

# Hongrui Liu

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## EDUCATION

Northeastern University  
Master of Science, Computer Science

Sep 2022 – Dec 2024

Chongqing University of Technology  
Bachelor of Science, Computer Science

Sep 2018 – Jun 2022

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## TECHNICAL SKILLS

**Programming Languages:** Java, Python, JavaScript, TypeScript, PHP, C++, Go, Ruby

**Frameworks & Tools:** Spring Boot, .NET, Node.js, Laravel, React.js, Flutter, Next.js, Docker, Kubernetes, AWS, Firebase, Redis, Kafka, MySQL, REST API, GraphQL

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## PROFESSIONAL EXPERIENCE

Software Engineer Intern @ Aayats, Atlanta, GA

Jan 2024 – Apr 2024

- Created a full-stack mobile application platform for artists to buy/sell music beats and rent music studio booths, successfully advancing to the final round of the Techstars (startup accelerator), and nearing a successful launch.
- Architected a robust chunked upload solution that allows large files to be uploaded in parts and leverage **AWS S3** to provide upload credentials and merge chunks upon completion, utilizing **Redis** to cache upload progress, significantly improving large file transfer reliability and user experience.
- Crafted the mobile app UI in **Flutter**, using **Riverpod** for global state management and integrating with backend APIs to implement infinite scrolling and filtering on the beats listing page.
- Established authentication with **Express.js** including registration, login, **JWT** dual-token renewal, and **OAuth2** for Google/Apple sign-in.
- Harnessed **Kafka** to decouple the business logic for automatically sending emails upon user registration, increasing the system's throughput by 70% and ensuring reliable delivery of emails under heavy usage.
- Orchestrated a **CI/CD pipeline** using **Docker**, **AWS CodePipeline**, and **AWS Elastic Beanstalk**, enabling seamless and automated deployment of backend servers.

Full-Stack Software Engineer Intern @ PadMatch LLC, Boston, MA

Jul 2023 – Dec 2023

- Designed a property management mobile application, enabling tenants to message property managers, submit maintenance tickets, and pay rent. Successfully released on Google Play and the Apple App Store.
- Engineered backend APIs with **Django** to manage key features like maintenance ticket submission and messaging, leveraging **AWS RDS PostgreSQL** for reliable database management, ensuring data integrity and consistency.
- Built the profile and message pages with **Flutter** using **GetX** for statemanagement.
- Devised a cloud-based monitoring system utilizing **Firebase Cloud Messaging** and **AWS Lambda**, automating real-time database surveillance and instant notification dispatch to tenant applications upon new message arrival, which optimized system responsiveness and improved communication efficiency by 30%.

Full-Stack Software Engineering Intern @ Chongqing Kungang Technology, China

May 2021 - Jul 2021

- Formulated a safety management system for chemical companies, allowing employees to take safety knowledge exams and enabling administrators to manage hazardous safety information.
- Constructed a hazardous device management page using **React** that enables users to view and edit devices, using **Redux**'s tag-based caching mechanism to reduce backend API calls, improving the page's smoothness.
- Built backend functionality for managing hazardous equipment on the admin page, including CRUD operations, using **JPA** as the ORM and **MySQL** as the data storage.
- Applied **Spring Security**, **Spring Cloud API Gateway**, and **JWT** to establish a robust authentication and authorization framework, enhancing system security for employees and administrators.
- Designed database schema for employee exams using **MySQL**, creating secondary indexing to improve query performance for hazardous chemical knowledge tests.

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## PROJECTS

RMart @ Northeastern University

Jan 2023 – Apr 2023

- Developed a full-stack E-commerce application using **Node.js** for the **REST API** and **Next.js** for the frontend, enabling browsing, searching, and purchasing of products.
- Implemented **optimistic locking** in **MySQL** to ensure data consistency during concurrent inventory updates, reducing the risk of overselling.Stripe api for payment integration
- Integrated **Stripe API** for seamless payment processing, enabling secure transactions and handling various payment methods.