

NATARAJAN PILLAI

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Software Engineer with 2+ years of experience building backend systems and cloud infrastructure. Improved security, testing, observability, and request-path correctness for production systems within AWS S3 distributed infrastructure. Skilled in Java, Rust, JavaScript, and AWS, with experience improving service reliability and operational robustness.

EXPERIENCE

Amazon Web Services, S3 Storage ShardStore

Dec 2024 - Jan 2026

Software Engineer

Seattle, WA

- Led a Rust migration from long-lived IAM user credentials to hourly auto-rotating IAM role credentials across ShardStore AWS accounts, improving credential security and reducing exposure from static access keys.
- Migrated logging from a single shared global AWS account used across multiple S3 services and handling roughly **1.35M requests/hour**, to 20+ regionalized accounts handling **3.5K requests/hour** each, reducing per-account load by **386x**, improving fault isolation and resiliency, and **saving 5 developer hours/month** in log retrieval.
- Implemented shard-index validation across data request paths in ShardStore, a distributed storage system, verifying correct shard metadata during transfer and improving request integrity.
- Expanded automated unit and integration test coverage for critical production-path changes, catching regressions earlier in the pipeline and **reducing production issues by roughly 60%**.
- Developed a stress testing framework for data request paths, simulating concurrent request patterns to validate overall ShardStore reliability under realistic load.
- Built monitoring dashboards and automated canaries, **reducing false alarms by 20%** and improving early detection of production issues.

Bear Brown & Company

Aug 2024 - Nov 2024

Software Engineer

Boston, MA

- Architected the backend for a Kanban dashboard, designing a modular **Express.js** system with **JWT** authentication and role-based access control (**RBAC**).
- Engineered secure **REST APIs** for project management workflows with business logic for task assignments, status updates, permissions, and error handling, reducing bugs by **35%**.
- Deployed backend services on **AWS EC2** with **MongoDB** for persistence, while validating scalability under high traffic through load testing.

Pannini - Digital Solutions Provider

Aug 2020 - Feb 2021

Software Developer

Bangalore, India

- Developed a **Python**-based **OCR** tool using Tesseract, reducing applicant processing time from **10 minutes** to **2 minutes** and streamlining legal data workflows.
- Migrated legacy internal applications to **AWS** using **EC2**, **RDS**, and **S3**, modernizing infrastructure while improving scalability and reliability.

Exarcplus - Web & Mobile App Development Specialists

Jun 2019 - Dec 2019

Mobile Application Developer

Bangalore, India

- Built a **Java**-based Android event management platform with **Firebase Cloud Messaging** for real-time notifications, supporting **10,000+ users** and improving event engagement by **25%**.
- Developed **modular** Android shopping and food delivery apps, integrating backend APIs for product catalogs, order flows, and dynamic content, contributing to a **20%** increase in client retention.

SKILLS

Languages	Java, Rust, Python, SQL, JavaScript, TypeScript, C
Backend	Node.js, Express.js, Spring Boot, REST APIs, JWT, RBAC
Frontend	React.js, Next.js, HTML, SASS
Cloud & Infrastructure	AWS EC2, AWS S3, AWS RDS
Databases & ORM	MySQL, MongoDB, Hibernate
Tools & Observability	Git, Postman, Kibana, Jupyter, Android Studio, Firebase Cloud Messaging

EDUCATION

Northeastern University

Master of Science in Software Engineering Systems

Boston, MA

May 2024

Vellore Institute of Technology

Bachelor of Technology in Electronics & Communication Engineering

Vellore, India

May 2019