Natalie Ying

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EDUCATION

Northeastern University Jan. 2024 – Dec. 2026
Master of Science in Computer Science; GPA:3.8/4.0 *Boston, MA*
- Coursework: Distributed Systems, OOP, Cloud Computing, Mobile Application Development

PROFESSIONAL EXPERIENCE

We Independent Org. Feb. 2025 – Aug. 2025
Software Engineer Intern *Boston, MA*
- Developed a full-stack immigration support platform, using **Javascript, React**, **Spring Boot**, and **MySQL**, empowering 8000+ dependent visa holders to register and attend events.
- Collaborated with **UX designers** to transform wireframes into responsive and visually appealing interfaces using **JavaScript, React, and Tailwind CSS**, resulting in a 22% increase in user interaction.
- Containerized application with **Docker** and deployed it on **Oracle Cloud Infrastructure** Linux Virtual Machine
- Integrated **GitHub Actions** to automate testing and deployment pipelines, improving **CI/CD** reliability and reducing manual deployment effort by 60%.

Philips Nov. 2022 – Nov. 2023
Research & Development Engineer
- Developed a microservices-based internal Survey Platform using **SpringBoot, SpringCloud, Nacos, PostgreSQL, MyBatis**, enabling product teams to gather real-time feedback from user tests.
- Built modular services for real-time media upload and access, integrating **MinIO**, **Redis**, and **Elasticsearch** to deliver image/audio responses with low latency; reduced data retrieval time from **3–4 seconds to under 200 milliseconds** across 90,000+ records.
- Automated survey reminder scheduling using **RabbitMQ** and **XXL-JOB**, eliminating 900+ manual follow-ups per month through event-driven workflows.
- Introduced distributed transaction control to ensure cross-service consistency, boosting system throughput by 28%.

PROJECTS

Cloud-Native Image Transformation Platform Apr. 2025 – May. 2025
- Built a **Python**-based image processing backend using **FastAPI** and **Pillow**, supporting upload, resize, crop, rotate, format conversion, and filters.
- Implemented **JWT** auth, image metadata tracking, and **RESTful APIs** for transformation and retrieval.
- Integrated **AWS S3** for cloud storage and enabled efficient transformation chaining with dynamic format support.
- Designed and deployed a serverless extension using **AWS SNS** and **AWS Lambda**, where image processing events are published to multiple Lambda functions for parallel filtering tasks, enhancing throughput by over 23× and supporting scalable, modular transformations.

Scalable Video Transcoding & Streaming Pipeline Mar. 2025 – Apr. 2025
- Deployed a **Dockerized** FFmpeg service on **Cloud Run** to transcode videos to 360p on-demand
- Designed an asynchronous video compression pipeline with **Pub/Sub** messaging and **Firebase functions**, reducing **Google Cloud Storage** usage by 40% and sustaining high upload throughput.

Full-Stack Fitness Routine Management Application Dec. 2024 – Mar. 2025
- Developed a full-stack fitness application enabling users to create, view, and manage workout routines.
- Implemented **RESTful APIs** using **Node.js** and **Express**, integrating **MongoDB** for data storage
- Designed a responsive and user-friendly interface with **React** and styled components using **Tailwind CSS**.
- Implemented **JWT authentication** for secure user access and authorization.

TECHNICAL SKILLS

Languages: Java, Go, JavaScript, Python, C/C++, SQL, TypeScript
Frameworks: Spring Boot, Spring Cloud, Node.js, Express.js, Gin, MyBatis, GORM, JPA, React, FastAPI, Pillow, FFmpeg, Tailwind CSS, Redux
Databases and Cloud: MongoDB, MySQL, PostgreSQL, Redis, Firebase, AWS S3, AWS SNS, AWS Lambda, Google Cloud, Oracle Cloud, MinIO, Elasticsearch, Kafka, RabbitMQ
Developer Tools: Git, GitHub, Docker, Kubernetes, Linux, Maven, Nacos, XXL-JOB, Spring Cloud Gateway, JWT