

# Darsh Shah

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Software Development Engineer II at Amazon with 4+ years of experience building large-scale cloud infrastructure and AI-driven modernization platforms. Specialized in AWS, Java, and Python, with deep expertise in distributed systems, CI/CD automation, and high-concurrency enterprise applications.

## WORK EXPERIENCE

### Software Development Engineer II, Amazon Web Services(Agentic AI) Jul 2024 - Present

- Core engineer on **AWS Transform**, the **first agentic AI mainframe modernization platform**, enabling autonomous migration of legacy enterprise workloads to cloud-native Java architectures - [AWS Transform](#).
- Designed **multi-agent orchestration** systems enabling **LLM-driven** code transformations for large-scale systems.
- Built distributed **Agent-to-Agent(A2A)** communication protocols and control plane logic to manage state, orchestration, and session integrity across high-concurrency AI systems.
- Led development of **ATX Reforge**, a production LLM-powered refactoring service, architecting a task agent integrated with **kiro-cli** to enable scalable, automated **Claude-based** code transformations - [Reforge Documentation](#).
- Engineered an **LLM rate-limiting and capacity management layer** with exponential backoff to regulate demand during capacity shortages, preserving reliability and predictable throughput.
- Supported internal AWS teams in refactoring around **10 million** lines of enterprise code using ATX Reforge, enabling adoption across **23+** large-scale customer modernization engagements.
- Designed and operated **FastAPI**-based health and control services within MCP servers to continuously monitor task agents, enabling high availability and rapid fault detection in production environments.
- Served as an on-call engineer for AWS Transform, resolving an average of **12 high-severity** production incidents per week through monitoring-driven triage, rapid mitigation, and root-cause analysis.
- Built end-to-end deployment pipelines and **workflow orchestration (Airflow-style DAG patterns)** for task agents, enabling **multi-region, multi-stage** releases with full **canaries** to ensure safe rollout.
- Delivered enterprise projects averaging **20 million lines of code**, spanning core logic, and database schemas.
- Developed high-throughput **REST APIs** enabling orchestration and health monitoring of distributed agents, supporting millions of lines of enterprise code modernization.

### Software Development Engineer , Amazon Web Services(Agentic AI) Jan 2022 - Jun 2024

- Developed **Regression Testing Snapshot (RTS) Manager**, automating capture and restoration of Oracle, PostgreSQL, and Sybase environments, reducing restore time from **4 hours to under 3 minutes**.
- Developed high-performance **Java and Python backend services** for AWS Transform, supporting large-scale modernization workflows with strict reliability and latency requirements.
- Designed and deployed a production-grade AWS Blu Age Standard Delivery Environment (SDE) using **AWS CDK**, provisioning **VPCs, private subnets, Route 53, VPC endpoints, firewalls, IAM roles, KMS encryption, EC2, SSM Patch Manager, Lambda, and CloudWatch** - [AWS SDE Documentation](#).
- Implemented **database migration and data-movement automation** to simplify complex transfers across PostgreSQL, Oracle, and Sybase environments used in enterprise testing workflows.
- Implemented **canary** deployments with CloudWatch alarms to automatically trigger incident tickets, ensuring production issues were detected early and addressed before full rollout.
- Integrated **Slack-based operational workflows** with deployment and testing pipelines, improving real-time visibility into build status, failures, and quality metrics, and reducing mean time to detect (MTTD) issues by **40%**.
- Architected an automated **EC2 lifecycle management system** using AWS CDK, achieving a **50%** reduction in infrastructure overhead by implementing **Lambda- and EventBridge-driven** scheduling and usage-based scaling.
- Improved database performance by refactoring **SQL** queries and indexes, reducing query execution time by **30%**.

### Early Experience: Software Engineering Intern – AT&T Labs | Copart

May 2021 - Dec 2021

## SKILLSET

- Languages: Java, Python, TypeScript, Scala, SQL
- Backend & Systems: Spring Boot, Distributed Systems, Microservices, REST APIs, System Design, Git
- Cloud & Data: AWS (EC2, ECS, ECR, VPC, IAM, Cloudwatch), Docker, DynamoDB, SonarQube, Kubernetes (EKS)
- Data Pipeline Tools: Apache Airflow, Composer, dbt, Apache Beam, PySpark, Terraform

## EDUCATION

Masters of Science: Computer Science - UT Dallas(GPA 3.82/4.0)

Jan 2020 - May 2022

Bachelors of Engineering: Computer Engineering - GTU(GPA 8.46/10)

Aug 2015 - May 2019

## Certifications

AWS Solutions Architect Associate

Dec 2024