

# YIZHENG (JERRY) SHI

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## EDUCATION

### Yale University

Master of Science in Computer Science, GPA: 4.0/4.0

Aug 2023 – May 2025

### University of Wisconsin - Madison

Bachelor of Science in Computer Science, GPA: 4.0/4.0

Aug 2020 – May 2023

**Relevant Courses:** Building Scalable Distributed Systems, Network Security, Cloud Computing Architecture, Operating Systems, Computer Networks, Database Systems, Data Structures and Algorithms

## EXPERIENCE

### Software Engineer Intern

May 2024 – Aug 2024

Morningstar

Chicago, IL, USA

- Architected and optimized scalable database solutions using **PostgreSQL** and **DynamoDB**, improving query performance and reliability for over **15TB** of financial records with **99.99%** uptime.
- Engineered a cloud-native database health monitoring system using **AWS Lambda**, **CloudWatch**, and **Python**, detecting slow queries and index inefficiencies, reducing MTTR by **40%** and achieving adoption across **20** internal teams.
- Implemented **DynamoDB** optimization with **Global Secondary Indexes (GSI)** and **Auto Scaling**, reducing average query latency from **500ms** to **200ms** while handling **10K+ QPS**.
- Designed and deployed a **Write-Through Redis** caching layer with **Spring Cache**, reducing database load by **40%** and improving response time from **150ms** to **50ms** during peak hours while maintaining strong consistency.
- Developed an incremental backup strategy using **Write-Ahead Log (WAL)** and **Change Data Capture (CDC)**, achieving **30%** faster backups and recovery time objective (RTO) under **15** minutes.
- Led cross-functional collaboration with senior engineers to analyze database health metrics using **Grafana** and **Prometheus**, resulting in **25%** improvement in overall system reliability.

### Software Engineer Intern

May 2023 – Aug 2023

Barry-Wehmiller

Madison, WI, USA

- Spearheaded migration from monolithic **C#** backend to **Go** microservices with **gRPC**, improving throughput from **2,000** to **9,000 QPS** and reducing inter-service latency by **50%**.
- Architected RESTful APIs with **Spring Cloud** and **Redis** for idempotent telemetry ingestion, reducing data duplication by **30%** and achieving **99.9%** data consistency during A/B testing.
- Engineered real-time data pipeline using **Kafka**, **InfluxDB**, and **Go**, processing **100K messages** with **50ms** latency for **2M+** IoT devices.
- Implemented comprehensive monitoring using **Grafana**, **Prometheus**, and **ELK Stack**, reducing MTTR by **35%**.
- Led a team of **5** interns in developing real-time system health dashboards, resulting in **20%** improvement in system performance.

### Software Engineer Intern

May 2022 – Aug 2022

FIMEC

San Jose, Costa Rica

- Containerized legacy applications using **Docker** and **Kubernetes**, enabling zero-downtime deployments and reducing deployment frequency from weekly to daily with **99.99%** reliability.
- Developed infrastructure as code using **Terraform** and **AWS CloudFormation**, reducing environment setup time by **50%** and achieving **100%** configuration consistency across environments.
- Implemented CI/CD pipeline with **Jenkins**, **Docker**, and **Shell**, reducing deployment time by **50** minutes with **95%** test coverage.
- Created interactive infrastructure visualization tool using **TypeScript**, **Node.js**, and **D3.js**, improving team productivity by **25%**.
- Managed **Kubernetes** cluster with **Helm** charts and custom operators, handling **500+** pods across **3** environments with **99.9%** uptime.

## PROJECTS

### Sky Takeout | React.js, Spring Boot, Elasticsearch, Redis, WebSocket

Aug 2024

- Built a scalable food delivery platform serving **10K+** users with **React.js** frontend and **Spring Boot** backend, handling **100K+** orders
- Implemented real-time search functionality using **ElasticSearch** with custom analyzers and tokenizers, reducing search latency from **500ms** to **50ms** and improving search relevancy by **40%**.
- Designed real-time order tracking system using **WebSocket** and **Redis Pub/Sub**, maintaining **100ms** latency for **5K+** concurrent connections with automatic reconnection and message recovery mechanisms.

### Distributed KV Storage System | Raft, RocksDB, Asynchronous Apply, Prevote, Spring Cloud

- Built a distributed system using **Raft** consensus and **Spring Cloud** microservices, achieving **8,000+ ops/sec** with Seata TCC.
- Optimized I/O performance using **RocksDB**, implementing Redis and MongoDB for diverse workloads, reducing query latency by **40%**.
- Enhanced system throughput by **90%** with Asynchronous Apply and ReadIndex, implementing Redisson distributed locks for concurrent requests and Prevote for leader election stability.

## TECHNICAL SKILLS

**Languages:** Java, Python, JavaScript, TypeScript, Go, Rust, SQL, C/C++, HTML/CSS, Bash, Shell/PowerShell, Swift

**Frameworks/Libraries:** Spring Boot, Spring Cloud, React, Next.js, Express.js, Node.js, Django, Flask, Angular, Redux, MyBatis, MyBatisPlus, Dropwizard, AngularJS

**Cloud/DevOps:** AWS, GCP, Azure, Docker, Kubernetes, Jenkins, GitLab, NGINX, CI/CD, Terraform, Prometheus, Nacos, OpenFeign, Eureka, Ribbon, Microservices, Apache Tomcat

**Databases/Messaging:** MySQL, PostgreSQL, MongoDB, Redis, DynamoDB, AWS S3, Kafka, RabbitMQ, gRPC, Hibernate, Elasticsearch

**Tools/Testing:** Git, Linux, Maven, Selenium, Playwright, Postman, Swagger, GraphQL, JMeter, Splunk, JUnit, Bazel, YApi