

Nikhil Kumar

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Software Developer with 7+ years of experience specializing in backend systems architecture in the AWS cloud

EXPERIENCE

- **Capital One Financial**
Card Tech - Card Modernization - Senior Software Engineer Jan 2025 – July 2026
 - Led, designed, and implemented accounting-oriented primitives in a Java SDK shared across multiple lines of business to express Card financial logic. Grounded design using mathematics proofs.
 - Coordinated our team alongside 4+ other teams through migration processes that involved 10s of millions of records using PySpark data pipelines running on AWS Glue. Used SQL and Databricks to validate.
 - Led designs for new system integrations in Golang based microservices powering modernized card platforms, engaging neighboring teams to align on scalability, idempotent behavior, and smooth cutover.
- **Amazon Web Services**
AWS HealthOmics - Software Engineer II Mar 2023 – Dec 2024
 - Optimized query performance for VariantStores by leading design, implementation, and release for *sample-partitioned tables*. Led multiple sub-projects to improve scale and reliability of analytics ingestion workloads. Heavy work with Apache Spark (Scala), Apache Iceberg, AWS SQS, Glue, NoSQL DynamoDB, Step Functions, and Kotlin. Worked with application security teams on threat modeling.
- **Amazon Web Services**
AWS Comprehend Medical - Software Engineer II Sept 2021 – Mar 2023
 - Led a 3-person team on a Java codebase migration. Developed and iterated on a validation tool that helped drive the migration to completion. Deprecated a net 200K lines of code. Improved entity detection, latency, and throughput of the *InferSNOMEDCT*, *InferRxNorm* and *InferICD10CM* APIs.
- **Amazon.com**
Fulfillment by Amazon (FBA) - Software Engineer I/II Jun 2019 – Aug 2021
 - Developed new systems to facilitate optimal usage of certain pools of FBA inventory. Implemented an AWS Lambda/SQS based message processor scaling to the order of 1MM events per day. Led load testing and operational readiness reviews. Used AWS CloudFormation/CDK for Infrastructure-as-Code.
- **Amazon.com**
Fulfillment by Amazon (FBA) - Software Engineer Intern Jun 2018 – Aug 2018
 - Developed an operational search tool over AWS S3 archives using Java Spring MVC and AWS Athena to increase on-call ticket resolution speed.
- **University of Wisconsin - Madison**
Undergraduate Teaching Assistant Dec 2017 - Dec 2018
 - Received 4.7+/5 rating from students each semester for 500+ student introductory Java course.

EDUCATION

- **University of Wisconsin - Madison**
Bachelor of Science in Mathematics and Computer Science