

# Shawn Zhao

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## EDUCATION

### University of Illinois Urbana-Champaign

*Master of Computer Science*

Expected Dec 2025

GPA: 3.8/4.0

### Arizona State University

*Bachelor of Science in Computer Science*

Dec 2022

GPA: 3.9/4.0

## EXPERIENCE

### Graduate Researcher

*University of Illinois Urbana-Champaign*

Jan 2025 – Present

*Champaign, IL*

- Conducted research on energy-aware routing and power optimization for inter-satellite links (ISLs) with Prof. Indranil Gupta, in collaboration with PhD students Xiaojuan Ma and Shashwat Jaiswal
- Simulated dynamic LEO satellite constellations using StarryNet to evaluate latency, bandwidth, and routing performance under realistic orbital movement
- Developed routing modules in StarryNet using Python, Docker, and BIRD, and built a modular BandwidthManager for adaptive ISL configuration
- Implemented demand-aware bandwidth allocation with BandwidthManager, saving up to 25% energy while keeping latency within 10% of baseline

### Software Engineer Intern

*Civilience*

Aug 2024 – Apr 2025

*Omaha, NE*

- Built serverless RESTful APIs with AWS Lambda, Python (Flask), and Node.js (Express), improving average response times by 22%
- Migrated legacy APIs to microservices architecture, decreasing request latency from 150ms to 105ms and saving \$1,200 annually in server costs
- Secured authentication with AWS Cognito and managed large-scale data using DynamoDB and RDS
- Automated 30+ IAM role assignments for AWS EC2 and Amplify, saving 30 hours of manual effort each month

### Software Engineer

*Rnd4impact*

Feb 2023 – Mar 2024

*San Jose, CA*

- Developed scalable APIs with Django and PostgreSQL, boosting query time from 350ms to 200ms
- Built Spring Boot microservices with AWS RDS and S3, enabling scalable storage for 100 GB of structured and unstructured data
- Improved software reliability by automating regression tests with Selenium, resolving 20+ production bugs

## PROJECTS

### GEMstack 3D Log Viewer | TypeScript, React.js, Three.js, Next.js, Zustand

Jan 2025 – May 2025

- Contributed to the open-source GEMstack by building a React-Three-Fiber 3D viewer for autonomous vehicle logs
- Created a TypeScript log parser and timeline builder with Zustand for real-time multi-agent visualization
- Achieved 60 FPS playback with smooth interpolation, camera controls, and optimized client-side rendering

### RainStorm | Java, Distributed Systems, Multithreading, Socket Programming

Aug 2024 – Dec 2024

- Built a membership-list protocol with gossip heartbeats, leader election, and node view for P2P coordination
- Developed a multithreaded P2P file system with chunk replication and dynamic discovery for reliable data transfer
- Implemented a real-time Java stream processing system with optimized pipelines (+15% throughput), 2s failure detection/recovery, and dynamic task rescheduling

## TECHNICAL SKILLS

**Languages:** Java, Python, JavaScript, TypeScript, C#, Go, SQL, HTML/CSS

**Frameworks:** Spring Boot, Django, Flask, FastAPI, Node.js, Express.js, Next.js, React.js, Selenium, Jenkins

**Tools:** PostgreSQL, MySQL, MongoDB, SQLite, Redis, Docker, Kubernetes, AWS, GCP