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, 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

Research Assistant — Jan 2025 – Present
University of Illinois Urbana-Champaign — *Champaign, IL*

- Researched energy-aware routing and power optimization for inter-satellite links (ISLs) with Prof. Indranil Gupta, collaborating with 2 PhD students on 5+ design iterations
- Simulated 100+ dynamic LEO satellites and 20 ground stations in StarryNet to evaluate latency, bandwidth, and routing under realistic orbital motion
- Built a modular BandwidthManager in StarryNet with Python, Docker, and iperf3 (TCP/UDP), supporting 2 adaptive ISL bandwidth allocation modes
- Implemented demand-aware allocation strategies, reducing energy usage by 25% while keeping latency within 10% of baseline across 50+ simulations

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 user authentication with AWS Cognito and managed 500K+ records across DynamoDB and RDS, improving data access latency by 35ms
- Automated 30+ IAM role assignments for AWS EC2 and Amplify using Terraform scripts, saving 30 hours of manual setup time per month

Software Engineer — Feb 2023 – Jul 2024
Rnd4impact — *San Jose, CA*

- Built notification and audit logging microservices in Python (Django) with PostgreSQL, delivering real-time alerts with under 1s latency for 7K+ daily events
- Developed file upload and document management microservices in Java (Spring Boot) with AWS RDS and S3, supporting reliable processing of 1K+ files per week
- Built a responsive frontend using React (Next.js) and TypeScript, reducing load time by 800ms
- Automated regression testing with Selenium and Jenkins, saving 5+ hours of QA time per release and preventing 20+ bugs from reaching production

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