

Mincheol Kim

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About Me :

A backend developer with hands-on experience across infrastructure and backend systems

I have led backend development for various modules—including messaging, authentication, file storage (Drive), and large-scale WebSocket-based push messaging servers—covering everything from REST API design and database modeling (ERD) to server performance optimization. A standout achievement is the successful design and implementation of the backend for the Seoul Metropolitan Office of Education's cloud-based collaboration platform, which serves over 100,000 users. This project demonstrated my ability to architect and operate systems that handle high traffic at scale.

In addition, I bring strong DevOps expertise, having built CI/CD pipelines and deployed services across both cloud-native and air-gapped environments. I also have experience leading cross-functional teams, fostering collaboration among developers in various roles to generate technical synergy and deliver high-quality solutions.

Tech Stack

Aa 속성	≡ Proficient	≡ Familiar	≡ Basic Understanding
Language	JAVA	GO, JavaScript, Python	C/C++, Fortran, TypeScript
DevOps	ArgoCD, Docker, Gitlab CI/CD, Harbor Registry, Helm Chart, Jenkins, Jeus, Kubernetes, Nginx, Tomcat, WebToB	Grafana, Prometheus	
Cloud	HyperCloud	AWS, GCP, GKE	
Back-End	JPA, ProObject, QueryDSL, Spring/SpringBoot	Atillery, MyBatis, Spring Batch	fastapi, go-chi
Database	MySQL, PostgreSQL, Tibeo	Neo4j, Redis	

Work Experience

KAKAO Enterprise

Search Division
Backend Engineer
2025.04~

KAKAO Integrated Search Engine

2024.04~

Description

- Developed and operated servers for KakaoTalk #Search and Daum·Nate unified search
- Maintained query filtering systems to enhance search quality and stability

Uclick

Backend Engineer
2025.03

Datafy

2024.03

Description

- Built an internal AI agent for natural language queries on HR, accounting, and sales data
- Implemented an LLM-based Q&A system to support decision-making and internal data search

TMAX WAPL

Backend Engineer
2020.09 - 2024.11

1. TMAX SuperApp

2022.09 ~ 2024.11

Description

- Developed a unified no-code platform enabling B2C users to create and deploy apps easily
- Delivered custom-built apps as B2B services based on client requirements
- Participated in key B2B projects, including:
 - 1-1. Seoul Metropolitan Office of Education & Korean Army cloud-based collaboration platform
 - 1-2. Samsung Electronics e-Tech webinar messenger
 - 1-3. Seonggong Restaurant community platform
 - 1-4. MiraeN AI-powered textbook & POSCO lunchbox service

2. TMAX WAPL Collaboration Tool

2022.09 ~ 2024.11

Description

- Collaboration tool with messenger, drive, notes, calendar, and meeting features
- Offered as a subscription-based SaaS service for enterprise clients

Project Detail

KAKAO Enterprise

검색CIC
Backend Engineer
2025.04~

TASKS AND CONTRIBUTIONS

Back-End

- Developed and operated KakaoTalk #Search and Daum-Nate unified search servers using Golang
 - Built Redis-based caching and keyword suggestion APIs for fast query response
 - Designed MySQL schema for collecting search logs and storing statistical data
 - Minimized service downtime with a stable, scalable MSA-based architecture

- Maintained and improved filtering and anomaly detection servers
 - Operated real-time systems for detecting abnormal search trends and applying filtering rules
 - Enhanced performance using Redis Pub/Sub and asynchronous queue-based event processing

DevOps

- Designed and automated CI/CD pipelines for MSA-based services using Jenkins and Argo CD
 - Set up Kubernetes deployment automation with YAML and Helm Charts
 - Built local development and testing environments using Docker Compose
- Operated and monitored search servers on Kakao Cloud
- Automated ad-hoc batch jobs with Argo Workflows and optimized operations

