Dhinesh Babu Ramachandran

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Education

Arizona State University May 2025
Master of Science in Computer Science (GPA: 3.90 / 4.00) *Tempe, Arizona*

Experience

Software Engineer, DevOps December 2019 – March 2023
Affinsys AI *Bangalore, KA*

- **Secure CI/CD & Containerization** — Engineered automated CI/CD pipelines (Jenkins, GitHub Actions, Python) with integrated security scans (SAST, dependency); built hardened multi-stage/distroless Docker images, cutting release cycles by 80% (5 days to 1) and enhancing application security.
- **Microservice Architecture on Kubernetes (CKA)** — Designed and deployed scalable microservices on Kubernetes (Azure, EKS, AWS); authored K8s YAMLs and utilized Helm for streamlined deployments, achieving 40% faster time-to-market for new application services.
- **Cloud Automation & Application Optimization** — Developed Python ETL scripts for automated cloud data transfers (cronjobs) and utilized Terraform (IaC) for provisioning application infrastructure; improved application response times by 25% through performance testing and bottleneck resolution.
- **System Resilience & Advanced Troubleshooting** — Engineered PostgreSQL high-availability (master-slave) solutions and expertly resolved complex production issues, including reverse proxy and application-level bugs, minimizing downtime by 80%.
- **Technical Initiative & Solution Design** — Spearheaded development of a Bash script for automated SSH key management, enhancing security and team efficiency; translated complex client security requirements (e.g., from financial institutions) into actionable software development tasks and system designs.
- **Observability Platform Engineering** — Engineered and deployed a centralized observability stack (Prometheus, Loki, Grafana), enabling proactive issue detection and 40% faster Mean Time To Resolution (MTTR) for development team debugging cycles.

Projects

Digieye (Android App for the Visually Impaired) | *Kotlin, Android, Python, FastAPI, Vertex AI, GCP*

- Engineered a Visual Question Answering (VQA) Android application in Kotlin, enabling visually impaired users to query images using voice; integrated with a Python FastAPI backend connected to Google Vertex AI.
- Implemented image capture, secure POST requests with compressed images, and text-to-speech functionality for AI-generated answers, achieving 90% average response accuracy in real-world testing.

Multi-Tier Elastic Face Recognition Application | *Python, AWS (EC2, SQS, S3, Auto Scaling), Docker, Deep Learning*

- Architected a three-tier distributed system on AWS; App Tier dynamically scaled from 0-20 EC2 instances based on SQS queue length, processing 100 concurrent requests in under 80 seconds.
- Optimized cold-start times by 60% using pre-baked AMIs with a ResNet-34 model; utilized S3 for durable I/O storage, enabling fault-tolerant, message-driven communication between tiers.

Video Reconstruction from Randomized Frames | *Python, OpenCV, NumPy, SciPy, SIFT, ORB*

- Developed a preprocessing pipeline to downsample and grayscale shuffled video frames, reducing computational load while preserving feature integrity for accurate keypoint extraction.
- Extracted/matched keypoints using ORB/SIFT, built a transition cost matrix, and implemented a greedy TSP solver to reorder frames, outperforming heuristic methods on a custom ”Sequential Error” metric.

Technical Skills

Languages: Python, Java, Kotlin, C++, Bash, SQL
Cloud & DevOps Tools: AWS (EC2, S3, SQS, Lambda, EKS), Azure (Kubernetes Service), Docker, Kubernetes (CKA Certified), Jenkins, Terraform, Helm, Nginx, Git
Frameworks & Libraries: Django, FastAPI, Spring Boot, Android SDK, React, OpenCV, NumPy, Pandas
Databases: MySQL, PostgreSQL, S3 (Object Storage)
Key Concepts: Microservices, System Design, REST APIs, Reverse Proxies, CI/CD, Agile Methodologies, Observability (Prometheus, Grafana, Loki), Data Structures & Algorithms, Machine Learning Principles