

# Final Projects – Overview

- **Grading: Pass / Fail (S/U Grades only; no letter grades)**
  - Students chooses from 1) a Web3 app prototype or  
2) a Web3 startup proposal.
  - “Pass” will be given only when a student
    - 1) demonstrates a complete Web3 app prototype (Option 1) or
    - 2) presents a promising Web3 startup proposal (Option 2)
  - Attendance alone does not guarantee “Pass”
- **Recommend a team of up to 3 people for a project**
  - Allow you to create a team with any students or external auditors
  - Allow for one-person team with no benefits
  - Highly recommended to be mentored by industry experts
  - Matching with mentors will be given in the class community

# Final Projects – Two Options

- **Option 1. Web3 app prototype**

- Building a Web3 app prototype with smart contracts and web frontend
- Highly recommended to use EVM-compatible blockchains like Ethereum, Klaytn, Polygon, L2, etc
- Deliverable: 1) Web3 app introduction deck (a presentation file under 10 slides)
  - 2) Running Web3 app and public git repository
  - 3) Video presenting the Web3 app prototype running (5 minutes)

- **Option 2. Web3 startup proposal**

- Planning a Web3 app and building an architecture of the Web3 app
- Proposing an incentive model and a governance scheme for a target community
- Deliverable: 1) Web3 app whitepaper (a word file under 10 pages)
  - 2) Web3 startup pitch deck (a presentation file under 10 slides)
  - 3) Video presenting the pitch deck (5 minutes)

# Final Projects – Schedule

- 8 March – 14 March: Join discord (slide 15)
- 8 March – 31 March: Form a project team (slide 10)
- 8 March – 31 March: Post ideas to the project idea board (slide 20)
- 27 March – 31 March: Match mentors and project teams (slide 21)
- 1 April – 14 April: Submit the 1 page proposal of a final project  
(Idea change will be allowed in the final deliverable)
- 14 April – 30 May: Submit a final project
- 31 May – 6 June: Evaluate final projects
- 7 June(The last lecture): Award outstanding projects

# Policy for auditors

- **Auditors have no obligation to the class**
- **Auditors are allowed to do everything students do**
  - Listen the lectures
  - Join the class community
  - Work on a final project (mentoring will be provided)
- **Advice for auditors**
  - Be proactive. **We will treat you the same as students**
  - Take the time to learn Web3 properly
  - Make Web3 your own by doing a final project
  - Make good use of the community



# Class Community Overview

# Web3@KAIST: Class Community

- **Why Community?**
  - **Learn by doing** (A community is the core of web3)
  - Connecting students and mentors(industry experts)
  - **Serving as target users of your web3 app**
- **Community members: total 371 people**
  - KAIST students: 176
  - External auditors: 124 (from other universities and industries)
  - Mentors (industry experts): 58
  - Community staff: 9
  - Teaching assistant: 1
  - Professors: 3

# Web3@KAIST: Class Community

- **Running the community via Discord**
  - Participants should **join by 14 March**
  - Speaking english is not mandatory
- **What will happen in the community?**
  - **Notices will be announced**
  - Mentors will answer questions on lectures
  - Mentors will guide final projects
  - Mentors will provide off-site seminars
  - Participants will team up for final projects
  - Participants can make sub-groups for interested topics

# Mentors

- **Roles**

- Answer question on lectures and Web3 topics
- Guide final projects
- Provide off-site seminars
- And more. **Welcome any proposals and crazy ideas!**

- **58 industry experts**

- Invite them from blockchain industry and vertical domains
- Cover all topics of Web3 and blockchain
- Full list

<http://web3classdao.xyz/kaist/mentor/>

# Community Staff

- **Roles**

- Manage the community
- Help members engage with the community
- Lead the community to be active

- **Contact**

- **Discord moderator:** questions about Discord  
Victor Park, leafcat92@gmail.com
- **Community staff leader:** questions about the community  
MinJun Kim, minjun@pi-lab.io
- **Community staff**  
<http://web3classdao.xyz/kaist/staff/#community-staff-volunteer>

# Mentor Office Hours

- **Office hours on discord**

- Mentors will cover Q&A on lectures and any web3 topics
- Tuesday through Friday evenings from 8pm to 12am (KST)
- Each mentor will arrange 1 hour a week
- Mentors in other time zones will set their own office hours

- **How to ask**

- Choose the right Discord channel  
(development, product, business,  
tokenomics, community/governance, etc)
- Ask questions without choosing a mentor (option 1)  
→ some mentors who are in the office hour will answer
- Ask questions to a specific mentor by mentioning him/her (option 2)
- **!!! DON'T send Discord DMs to a mentor !!! (DM is not allowed on Discord)**
- Send an email to a mentor instead of DM (refer to the class website)

# Mentor off-site seminars

- **Off-site Web3 seminars**
  - Mentors will voluntarily present Web3 topics that aren't covered in the class
  - It's not included in the regular class
  - Attendance is **completely optional**
  - **Anyone can attend**, regardless of the class
  - Mentors can limit attendance to the class community if they wish
- **Run with Orakle (KAIST Blockchain Society) together**
  - Orakle will help organize the seminars
  - The staff leader MinJun Kim(minjun.kim@soonilabs.com) is the president of Orakle