Tech Stack

- Back-End

Golang Redis Mysql

- DevOps

Kakao Cloud Kubernetes Docker-compose Jenkins ArgoCD & Argo Workflows

Uclick

Backend Engineer

2025.03

TASKS AND CONTRIBUTIONS

Back-End

- Developed an admin tool to convert Douzone ERP RDBMS schemas into LLM-based Graph DB schemas
- Scheduled regular synchronization of modeled RDBMS data to Neo4j using batch jobs
- Efficiently handled large-scale data loads and updates with multithreaded batch processing

DevOps

- Designed and optimized GKE node pools on GCP under resource and budget constraints
- Set up monitoring with Prometheus and Grafana, including custom dashboard visualizations
- Tuned Neo4j memory and CPU performance based on monitoring insights
- Ensured stability by assigning dedicated high-performance nodes for Neo4j using taints and tolerations in Kubernetes

Tech Stack

- Back-End

Python fastapi PostgreSQL Neo4j LangGraph & LangChain

- DevOps

Google Cloud Platform Bitbucket ArgoCD Univicorn

1-1. 서울시 교육청 육군본부 클라우드 통합협업플랫폼

기간: 2022.11~2024.11

규모: 총 ~12만명

(교육공무원, 학부모)

고객사: 서울시 교육청

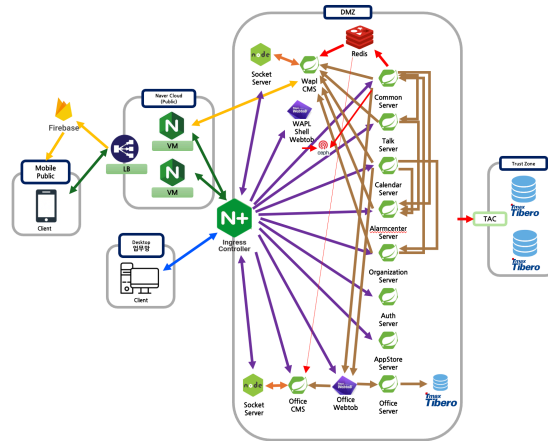
TASKS AND CONTRIBUTIONS

Back-End

- Messenger Server Development
 - Designed an ERD optimized for real-time messaging data structures
 - Implemented core features such as message CRUD and search with high stability
 - Optimized unread message counting logic to improve performance and user experience
 - Conducted large-scale load testing to verify system stability and performance
 - Applied Clean Architecture for flexible and maintainable code structure
 - Improved query performance through execution plan analysis and optimization
- Authentication Server Development
 - Developed a JWT & session-based authentication server using Keycloak
 - Centralized common authentication logic using Spring Filters
 - Built a user access history tracking feature
 - Integrated SSO login with Seoul Metropolitan Office of Education's internal systems
- HR System Integration
 - Synchronized personnel data via Spring APIs and DB-to-DB connections
 - Automated periodic updates using DB schedulers and PL/SQL for source HR data

DevOps

- Closed-Network Deployment for Seoul Metropolitan Office of Education
 - Led product installation in a closed network environment with external mobile access support
 - Analyzed security issues under strict firewall policies and resolved them in collaboration with security teams
 - Deployed monitoring systems for real-time visibility into cluster and application performance
 - Set up secure communication by managing SSL/TLS certificate issuance and applying them to web servers
- Designed MSA-based server architecture



- Built a company-wide CI/CD pipeline for the entire development division
- Managed and operated development infrastructure
 - Set up and maintained on-premise GitLab, including version upgrades and resource monitoring
 - Deployed and operated Kubernetes-based servers for the development division

Leadership and Communication

- Led a development team of 3 front-end and 6 back-end engineers, driving project execution
- Established code conventions and a code review culture to improve code quality
- Coordinated feature details and timelines through close collaboration with the PM
- Communicated directly with clients to resolve issues during product development
- Worked with Seoul Metropolitan Office of Education's NICE engineers to test and implement SSO integration

Key Results

- Improved messenger performance by 30% compared to the legacy system
- Enhanced both security and efficiency by combining JWT and session-based authentication
- Built and operated a system capable of handling over 100,000 concurrent users
- Reduced build and deployment time by establishing a CI/CD pipeline

Tech Stack

Back-End

Java Spring Boot Spring Batch QueryDSL Mybatis Spring Data JPA Tibero Redis Cluster FCM Artillery

