Shawn Zhao

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EDUCATION

University of Illinois Urbana-Champaign Expected Dec 2025
Master of Computer Science *GPA: 3.8/4.0*

Arizona State University Dec 2022
Bachelor of Science in Computer Science *GPA: 3.9/4.0*

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, TypeScript, 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

EXPERIENCE

Graduate Researcher Jan 2025 – Present
University of Illinois Urbana-Champaign *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 Aug 2024 – Apr 2025
Civilience *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 Feb 2023 – Jul 2024
Rnd4impact *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
- Built a responsive frontend using React (Next.js) and TypeScript, improving load time by 800ms
- 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