

# Dhinesh Babu Ramachandran

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🐙 [github.com/Dhinesh-Babu](https://github.com/Dhinesh-Babu)

🌐 [dhineshbabu.vercel.app](https://dhineshbabu.vercel.app)

## Education

**Arizona State University**

*Master of Science in Computer Science (GPA: 3.90 / 4.00)*

August 2023 – May 2025

*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.

## 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, Jenkins, Terraform, Helm, Nginx, Git

**Frameworks & Libraries:** Django, FastAPI, 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

**Certifications:**

- Certified Kubernetes Administrator (CKA)