

# GYUMIN HWANGBO

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## EDUCATION

<b>Pusan National University</b> Master of Computer Engineering	2020.09 - 2022.08 GPA: 4.25
<b>Pusan National University</b> Bachelor of Computer Sciences and Engineering Major	2014.03 - 2020.08
<b>Puil Foreign Language Highschool</b>	2010.03 - 2013.02

## PROJECT

**Chatting Server( Java/Spring-Boot ) | [Github](#) | [Blog](#)** 2022.10 – present  
Spring-Boot/Cloud/Security/Data-JPA, AWS-ECR/Route53/EKS/CloudWatch/RDS, PostgreSQL, Redis, JWT, Kafka

- Optimizing chat API. [180% improvements](#) in average of TPS and [39% improvements](#) in P95 MTTFB, [30% improvements](#) in average change MTTFB by applying JPA batch, K8S-HPA, AWS Node Auto scale-out, DB indexing, Caching, etc.
- Developed automatic pod scaling for a chat server using Kubernetes HPA (Horizontal Pod Autoscaler), effectively distributing workload.
- Develop services with TDD
- Implement performance monitoring by collecting metrics with Micrometer, aggregating them in Prometheus, and displaying API RTT, Repository, and method execution times via customized Grafana dashboards for real-time performance enhancements.
- [CI/CD](#) with Docker, Git Actions, Shellscript, AWS-EKS/ECR.
- Server load testing using nGrinder and custom-developed Gotybench, allowing for accurate assessment of server performance.
- Utilized Redis as a fast, in-memory data store for RDB caching and JWT refreshToken storage, enhancing overall system efficiency.
- Implemented automated node scaling in AWS-EKS using Auto-scaling groups and AWS CloudWatch, distributing load by setting the average node CPU utilization threshold at 50%.
- Connected external EC2 NFS server with PV and PVC, ensuring persistence of RDB and other data.

**XAI-Based Vulnerability Detection Web Service( Java/Spring-Boot )** 2023.06 – 2023.12

- CI/CD model/main backend/frontend servers using Git Actions, Docker, and Shell script. Backend
- Implemented Kafka MQ to prevent session loss due to API communications taking 1 to 10 minutes between the model and main servers
- Developed payment pre/post-verification, user management, license management, and vulnerability service APIs using Java17 and Spring Boot
- 155 test cases to ensure rapid and error-free service development
- Implement fast user authentication storage by storing JWT refreshTokens in Redis, utilized as remote memory.
- Designed the entire PostgreSQL RDB schema

## HTTP Benchmark Tool(Golang) | [Github](#)

- Automation using Docker 2023.01
- Multi-threading for concurrent processing with goroutine

## PAPER

- Blockchain Eclipse Attack Design Exploiting Multiple Geth Vulnerabilities(**first author**) 2020.09 – 2022.01

Paper : <https://scienceon.kisti.re.kr/srch/selectPORSrchArticleOrgnl.do?cn=DIKO0016457502>

- Analysis of Ethereum Eclipse Attack, KIISC(Korea Institute of Information Security & Cryptology) Blockchain and Financial Security(**first author**) Feb. 18<sup>th</sup>. 2021

Paper : <https://ghkdqhrbals.github.io/assets/img/EthereumEclipseAttackAnalysis.pdf>

## WORK

### Java Developer - 6 month

Senior Backend Developer in FOXEE (inc.) 2023.06 - 2023.12

- Develop java backend and infrastructures of XAI malware detection service

### Student Worker - 2 years

Master Researcher in Software & System Security Laboratory 2020.09 - 2022.12

- Develop security program of malicious code using AI
- Develop security program of Ethereum blockchain and vulnerability analysis

### Internship - 2 month

Data analyst & JAVA programmer in Pulse Co., Ltd. 2020.01 - 2020.02

- Develop JAVA program of employee schedule management module
- Analysis of application user behavior patterns

## AWARD

Special prize in 2021 Convergence Security Graduate School Hackathon Competition 2021.12

Encouragement prize in 2020 K-cyber security challenge(KISA) 2020.12

## ACTIVITY

2021 Convergence Security Graduate School Hackathon Competition 2021.09 - 2021.12

2021 Cybersecurity AI/big data challenge, Korea Internet & Security Agency(KISA) 2021.09 - 2021.11

2020 K-cyber security challenge, Korea Internet & Security Agency(KISA) 2020.09 - 2020.12

Summer education program in San Jose State Univ. 1 Washinton Square, CA, USA 2019.07 - 2019.12

Winter education program in HELP Univ. Bukit Damansara 50490 Kuala Lumpur, Malaysia 2017.12 - 2018.03