

HAMZA EHSAN

SOFTWARE ENGINEER | DISTRIBUTED SYSTEMS & AI PLATFORMS

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PROFESSIONAL SUMMARY

Software Engineer with 6+ years of experience architecting distributed cloud and GenAI platforms. Led cross-team AWS initiatives spanning system architecture, global resiliency, AI infrastructure, security, operational readiness, and large-scale cost optimization.

PROFESSIONAL EXPERIENCE

AMAZON WEB SERVICES (AWS) — Software Development Engineer II | Aug 2022 – Present

- Led the Amazon Connect Flows workstream for cross-region resource replication, implementing real-time event publishing across 10+ APIs and driving security review, operational readiness, testing, and coordinated rollout across four deployment pipelines and multiple partner teams; launched with no major post-launch issues.
- Architected the migration of internal AI productivity agents from independently deployed Lambda services to a centralized AgentCore platform exposed through Model Context Protocol (MCP), standardizing agent deployment and integration while removing the per-agent infrastructure model that constrained sustainable growth.
- Owned high-level and low-level architecture for the Amazon Connect-Lex integration following the engineering merger of the two teams, enabling customers to build and manage Lex bots directly within Amazon Connect; designed secure cross-service authorization across 100+ Lex APIs using service-linked roles, resource tagging, and least-privilege IAM controls; launched at AWS re:Invent 2024.
- Designed and productionized an LLM-as-a-judge service as the core quality-control workflow for non-deterministic LLM outputs across all AI bot CI/CD pipelines owned by the PXT organization; integrated automated evaluation with Lambda workflows and integration tests, replacing recurring manual deployment verification with consistent, reusable output-quality checks.
- Led the quarterly infrastructure-efficiency goal across the organization, driving cost-optimization execution across teams while personally delivering DynamoDB on-demand migrations and ECS Fargate right-sizing changes; the effort generated \$1M+ in annual infrastructure savings.
- Led root-cause investigation and remediation of a production regression that went undetected for three weeks and affected 59 newly provisioned Amazon Connect instances across all regions; delivered the fix, authored the Correction of Error (COE), shared learnings at an AWS org-wide Ops Review attended by 150+ engineers, and added missing alarms, canaries, and integration tests to prevent recurrence.
- Mentored two SDE interns from project scoping through delivery, including one who was subsequently rehired, onboarded four engineers, and regularly reviewed designs and code across the team, raising engineering quality and accelerating knowledge transfer.

NINJATRADER — Software Engineer | Feb 2022 – Aug 2022 | Chicago, IL

- Led full-stack integration of mission-critical trading APIs during the Tradovate acquisition, building and extending React front-end workflows and Django backend services on GCP to support seamless migration of ~100,000 active trading customers onto the NinjaTrader platform with zero disruption to live trading operations.
- Architected a zero-downtime, phased migration of critical reporting and analytics pipelines from a legacy system to a GCP-based backend while simultaneously redesigning and rebuilding the customer onboarding experience in React (Redux, Recoil, Material UI) backed by Django APIs, improving usability and streamlining account activation flows end-to-end.

WEIDERT GROUP — Software Engineer | Aug 2020 – Feb 2022 | Chicago, IL

- Built a Python/Flask CSS minification service that reduced application bundle sizes by 20% and improved first-load times by an average of 8%.
- Designed and developed a React analytics dashboard for forecasting metadata, API interactions, and uptime while contributing across backend APIs, administrative tooling, and relational databases.

TECHNICAL SKILLS

Languages: Java, Python, TypeScript, JavaScript, SQL

Cloud & AI: AWS, AgentCore, Model Context Protocol (MCP), Amazon Bedrock, Amazon Lex, Lambda, ECS Fargate, DynamoDB, SNS/SQS, CDK, CloudFormation

Architecture & Engineering: Distributed systems, microservices, event-driven architecture, system design, CI/CD, observability, performance testing, IAM, incident response

EDUCATION

LAWRENCE UNIVERSITY — Bachelor's Degree, Computer Science | 2016 – 2020 | Appleton, WI