Ying (Freya) Luo

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WORK EXPERIENCE

AMAZON WEB SERVICES, INC. Seattle, WA
AWS Key Management (KMS) | Software Engineer Aug 2024 - Present

- Led migration of PostgreSQL database authentication to ephemeral IAM credentials across 210+ services; partnered with security teams to eliminate 150+ persistent secrets, and save 3,000+ developer hours annually by automating and standardizing manual datbase password rotation.
- Diagnosed and resolved critical database corruption affecting 2B+ records; collaborated with data performance teams to lead data backfill and load testing, restoring data integrity, ensuring accuracy across 500+ customer tickets, and reducing troubleshooting time by 7,500+ hours annually.
- Architected an event-driven metering service to replace passive batch submissions, cutting daily data processing from 12+ hours to minutes; implemented concurrency to boost read throughput by 30x.
- Mentored an intern on designing and deploying a database schema change workflow on AWS ECS/Fargate; provided architectural guidance and performance tuning insights.

AWS Certificate Manager (ACM) | Software Engineer Feb 2023 - Aug 2024

- Automated infrastructure monitoring for 10+ services across 7 isolated AWS regions, eliminating a 1-hour metrics delay and accelerating incident detection and response by up to 60%.
- Spearheaded the launch of Console infrastructure in Calgary, delivering deployment across 4 applications and 6 pipelines 6 days ahead of schedule while ensuring seamless integration with existing systems.
- Built and delivered a secure, automated certificate revocation tool for 30+ engineers, reducing recurring manual on-call procedures, which saved 25+ developer hours monthly.

AWS Certificate Manager (ACM) | Software Engineer Intern May 2022 - Aug 2022

- Designed and implemented a Lambda service gated by API Gateway, which generates certificate signing requests, encrypts private keys, resulting in 20% latency reduction by optimizing entropy generation.
- Created alarms and Hydra canary tests, achieving 100% success under 1 TPS with concurrent requests.

IFLYTEK CORPORATION | Software Engineer Intern Anhui, China | Oct 2020 - Dec 2020

- Launched a Vue.js-based medical audit web app serving 40+ hospitals and extended its features to iOS.
- Redesigned asynchronous data fetching APIs and optimized MongoDB schemas, improving service performance under heavy load and increasing operational efficiency by 40%.

PROJECTS

CLOUD FILE SYSTEM ⬀ Dec, 2022

- Built a FUSE-based cloud-backed file system with local SSD caching and AWS S3 storage.
- Reduced storage costs and enhanced performance by eliminating data redundancy and enabling real-time snapshots; improved data retrieval speed through advanced caching strategies.

CODING AND TEXT EDITOR ⬀ July, 2022

- Developed an interactive coding environment using React, TypeScript, and Redux middleware.
- Leveraged WebAssembly for in-browser bundling of CommonJS/ES6 modules; secured code execution via cell isolation and cross-domain restrictions.

EDUCATION

Carnegie Mellon University Pittsburgh, PA | Jan 2021 - Dec 2022
Master of Electrical and Computer Engineering; GPA: 3.67/4.00

University of Waterloo Waterloo, ON | Sep 2016 - Jun 2020
Bachelor of Science; GPA: 4.00/4.00 | Dean's Honours

SKILLS

Languages: Java, Python, C/C++, TypeScript, Ruby, SQL, Bash, GraphQL
Frameworks & Libraries: Spring, React, Vue, Node.js, Django, jQuery, Apollo GraphQL, Dagger, Guice
Cloud & DevOps Tools: AWS services, Docker, Git, Maven, Gradle, GDB, Progressive Web Apps