

Mahesh Bhoopathi Rao

Junior DevOps Engineer

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SUMMARY

Junior DevOps Engineer with hands-on internship experience at PearlThoughts deploying and managing production-grade AWS infrastructure. Proficient in CI/CD automation with GitHub Actions, container orchestration on ECS Fargate, blue/green deployments via AWS CodeDeploy, and infrastructure-as-code with modular Terraform. Demonstrated ability to build and ship real products — including a live cross-platform browser (globalcontinuum.app) and fully automated cloud pipelines. Passionate about building scalable, cost-optimised, and secure systems.

EXPERIENCE

DevOps Engineer Intern

Jan 2026 – Mar 2026

PearlThoughts · Thoothukudi, Tamil Nadu (Remote)

- Built and maintained CI/CD pipelines with **GitHub Actions**, automating Docker image builds, ECR pushes, and ECS service deployments on every code commit.
- Implemented **AWS CodeDeploy blue/green deployments** using **CodeDeployDefault.ECSCanary10Percent5Minutes** — shifting 10 % of live traffic to the new task set for 5 minutes before full cutover, routing via an **Application Load Balancer (ALB)** to eliminate downtime during rollouts.
- Provisioned containerised workloads on **Amazon ECS using Fargate and Fargate Spot**, reducing compute costs while maintaining production availability.
- Authored **modular Terraform configurations** (VPC, IAM, ECS, ECR, ALB, Security Groups) with remote state stored in S3 for consistent, repeatable infrastructure.
- Configured and managed a **Bastion Host (SSH jump host)** for secure access to private subnet resources — database and internal services were never exposed to the public internet.
- Set up **Amazon CloudWatch** logs and metrics dashboards; configured alarms to proactively detect and resolve infrastructure incidents before they impacted users.
- Optimised Docker images in collaboration with development teams, improving container build times and reducing image sizes across staging and production.

SKILLS

Cloud	AWS (EC2, S3, ECR , ECS Fargate & Fargate Spot , ALB , CodeDeploy Blue/Green , Lambda, DynamoDB, IAM , CloudFormation, VPC , Security Groups, NAT Gateway) · Cloudflare (Workers, Pages, CDN)
IaC & Automation	Terraform (Modular) · Ansible · Shell / Bash Scripting · Python Automation · YAML · Wrangler CLI
CI/CD & Containers	GitHub Actions · Docker · Docker Compose · Kubernetes · Nginx
Monitoring & Security	Amazon CloudWatch (Logs & Metrics) · Prometheus · Grafana · Firewalls · VPNs · IDS/IPS
Databases	PostgreSQL · DynamoDB · SQL
Programming	Python · JavaScript · TypeScript · Swift
Other	Linux Administration · Git · Bastion Host / SSH Jump Host · Networking (TCP/IP, Load Balancers, Private Subnets)

PROJECTS

Continuum Browser ■ [Live](#) · [GitHub](#) →

Electron 35 · React 18 · TypeScript · Tailwind CSS · Web Audio API · GitHub Actions

- Built and shipped a privacy-native, task-first desktop browser for **macOS, Windows, and Linux** — owning full delivery from code to live product at globalcontinuum.app.
- Engineered **ContinuumShield** — a 7-capability security orchestrator: Safe Browsing (URLhaus + PhishTank hash-prefix DB, risk score 0–100), Download Quarantine (double-extension & dropper detection), Runtime Hardening

(CSP, header stripping, MIME-sniff prevention), Crypto-Mining Protection (domain blocklist + behavioural WASM/Web Worker detection), and **Enhanced Anti-Fingerprinting** (WebRTC IP leak prevention, canvas noise $\pm 0.05\text{px}$, Battery/Connection/Memory API spoofing) — making each session untraceable.

- Engineered a **browser-native AI Agent** (Vision · Function Calling · JSON Structured Output · Chain-of-Thought) capable of navigating websites, searching Google, clicking YouTube videos, and drafting emails — with a security-first sandbox: Intent JSON only, Level 3 user approval, credentials fully blocked, instant kill switch.
- Implemented **spatial audio** for YouTube (Cinema, 8D, Left/Right, Back modes) via Web Audio API convolution reverb, mouse-pointer controlled — tuned IR duration (2.0s \rightarrow 0.1s) locked via regression test suite. Supports **OpenAI, Gemini, and Claude** as AI providers with BYOK and live threat feed auto-updates every 6 hours.

Fully Automated AWS Container Platform (ECS + Terraform) [GitHub \$\rightarrow\$](#)

Terraform (Modular) · ECS Fargate & Spot · ECR · ALB · CodeDeploy Blue/Green · Nginx · PostgreSQL · GitHub Actions · S3 Remote State

- Built a production-grade **3-tier containerised platform**: Browser \rightarrow Nginx reverse proxy \rightarrow Strapi CMS \rightarrow PostgreSQL on AWS ECS Fargate & Fargate Spot.
- Entire infrastructure provisioned via **modular Terraform executed inside GitHub Actions** — Git push triggers terraform apply to spin up the full stack; separate destroy workflow tears it all down cleanly. **Full infrastructure lifecycle managed via Git, zero AWS Console clicks.**
- Configured **CodeDeploy blue/green** using **CodeDeployDefault.ECSCanary10Percent5Minutes** with ECS Task Definition (taskdef.json) and appspec.yaml managed as code.
- **GitHub Actions pipeline** fully automates: Docker image build \rightarrow ECR push \rightarrow ECS service update with zero manual steps.
- Maintained Docker Compose local dev environment mirroring production, DB migrations as code, and full architecture documentation.

Cloudflare Edge Deployment [GitHub \$\rightarrow\$](#)

Terraform (Modular) · Cloudflare Workers · Cloudflare Pages · Wrangler CLI · Bash

- Deployed a full-stack app on **Cloudflare's edge network** — Workers (serverless V8 backend API) + Pages (global CDN frontend).
- Entire infrastructure managed with **modular Terraform** using the Cloudflare provider — Workers script, Pages project, and environment variables all as code.
- Single **bash deploy script** automates terraform init/validate/plan/apply, injects Worker URL into the frontend build, and publishes via Wrangler CLI.

EDUCATION

Bachelor of Science in Information Technology

Jun 2022 – Jun 2025

National College, Tiruchirappalli

Relevant Coursework: Data Structures & Algorithms · Operating Systems · Computer Networks · Databases · OOP · Python Programming · Operations Research

CERTIFICATIONS

AWS APAC Solutions Architecture Virtual Experience (Forage)

Sep 2025

Designed scalable Elastic Beanstalk architecture with cost modelling.

Deloitte Australia Technology Job Simulation (Forage)

Aug 2025

Completed coding tasks and proposed client dashboard solutions.

Security Blue Team – Introduction to Python

2025

Built a network port scanner for vulnerability detection using Python.

DevOps Masterclass – Udemy

2025

CI/CD, automation, cloud, and containerisation — GitHub Actions, Docker, Terraform.