Yiyang (Katrina) Qiu

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Education

New York University, Brooklyn, NY Sep.2022-May.2024
Master of Science in Computer Engineering
Ohio State University, Columbus, OH Aug.2018-May.2022
Bachelor of Science in Computer and Information Science, GPA: 3.57/4.0

Skills

Languages: Java, SQL, Python, C++, C#, JavaScript
Software & Tools: Spring Boot, Elasticsearch, Maven, Redis, Mybatis, Kafka, HTML, CSS, MySQL, Kibana, VS Code, Visual Studio, IntelliJ IDEA, Postman, Linux, GitHub, Docker, Oracle Data Modeler, SQL Developer, Android Studio, MySQL Workbench
Additional Skills: RESTful API Design, Microservices Architecture, CI/CD, Agile Methodologies, Cloud Computing (AWS, GCP), Machine Learning, Data Structures and Algorithms

Internship Experience

Backend Software Engineer, Google (Spring boot, Kafka, Elasticsearch) Mar.2024-May.2024

- Spearheaded the development of a high-performance distributed file search system using Java, Spring Boot, and Elasticsearch, implementing a microservices architecture with Docker and Kubernetes that improved retrieval speed by 40%, reduced deployment time by 30%, and scaled to handle 1M+ concurrent users.
- Architected a security framework incorporating JWT-based authentication, role-based access control, and Kafka-driven asynchronous communication between MySQL and Elasticsearch, enhancing system security by 50% while maintaining 99.99% data accuracy.
- Engineered advanced search functionalities, including a custom Elasticsearch analyzer for multi-language support and a ML-based query correction system, resulting in a 35% improvement in search relevance and a 28% reduction in user input errors.
- Optimized system performance through the implementation of multi-threaded file search and strategic use of Java thread pools, achieving a 13% improvement in I/O performance and 20% better CPU utilization.
- Established a proactive issue resolution system by implementing a comprehensive logging and monitoring infrastructure using the ELK (Elasticsearch, Logstash, Kibana) stack, reducing system downtime by 15% and enhancing overall system reliability.
- Pioneered the adoption of CI/CD practices by implementing automated pipelines with Jenkins and GitLab, streamlining the development process and resulting in a 40% reduction in deployment time and significant improvements in code quality and team productivity.

Featured Projects

Distributed Hotel Search Engine System (Elasticsearch, Kibana, SQL, Java, RestClient) Jun.2024-Jul.2024

- Architected and implemented a distributed hotel search platform using Java 11, Spring Boot 2.5, Elasticsearch 7.x, and React.js 17, incorporating RESTful APIs for geolocation-based search and dynamic filtering, resulting in 60% faster search performance and 45% improved query accuracy.
- Optimized Elasticsearch cluster configuration and designed custom analyzers using Lucene, significantly enhancing search relevance for multi-language hotel data and complex query patterns.
- Engineered a fault-tolerant microservices architecture leveraging Docker containers, Kubernetes orchestration, and Apache Kafka for real-time data synchronization, achieving 99.99% system uptime and ensuring data consistency across distributed nodes.

High-Performance Student Information System (Java, Spring Boot, JPA) Jan.2024-Feb.2024

- Developed a scalable student records management system using Java 11, Spring Boot 2.6, JPA/Hibernate, and MySQL 8.0, capable of handling 100,000+ concurrent connections with 50% faster data retrieval through Redis caching implementation.
- Designed and implemented secure RESTful APIs using Spring Security 5.5 and OAuth 2.0, incorporating JWT for stateless authentication and role-based access control (RBAC), resulting in 80% reduction in sensitive data exposure.
- Engineered comprehensive CRUD operations with robust data validation using Hibernate Validator, implementing database transactions with Spring's @Transactional annotation to ensure data integrity across complex workflows.
- Created a responsive Single Page Application (SPA) frontend using React.js 17, Redux for state management, and Material-UI components, integrating with university SAML-based Single Sign-On (SSO) for enhanced security and user experience.

Cloud-Based Car Rental Platform (Html, CSS, PHP) Nov.2023-Dec.2023

- Designed and implemented a full-stack car rental website prototype using PHP 7.4, MySQL 5.7, and HTML5/CSS3, showcasing features such as inventory management and a simulated payment processing system.
- Incorporated security best practices including Bcrypt password hashing, prepared statements to prevent SQL injection, and optimistic locking for data consistency, demonstrating a comprehensive approach to web application security.
- Developed a mock real-time availability tracking system and administrative dashboard using AJAX and jQuery 3.6, integrating data visualization with Chart.js to display simulated booking data and operational metrics.