# Web3@KAIST x Orakle Open Seminar Schedule (Final)

Date/Time	Title	Speaker	Place
3/20(19:00)	Wallet types, technologies, and future developments	Minho Yoo (CSO @ IoTrust (D'CENT Wallet))	Offline (Hashed, Seoul)
3/27 (19:00)	DSRV: Validator & Web 3.0 Infrastructure	Jiyun Kim (CEO @ DSRV)	Offline (MARU180, Seoul)
4/3(19:00)	Web3 Mass Adoption: Game and Intra	Geon-gi Moon (CEO @ Haechi Labs)	Offline (MARU180, Seoul)
4/10(19:00)	Applying Web3 to offline real-world cases	William Wooseok Jang (CSO @ Allink)	Offline (MARU180, Seoul)
4/17(19:00)	Web3 practices and possibilities in the advertising industry	Kyunsin Kim (CEO @ PAULUS)	Offline (MARU180, Seoul)
4/24(19:00)	ReFi, Regenerative Finance	JinYoung Yoo (Core Member @ ReFi Seoul)	Online
5/1(19:00)	Introduction to Ethereum	Wanseob Lim (Technical Lead @ Ethereum Foundation)	Offline (KAIST)
5/8(19:00)	Applied Cryptography for Ethereum	Wanseob Lim (Technical Lead @ Ethereum Foundation)	Offline (KAIST)
5/15(19:00)	Zero Knowledge Proof, Layer2 and Rollup-centric Ethereum	Jihoon Park (CEO @ Radius.xyz)	Offline (KAIST)
5/22(19:00)	Creative approaches to Web3-related Intellectual Property with case studies	Kangwook Lee (Patent / Trademark Attorney @ KNK Intellectual Property & Law)	Offline (MARU180, Seoul)
5/29(19:00)	How to Bring AI to Web 3.0	Minhyun Kim (CEO @ Common Computer)	Offline (Uncommon, Seoul)
6/1(19:00)	Starknet & ZK Rollup	Kunho Kim (CEO @ Topology)	Offline (KAIST)
6/5(19:00)	L1 Blockchain Platform Governance	Younho Lee (Head of Business&Governance @ Klaytn Foundation)	Offline (MARU180, Seoul)



# Web3 Project Idea Board

- **Project Idea Board**
  - Gathering project ideas in advance from mentors and students
  - Used for matchmaking mentors and project teams
  - Simple form of title, abstracts, proposer
  - No worry about duplicated ideas (it's for matchmaking)
  - Allowed to fork other's ideas with improvement
  - If your idea is confidential, DON'T post it
- **How to run the board**
  - Gather ideas through [Google survey](#)
  - Share [the responses Google spreadsheet](#) in a view mode

# Final Project Mentoring

- **Final projects with mentors**
  - Highly recommended to get mentored
  - Multiple mentors are allowed for a project team
  - No mentor is allowed for a project team if they want
- **Matching mentors and project teams**
  - It's up to mentors and project teams
  - Appeal yourself in the project idea board and discord
  - A project team can reach out to mentors of their choice
  - A mentor can reach out to project teams of his/her choice
  - If you need a help, please contact community staff

# Hackathon/Ideathon with Final Projects

- **Running Hackathon/Ideathon**
  - Hackathon with Web3 app prototypes
  - Ideathon with Web3 startup proposals
  - Giving students chance to enhance the projects
  - Transforming outstanding projects into real apps or startups
- **How to organize**
  - The class community may organize it with other Web3 communities and companies of mentors
  - The progress will be shared on Discord
  - If you are interested in organizing Hackathon, please contact the community staff leader

# Certificates of completion

- **SBT Certificates of completion for the course**
  - Students and auditors who passed the course by working on a final project
  - No project, no certificate
  - Not an official certificate from KAIST,  
but a community certificate issued by Jason
  - It will be issued by SBT, Soulbound Token, which is non-transferable NFT
  - It will not carry any monetary benefits and cannot be traded
  - It can be used as proof of course completion

# Rewards for outstanding projects

- **SBT Awards for top projects**
  - Award top projects with SBT
  - Top 3 projects in web3 app prototypes (option 1)
  - Top 3 projects in web3 startup proposals (option 2)
- **Chance to present projects**
  - Awarded top 3 projects in option 1 and 2 will present in the last lecture  
VC will join and comment
  - If a project team want to build a startup, VCs will help them potentially
- **Mentoring chat with Jason**
  - Awarded top 6 projects will have a chance to meet Jason
  - If a project team want to build a startup, Jason will help them

# Rewards for outstanding community members

- **SBT Awards for top community members (students, auditors)**
  - Award top 5 community members with SBT
  - The selection process will be announced later
- **Coffee chat with Jason**
  - Awarded top 5 members will have a chance to meet Jason

# Rewards for outstanding mentors

- **SBT Awards for top mentors**
  - Award top 3 mentors with SBT
  - The selection process will be announced later
- **Coffee chat with Jason**
  - Awarded top 3 mentors will have a chance to meet Jason

# Notice

- **Students should join Discord by 14 March**
  - Leave a brief intro on the #self-introduction channel
- **This presentation material will be shared on Discord**
- **Q&A session about the class on Discord today night**
  - 9pm – 11pm today (8<sup>th</sup> March)
  - I'll be waiting on the channel #class-faq
  - This is called as AMA (Ask me anything) in the blockchain space



# Notice

- **Recommend taking the survey. (by Wed 15<sup>th</sup> March)**
  - You need to install a Metamask wallet in a chrome browser
  - You need to connect the wallet to Polygon and Klaytn  
(with the same address as Ethereum)
  - Put the address to the survey
  - Jason will send your address 10 MATIC(Polygon) and 40 KLAY(Klaytn)  
so you can try it out. That's a total of \$19.1 (\$25,000)  
(At 11pm on March 8th, MATIC is at \$1.11 and KLAY is at \$0.2)
  - Jason will send them in batches on the 16<sup>th</sup> and 17<sup>th</sup> March.
  - This applies to every community members

# Q & A

[Reminder] 9pm – 11pm today, Q&A session about the class  
on Discord the channel #class-faq