

Jiayu Liu

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EDUCATION

New York University

Master of Science in Computer Engineering, GPA 3.7/4.0

Sept. 2022-May 2024

New York City, NY

- **Courses:** Internet Architecture and Protocols, Data Structure and Algorithms, Computer Systems Architecture, Machine Learning, Real Time Embedded Systems, Principle of Database Systems

Boise State University

Bachelor of Science in Computer Science, GPA 3.7/4.0

Aug. 2018-May 2022

Boise, ID

- **Courses:** Data Structures, Design and Analysis of Algorithms, Agile Development, Operating Systems, Linear Algebra

TECHNICAL SKILLS

- **Languages:** Java, JavaScript/TypeScript, Python, SQL, HTML/CSS
- **Frameworks:** Spring Boot, Node.js, Django, React.js
- **Tools & Platforms:** Docker, Terraform, AWS, MySQL, PostgreSQL, Redis, Kafka, Postman, Selenium WebDriver, Git, GitHub Actions Continuous Integration (CI)
- **Software Development Practices:** REST API Development, Object-Oriented Programming, Software Development Life Cycle, Agile Development
- **Miscellaneous:** IntelliJ IDEA, Visual Studio Code, MySQL Workbench, Oracle Data Modeler, Jira/Atlassian

EXPERIENCE

Ra Labs

Software Engineer Intern

May 2023-Aug. 2023

New York City, NY

- Collaborated closely with the project manager to decipher product requirements, and played a pivotal role in identifying and implementing essential backend and blockchain features within a **6-person development team**.
- Executed end-to-end development of **Solidity** smart contracts for user listing, transactions, and Ethereum payments in a data trading SaaS product.
- Designed and built **Nest.js REST API** with TypeORM for CRUD operations on off-chain user information stored persistently in a PostgreSQL **Docker** image.
- Conducted unit tests for smart contracts and the Nest.js backend services with **Jest**, achieving 90% and 87% coverage respectively.
- Integrated **Swagger** documentation accessed over 100+ times by the team for in-browser API testing.
- Implemented **React** front-end with **Redux** for state management across 20+ components, improving the overall usability of the UI.

PROJECTS

Static Site Hosting Service

GitHub: <https://github.com/jLiucoder/nova>

Dec. 2023-Feb. 2024

- Built a static site hosting Service using **Express.js**, automating static site deployments by allowing users to input their GitHub repository link, thus streamlining the build and deployment processes.
- Utilized **Terraform** to automate the setup of AWS services and Upstash services, ensuring infrastructure reproducibility.
- Leveraged **AWS ECS** with **Fargate** for serverless container execution, integrated **S3** for storage, used **Redis** for pub/sub log streaming from container to backend, and **WebSocket** for real-time log delivery from backend to frontend.

One-Room Chat App

GitHub: <https://github.com/jLiucoder/oneRoomChat-remake>

Oct. 2023-Dec. 2023

- Implemented a multi-user, single room real-time chat app using React with Redux, Styled with Tailwind CSS, and enabled real-time communication via WebSocket.
- Utilized **Spring Boot** with **Spring Data JPA** to ensure efficient server-side operations, implemented **JWT** for user authorization.
- Integrated **Redis** as a caching layer to cache messages and used **ZSet** data structure to rank top active users.
- Incorporated **Apache Kafka** as the message queue for asynchronous data processing, to ensure scalability and reliability of the application.
- Wrote **Docker Compose** scripts to streamline the orchestration of services with a single command.

Amusement Park Web App

GitHub: <https://github.com/jLiucoder/amusementpark>

Jan. 2023-May 2023

- Designed a 10-entity database schema using **Oracle Database Modeler** for an amusement park e-commerce website.
- Enhanced data operations with SQL **triggers** to automate aspects of business logic, created **indexes** and **transactions** for search efficiency and ensure data consistency.
- Built **Django** web app with Django's ORM enabling essential CRUD functionalities such as user and shopping cart management.