

MOHAK CHUGH

Software Engineer at Amazon

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Work Experience

Amazon	Gurugram, Haryana, India · Hybrid
Software Development Engineer 2 – [Level 5 Current]	10/2024 – Present
<ul style="list-style-type: none">Developed APIs to serve Amazon Financial data for Transactional and Non-Transactional collections use-cases with 100% reconciliation coverage.Developed a DFS-based sorting algorithm and self-healing reconciliation for employee data backfills (processing 5MM+ employees), ensuring grouped hierarchy updates and zero data loss within 10min SLA, which eliminated loss of access issues during any Amazon re-orgs.Worked on RDS performance optimizations bringing down query performance times from 20mins to under 30s (used vertical partitioning of tables, creating new indexes and deprecating irrelevant indexes), impacting 200+ downstream ETL pipelines and increasing data freshness from 4 hours to 30 mins SLA. Led development of internal UI tool for People Experience org (REST/RPC APIs, ABCDA pattern, SEL/Xray tracing, IAM auth; Cypress UI integ tests to 80% coverage, telemetry alarms, security review), accelerating team velocity from 4 points/25 days to deliver critical delayed project 1 week ahead of deadline.Led design and API contracts for new Candidate Search service (post-legacy system deprecation for hiring dashboard migration) and re-architecture of high-volume Search Populations API (response time from 5s to under 200ms P99), via RCA/POCs/team reviews/customer signoffs, enabling Q1 2026 launches.Served as Operational Excellence (OE) Champion, analyzing 6 months of ticket data (75 SEV2s/473 SEV3s) to prioritize 20+ backlog items (alarm tweaks, retries, performance tuning), reducing SEV2s from 21 to 3, latency breaches from 26 to 1, and SAS risks from 104 to 6 while leading security reviews, dashboards, and retrospectives.Worked on employee data to power employee segmentation for payroll use-case, ingesting more than 10TB data per day, vending out at more than 1000 TPS via APIs Used: AWS EMR (spark), AWS Big Data, APIGateway, AWS Lambda, DynamoDB, Scala, Hadoop, Glue, Athena, Spark, Advanced SQL, Python, AWS Step Functions, AWS DMS, AWS Lambda	
Software Development Engineer 1 – [Level 4]	12/2022 - 09/2024
<ul style="list-style-type: none">Built a Spark-based big data reconciliation engine capable of processing over 1 billion records daily across SQL and NoSQL sources, ensuring 100% coverage of internal financial data flowing through the central data lake. Enabled seamless integration with data pipelines via custom hooks.Led the creation of an award-winning RAG-based LLM QnA bot, engaging 300+ users and processing 5K questions daily; leveraged advanced prompting techniques and guardrails, resulting in 93% accuracy from rich text documents. This was published in AWS Blog posts as one of the first AI blogs in AmazonDesigned and deployed Airflow-based email notification system for Workforce Capacity Planning dashboards using Anaplan to S3 exports with Hive partitioning, SES throttling/randomization, and reconciliation (notifying 300+ analysts), ensuring timely validations within 5 business days without exceeding AWS limits.Led operational readiness reviews (ORR) for reconciliation tool (100B records/day, SOX/GRC compliant), and ingestion service as sole SDE, automating job scheduling, unifying CDK pipelines (infra as code), implementing DAG based alarms and retries in Airflow, optimizing, and building customer dashboards/runbooks to complete GRC compliance and eliminate operational gaps. Used: LLM ClaudeV2.1, AWS cloud, Streamlit, DynamoDB, PostgreSQL (RDS), ECS Fargate, Apache Airflow, Agentic AI, Python, Lambda, Vector Knowledge Bases, OpenSearch (Elastic Search), Embedding Models, LLM Fine Tuning	
Data Engineer 1 – [Level 4]	09/2021 - 12/2022
<ul style="list-style-type: none">Engineered AI-driven headcount management tools by leveraging 100+ work driver datasets, enabling precise ML models for scalable headcount predictions; boosted operational efficiency by forecasting resource allocation with 95% accuracy. Integrated functionalities like email notification systems, auth management and ML data pipeline orchestration using Airflow.Launched e-invoicing compliance for Amazon by enabling VAT IDs encryption for Brexit, AU, CA regions, impacting 3,000+ global vendors.Collaborated with senior data engineers to re-architect the financial analytical mesh data lake, consolidating databases and automating schema-level data sharing across Redshift clusters. Designed and delivered a secure solution meeting 1-second SLAs, achieving 90% test coverage and improving organizational productivity through efficient, security-reviewed data storage.Mentored 3 interns and got 2 converted to full time engineers.<ul style="list-style-type: none">Used: Airflow, Redshift, AWS EMR (spark), Scala, Hadoop, Glue, Athena, AWS Serverless, CI-CD pipelines, AWS Big Data, AWS S3, AWS Glue and Lake Formation. Amazon Quicksight, Apache Hive, Apache Airflow, Apache Presto	

Education

Maharaja Surajmal Institute of Technology	
- Bachelor of Technology - Computer Science 8.7 University Rank 3 in Final year	08/2017 - 12/2021

Publications

Benchmarking geospatial database on Kubernetes cluster	— Analysis and Optimizations of PostgreSQL/PostGIS in Kubernetes for improved geospatial query performance.
Generative AI Q&A chat assistant using Amazon Bedrock	— Built a custom RAG based QnA system for a niche legal use case which gave accuracy of 96% as compared to 49% from of the shelf tools

Languages and Skills

Work Domains:	AWS Cloud (Development and Deployment for Serverless and Server based solutions), Applied Artificial Intelligence - LLM RAG Architecture and Natural Language Processing (NLP), Big Data (Analytical and Transactional) and Advanced System Design on AWS
Languages:	Python, Java, NodeJS, Angular, Advanced SQL
Tools and Technologies:	API Development, Distributed Systems (Spark) and Data pipeline management via Airflow , Data Structures and Algorithms

Achievements

1st Runner's up in Digital India Makeathon
- Certificate Link: https://drive.google.com/file/d/1YEMPcosx8COKOxqFn3vXHugsIIhkZMX/view
Soft Skills Certification from AICTE
- Certificate Link: https://drive.google.com/file/d/1aBjeD3gCGHphhdNayZrXADcOZYbJLQ/-view
University Rank 3 in BTech Final year
- Certificate Link: https://www.linkedin.com/feed/update/urn:li:activity:7055093560970256384/