

# Ian (Hsinyen) Wu

Boston, MA | (469) 497-7719 | [wu.hsin@northeastern.edu](mailto:wu.hsin@northeastern.edu) | [linkedin.com/in/ianwu0915](https://www.linkedin.com/in/ianwu0915)

## EDUCATION

### Northeastern University

*Master of Computer Science, GPA: 3.73/4.0*

Sep 2022 - May 2025

*Boston, MA*

**Coursework:** Algorithm, Object-Oriented Design, Cloud Computing, Computer Networking, Mobile Dev, Database Design, Web Dev

## WORK EXPERIENCE

### AI Roboto Edu

May 2024 - Present

#### Software Engineer Intern

Los Angeles, CA

- Developed APIs with Spring Boot and improved MySQL performance by refining queries and adding indexes, cutting response times by 15%.
- Integrated Redis for caching and Elasticsearch for course search, boosting performance and functionality.
- Designed a visually appealing and high-responsive front-end UI with Next.js and Material UI, enhancing user experience and engagement.
- Optimized state management using Redux, cutting API calls by 30% and boosting data retrieval speed by 20%.
- Implemented a CI/CD pipeline with GitHub Actions, streamlining development and deployment efficiency.
- Enhanced data management using Amazon RDS for transactional data and S3 for course media, balancing performance requirements with cost-effectiveness.

## SELECTED PROJECTS

### High-Performance Online Gaming Platform

May 2024 - Jul 2024

- Developed Spring Boot platform for user/game management, payments, leaderboards, and social features. Supports 10,000 concurrent users, 3,000 TPS, with P99 latency under 1s. Implemented dynamic resource loading and efficient concurrency.
- Optimized frontend performance using Webpack for bundling and compressing static resources. Configured HTTP cache headers to reduce unnecessary network requests.
- Built core backend services with Spring Boot, including user authentication, game data processing, and transaction management.
- Implemented MySQL sharding and partitioning for user data, game resources, and transaction records to optimize query performance.
- Utilized Redis caching for user info, game configurations, and leaderboards to reduce database queries. Configured TTL for data expiration.
- Managed sessions using double MD5 hashing for passwords and Redis for distributed sessions, addressing processor cluster session sharing. Implemented ArgumentResolver to parse user objects from requests.
- Developed a JWT-based token authentication mechanism, supporting multiple login methods while ensuring user information security.

### Distributed KV storage system

Mar 2024 - May 2024

- Developed a distributed Key-Value storage system in Java with high availability and strong consistency, achieving 20,000 QPS for 4KB mixed read/write operations with a P99 latency of 800ms.
- Implemented Raft consensus algorithm, with core functions such as Leader election, log replication, and snapshot update.
- Engineered a dynamic data partitioning system with consistent hashing, enabling seamless horizontal scaling and load balancing.
- Optimized read performance with asynchronous Apply, ReadIndex, and FollowerRead. Implemented Prevote mechanism, reducing unnecessary leader elections by 80% and enhancing system stability in unreliable network condition.
- Containerized the system with Docker and orchestrated via Kubernetes, reducing deployment time by 95% and system downtime by 90% through rapid scaling and automated failover.

### Distributed Search System

Feb 2024 - Apr 2024

- Engineered a high-performance distributed search system in Java, handling massive internet traffic and transactions.
- Configured ZooKeeper clusters, optimizing the leader election algorithm for fault tolerance and horizontal scalability.
- Elevated search accuracy by 50% using the TF-IDF algorithm.
- Enhanced data serialization with Protocol Buffers for efficient data exchange.
- Deployed the system in Docker containers, ensuring routing stability with HAProxy load balancer.
- Implemented Kafka for publish-subscribe messaging in a microservice architecture, efficiently managing high traffic and transactions.

### Kanbas Web App

Apr 2024 - May 2024

- Built a course management web application using JavaScript, React.js, Node.js, Express.js, and MongoDB; implemented RESTful APIs to integrate the frontend with the backend.
- Implemented a scalable multi-session back-end system with a robust quiz feature, optimizing real-time course creation and updates.

## SKILLS

**Languages:** Java, Python, SQL, Shell, HTML/CSS, JavaScript, TypeScript

**Technologies:** Linux, JVM, Git, Kafka, Nginx, Zookeeper, RocketMQ, gRPC, Protocol Buffer

**Frameworks:** Spring Boot, Spring Security, React.js, Express.js, Node.js, Next.js, Redux

**Cloud & DevOps:** AWS, GCP, Kubernetes, Docker, Ansible, Jenkins, Terraform, Github Action, Maven

**Database:** MySQL, PostgreSQL, GraphQL, Redis, MongoDB, RocksDB