

Chenrui Zhang

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WORK EXPERIENCE

Coursistant

Software Engineer

Los Angeles, CA

September 2024 - Present

- Led end-to-end backend development for an AI-assisted learning platform, defining architecture and implementation plans, allocating tasks, and coordinating delivery with product and engineering teams.
- Developed Spring Boot backend services and exposed RESTful APIs through AWS API Gateway, supporting core application workflows and enabling the AI agent to retrieve and update platform data.
- Reduced average response time for a frequently accessed read API from **700 ms** to **200 ms** through scheduled Redis cache warming before peak traffic periods, composite MySQL indexes, and database connection pooling.
- Developed an AI agent for instructors and students, integrating API tool calling and RAG to support teaching and learning workflows, including data queries and updates, homework assistance, and study planning.

NextTier

Software Engineer Intern

Sacramento, CA

May 2024 - August 2024

- Designed an event-driven backend on AWS using SQS and Lambda for AI-assisted customer queries, enabling asynchronous intent classification and response generation with high availability and sub-second end-to-end latency.
- Architected a scalable DynamoDB data layer for session and conversation storage, supporting **10K** concurrent conversations with single-digit millisecond read latency and **99.9%** uptime.
- Developed a comprehensive testing framework with JUnit and Mockito, achieving high test coverage and validating hundreds of end-to-end conversational scenarios in collaboration with backend teammates.
- Implemented CI/CD pipelines with GitHub Actions and AWS CodePipeline using CloudFormation IaC, reducing deployment time by a large margin while enabling zero-downtime releases.

Psychological Assistance Foundation

Software Engineer Intern

Remote

May 2023 - August 2023

- Built and maintained RESTful donation APIs using Spring Boot, MySQL, and Stripe, handling payment creation, payment status notifications, and donation record updates.
- Developed a responsive donation interface using Vue.js, Vuex, and Vue Router, reducing average page load time by **71%** through route-based code splitting, lazy loading of noncritical resources, image optimization, and prioritized data fetching.

PROJECTS

IBM Coop Project: Data Streaming Platform

Project Developer

Remote

June 2022 - September 2022

- Collaborated with IBM engineers to integrate external data sources into an Azure-based data platform using Kafka, enabling reliable real-time data ingestion at scale.
- Developed end-to-end data integration pipelines using Python and Spark, improving processing efficiency and supporting downstream analytics and visualization workflows.
- Configured and operated the Kafka Confluent Platform (Kafka Connect, Schema Registry, Kafka Cluster, Control Center) to process and manage **500,000+** messages per day with high stability and observability.

Nuomi Player - Android Auto Integration **GitHub**

Java, Android SDK, MediaSession

September 2025 - Present

- Developed a Java-based Android Auto integration layer using MediaSession and MediaBrowserService, enabling in-car playback control, synchronized track metadata and album artwork, and lyrics for supported third-party music apps.
- Implemented automatic session recovery with bounded retries and asynchronous callback validation to prevent stale metadata and lyrics during app switching and reconnection; added JUnit and Robolectric regression tests for session replacement and out-of-order updates.

SELECTED SKILLS

Languages: Java, Python, SQL, JavaScript, TypeScript, C++, Bash

Backend & Testing: Spring Boot, Spring Security, Hibernate, FastAPI, REST APIs, Maven, JUnit, Mockito, Postman

Databases & Messaging: MySQL, PostgreSQL, Redis, Amazon DynamoDB, Apache Kafka, Amazon SQS

Cloud & DevOps: AWS (Lambda, S3, RDS, API Gateway), Docker, Kubernetes, Terraform, Git, GitHub Actions, CI/CD

AI & Retrieval: RAG, API Tool Calling, LangChain, LangGraph, Pinecone, PyTorch, Apache Tika

EDUCATION

New York University

MS, Computer Engineering

September 2023 - May 2025

GPA 3.62

University of California, Davis

BS, Computer Science; BA, Economics

September 2018 - March 2023

Dean's Honor List