DevOps

Nginx Tomcat Naver Cloud Platform Kubernetes Helm Chart GitLab CI/CD Docker Harbor Registry ArgoCD Prometheus Grafana

1-2. 삼성전자 이테크 웨비나 메신저

기간: 2023.11~2024.11

규모: ~10만명

고객사: 삼성전자

TASKS AND CONTRIBUTIONS

Back-End

- Built a large-scale messenger server
 - Designed backend architecture to handle over 100,000 concurrent users
 - Implemented real-time messaging system using the Pub/Sub pattern
 - Conducted large-scale load testing to validate system stability and performance
 - Performed redundancy and failover testing; optimized Kubernetes settings to achieve failover within 5 seconds

Leadership and Communication

- Led the project task force team as technical lead
- Communicated directly with clients to resolve issues and manage incidents

Key Results

- Achieved stable performance with over 120,000 concurrent users during load tests
- Maintained average message delivery latency under 50ms, improving user experience
- Reduced service recovery time to under 5 seconds through failover optimization

Tech Stack

- Back-End

Java Spring Boot Tiberio Redis Kafka Zookeeper

- DevOps

Nginx Tomcat Kubernetes

1-3. 성공식당 커뮤니티

기간: 2022.11~2023.12

규모: 총 ~2만명

고객사: 푸디스트

Tasks and Contributions

Back-End

- Developed real-time WebSocket & FCM push messaging server
 - Designed scalable architecture to handle high traffic with flexible scale-out capabilities
 - Implemented stable delivery of WebSocket and FCM push messages to multiple users
 - Managed WebSocket sessions using Spring Batch for periodic cleanup and stability
- Search Engine Optimization (SEO)
 - Configured Nginx to route users and crawler bots to different servers
 - Solved SPA SEO issues by integrating a JavaScript prerender server
 - Successfully indexed the site on Google and Naver through SEO optimization

DevOps

- Implemented Nginx static file caching to reduce data usage and improve performance
- Designed an MSA-based server update strategy focused on user experience
- Deployed and managed the product using container orchestration on AWS Kubernetes

Leadership and Communication

- Led development meetings and improved authentication logic design
- Created common authentication guides and collaborated across development teams
- Coordinated features and timelines directly with clients

Key Results

- Successfully operated a high-volume push messaging server with stability
- Increased site traffic through improved visibility on Google and Naver via SEO

Tech Stack

- Back-End

Java Spring Boot Spring Batch QueryDSL Mybatis Spring Data JPA Tiberio

- DevOps

Nginx Tomcat Kubernetes Prometheus , Grafana

1-4. 포스코 도시락 미래엔 AI 교과서

기간: 2023.11~2024.11

고객사: 포스코, 미래엔

Tasks and Contributions

Back-End

- Authentication Server Development
 - Designed a custom authentication architecture tailored to client requirements, without open-source dependencies
 - Created ERD and API specifications optimized for efficient authentication data processing
 - Designed and provided a frontend authentication SDK

DevOps

- Enabled FCM messaging through a closed-network gateway to communicate with Google servers
- Configured internal firewalls to allow SSO provider access from the DMZ

Leadership and Communication

- Collaborated directly with third-party SSO engineers for login integration
- Coordinated with all development teams to implement shared authentication logic and provided technical documentation

Key Results

- Delivered a stable authentication system for large-scale products
- Improved user convenience by supporting multiple authentication methods

Tech Stack

- Back-End

Java Mybatis Tiberio Netty

- DevOps

Nginx Tomcat Kubernetes Prometheus , Grafana

2. TMAX WAPL 협업툴

Tasks and Contributions

Back-End

- Drive Server Development
 - Designed file upload/download architecture to ensure stable handling of large files
 - Improved storage efficiency through physical file and metadata management architecture
 - Implemented advanced features such as file sharing, versioning, and compressed downloads to enhance user experience

