

Yunan Liu

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Education

Duke University, Master of Engineering

Jan 2022 - Dec 2023

Artificial Intelligence and Robotics

GPA 3.9

Courses: Data Structures and Algorithm, Software Engineering, Data Science & Machine Learning Application

University of Pittsburgh, B.S.

Aug 2017 - May 2021

Mechanical Engineering

Skills

Programming Language: Java (Proficient), JavaScript (Proficient), TypeScript (Proficient), Python (Proficient), HTML (Intermediate), SQL (Intermediate)

Framework & Technology: Spring, Redis, MySQL, Redux, Hibernate, Flask, Kafka, AWS ECS, ExpressJS

Developer Tools: Postman, Git, Jenkins, Gitlab CI/CD, Splunk, pgAdmin, OpenShift

Work Experience

Software Development Engineer, Fiserv (Berkeley Heights, New Jersey)

Jun 2024 - Present

- Designed and maintained a **full-stack** bank account management web application for both customer and administration side with **React** for frontend and **Express.js** and **Spring** framework for backend.
- Designed abstract **API gateway** classes to standardize HTTP requests and database interactions, enabling consistent header management, logging and error handling across multiple services.
- Introduced **Redis** with expiration policies to reduce database load and improve API response times.
- Implemented session management using **Spring Session** and secure HTTP-only cookies, enabling persistent user authentication and session expiration across backend services.
- Leveraged **Redux** to design reusable state management components and implemented **Redux-Thunk** middleware to handle asynchronous and synchronous actions efficiently.
- Utilized **useContext** hook to enhance state management and global data accessibility.
- Implemented **Object-Oriented Design** principles to architect and develop modular, reusable components, improving code maintainability and scalability within the project.
- Developed a **centralized API layer** to standardize data fetching and global error handling, improving code maintainability and scalability across the application.

Software Engineer Internship, Nanolumens (Peachtree Corners, Georgia)

Jun 2023 - Aug 2023

- Designed and implemented a **full-stack** warehouse management system using **Spring** and **React** to achieve efficient database CRUD operation and realized authorization checks for different users.
- Integrated **JWT** token based access control on frontend to protect API requests and user sessions.
- Integrated **Hibernate** to manage communication between backend services and MySQL database, and introduced **AWS S3** for storing unstructured data.
- Realized asynchronous message notification through **RabbitMQ** and **Spring Mail** service.
- Implemented **Redis** for caching and session management to improve application performance.

Software Engineer Internship, Yisen Tech

Jun 2022 - Aug 2022

- Developed a **full-stack** application to manage patient records using **Python**, **React** and **AWS RDS**.
- Designed and built backend APIs using **Python Flask** to retrieve data from AWS RDS, enabling reliable access to relational database resources.
- Implemented CI/CD pipeline by building Docker images and deploying them to **AWS ECR**, with **AWS App Runner** automating application deployment and execution.

Projects

Cloud-Based Photo Management Web App

Feb 2025 – Present

- Delivered a full-stack photo management platform featuring secure user authentication and role-based access control using **Google OAuth 2.0** for admins and regular users.
- Enabled comprehensive CRUD operations on photos, including image resizing and visualization of visited locations, leveraging **AWS S3** and **AWS DynamoDB**.
- Developed **AWS Lambda** functions for image processing and integrated **AWS API Gateway** to route requests between frontend and backend services.
- Created a reusable, sharable lazy-loading gallery component using **React** and **Redux**, optimizing initial load times and minimizing memory usage.