

Hemashree Balraj

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Profile Summary

AI/ML & Cloud Systems Engineer with 5+ years of experience architecting, deploying, and optimizing scalable AWS solutions including Amazon Connect for contact center platforms. Proficient in designing IT automation and telephony systems, building multi-agent workflows (LLMs, LangChain, LangGraph), and implementing integrations across AWS Lambda, CloudFormation, CloudWatch, and DynamoDB for business-critical environments. Experienced in troubleshooting application and contact center issues, using monitoring tools and CI/CD (Jenkins, declarative pipelines) to enhance reliability and business continuity. Adept at cross-functional collaboration partnering with cloud, security, and support teams and supporting deployments with documentation, knowledge transfer, and architectural guidance. Demonstrated ability to deliver high-availability solutions in Agile/Scrum settings, driving operational excellence for communication platforms.

Skills

Cloud: AWS (EC2, S3, RDS, Lambda, IAM, VPC, CloudFormation, CloudTrail, SageMaker, Bedrock, Agent), Azure (VMs, Blob Storage, SQL Database, Functions, VNets, Resource Manager, Monitor, Machine Learning, Azure OpenAI, Azure AI Studio, Azure AI Agents)

AI & Machine Learning Frameworks: Python, PyTorch, scikit-learn, OpenAI API, LangChain, LangGraph

Agentic & RAG Tools: Multi-agent frameworks (LangChain, LangGraph), Retrieval-Augmented Generation pipelines (ChromaDB, Pinecone), vector databases

Cloud Security, Networking & Compliance: VPC, subnets, route tables, NAT/Internet gateways, transit gateways, NACLs

Infrastructure as Code (IaC) & Automation: Terraform, AWS CloudFormation, AWS CLI, Bash, PowerShell

DevOps Tooling: Docker, Kubernetes (EKS), Helm, ArgoCD, GitHub Actions

Monitoring, Logging & Optimization: Amazon CloudWatch, AWS Config, AWS X-Ray, Prometheus, Grafana, Datadog

Collaboration & Productivity: Git, GitHub, GitLab, Jira, Confluence, Slack, ServiceNow

Operating Systems: Linux (Ubuntu, Amazon Linux, RHEL, CentOS), Windows Server

Scripting: Bash, PowerShell, Python

Professional Experience

Cloud AI/ML Engineer, Airbnb

Jan 2025 – Present | USA

- Engineered agentic AI automation, multi-agent workflows, and Amazon Connect solutions on AWS and Azure (LangChain, LangGraph, Python), delivering 95% uptime and scalable ML/contact center deployments across cloud platforms.
- Built reproducible ML and RAG pipelines (SageMaker, TensorFlow, PyTorch, ChromaDB) and orchestrated prompt engineering for LLM-driven agent task optimization and retrieval.
- Evaluated and deployed models using metrics like F1, ROC-AUC, and inference latency, ensuring robust evaluation, interpretability, and continuous model monitoring.
- Configured, integrated, and supported Amazon Connect for cloud-based contact center platforms, designing robust call routing, telephony workflows, and platform integrations leveraging Lambda, DynamoDB, and CloudFormation.
- Enhanced CI/CD efficiency and business outcomes by reducing release cycles 60%, improving zero-downtime ML deployment, and driving feature delivery with automated testing and model monitoring.
- Collaborated on RAG systems, agentic orchestration, and data-driven deployment; documented impact as a 25% reduction in cloud spend and 35% faster MTTR, advancing explainable AI and outcome clarity.
- Delivered code reviews, rigorous prompt engineering, and documentation, strengthening model governance, reliability, and transparency alongside senior engineers and data scientists.

Cloud Engineer, Genpact

Aug 2019 – July 2023 | India

- Contributed to building AWS infrastructure using Terraform and CloudFormation, helping reduce manual errors and improving environment consistency across dev and staging accounts by 15%.
- Assisted in automating CI/CD pipelines with AWS CodePipeline, CodeBuild, and GitHub, resulting in a 20% improvement in deployment speed and reduced manual interventions.
- Supported the deployment of containerized applications on Amazon EKS with Fargate and Ingress Controllers, enabling zero-downtime updates and enhanced scalability during internal testing phases.
- Participated in application and database migration to AWS using AWS MGN, DataSync, and S3, contributing to a 30% reduction in infrastructure costs by identifying right-sized services.
- Helped configure monitoring and logging using Amazon CloudWatch, CloudTrail, and basic Grafana dashboards, leading to 25% faster incident detection during QA cycles.
- Collaborated on IAM role configuration, KMS encryption setup, and AWS Config integration, supporting improved security posture aligned with internal compliance checks.
- Assisted with tagging governance and AWS Budgets setup, helping reduce unnecessary dev environment spend by 10% through improved cost tracking and resource usage visibility.

Certifications

- AWS Certified: Cloud Practitioner
- AWS Certified: Amazon Connect Fundamentals

Educations

Master of Science in Computer Science, Clark University

Aug 2023 – May 2025 | Worcester, USA

Bachelors of Technology in Electrical and Electronics Engineering, BITM

July 2015 – Aug 2019 | Karnataka, India