DevOps

- CI/CD Pipeline Implementation
 - Built automated deployment pipelines using Jenkins for both backend and frontend images
 - Managed database query versions (DDL/DML) via Git and automated deployment through Jenkins for operations teams
 - Maintained development infrastructure by regularly updating and stabilizing GitLab CE and Jenkins
- Test, Staging, and Production Environment Setup
 - Deployed frontend, backend, and DB servers in Kubernetes for lab testing and staging environments
 - Optimized system efficiency by analyzing cluster resource usage
 - Introduced real-time monitoring of cluster and application performance
 - Tuned Jeus and WebtoB for performance optimization in the production environment

Key Results

- Reduced deployment time by 50% and deployment errors by 30% through CI/CD automation
- Improved file handling speed by 20%, enhancing user responsiveness
- Increased client satisfaction by providing a stable and efficient collaboration environment

Tech Stack

- Back-End

Java ProObject Framework Tiberio

- DevOps

WebtoB Jeus Prometheus Grafana Jenkins Gitlab Docker

Research Experience

연세관측우주론그룹

Astronomy Researcher

2016.03 - 2019.03

약중력렌즈 효과를 이용한 합병하는 은하단 Abell 115 연구

2016.03 - 2019.03

Description

- Conducted statistical analysis of data extracted from images of galaxy cluster Abell 115 using Python
- Measured the mass distribution and total mass of the cluster, uncovering key insights into its formation and evolution
- Published as **first author** in an SCI journal (*The Astrophysical Journal*)

Tasks and Contributions

- Research Execution
 - Analyzed large-scale observational data statistically and measured mass and distribution of the galaxy cluster using weak gravitational lensing models
 - Led the entire research workflow through programming, from raw astronomical data to final results
- International Collaboration
 - Conducted collaborative research in English with domestic and international Ph.D. researchers
 - Presented research results in English at two international and two domestic academic
- Publication
 - Mincheol Kim *et al* 2019 *ApJ* **874** 143
- Conference Presentations
 - International Conferences
 - AAS 231st Meeting, Washington DC (Jan 2018)
"Mapping the Dark Matter Distribution of Merging Galaxy Cluster Abell 115"
 - KIAS Workshop on Cosmology, Seoul (Nov 2016)
"Weak-Lensing Analysis on Abell 115"
 - Domestic Conferences
 - KAS Fall Meeting, Yeosu (Oct 2017)
"Weak-Lensing Analysis on Abell 115"
 - KAS Spring Meeting, Changwon (Apr 2017)
"Weak-Lensing Analysis of Abell 115 with Subaru"

Tech Stack

- Programming Language
 - Python C/C++ Fortran
- Open Source
 - RAF SExtractor Swarp STIFF RAMSES Athena etc.
- Statistics

Education

Yonsei University Graduate School – Seoul, South Korea (Mar 2016 – Feb 2018)

- Master of Science in Astronomy and Astrophysics
- Conducted research on gravitational lensing caused by dark matter

Yonsei University – Seoul, South Korea (2010 – 2016)

- Bachelor of Science in Astronomy & Astrophysics and Physics
- Completed computer science-related coursework:
 - Object-Oriented Programming, Discrete Mathematics, Advanced Statistics, Electronic Computing (Fortran, C)

Language

- English: Fluent
Conducted lab meetings and collaborative research in English with international Ph.D. advisors and colleagues during three years of graduate school
- Studied abroad in Florida and Arizona, USA (Jun 2019 – Mar 2020)
- TOEIC
935/990
2024.10.13
- OPIC
Advanced Low (AL)
2024.10.13
- TEPS
404/600
2024.03.30

Other Experience

Patent Application 2024.04	"Method and Apparatus for Delivering Messages to Multiple Users" Application No. 1026589010000
Award – TMAX Maestro 2023.01	Presented to the top-performing researcher across all TMAX affiliates in 2022
Publication – First Author in SCI Journal 2019.04	Multiwavelength Analysis of the Merging Galaxy Cluster A115 Kim, M., Jee, M. J., Finner, K., et al. 2019, ApJ, 874, 143 Citation - 18 (2025.02.20 기준)
Military Service – Republic of Korea Marine Corps 2011.03-2012.12	Served in the 2nd Division, Combat Engineer Battalion Honorably discharged with the rank of Sergeant