

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.

AI-Driven User Routing & Matching System

Dec. 2024 – Mar. 2025

- Built a real-time user-interviewer routing system with **FastAPI**, **MongoDB**, and **Elasticsearch**, applying **semantic embeddings** (Ollama, Hugging Face) with **KNN** for dynamic project matching.
- Designed a load-balancing mechanism enabling scalable, low-latency routing across multiple interviewers.

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