

# COPELAND ROYALL

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copey.dev

## SKILLS

**Languages** Python, TypeScript, Go

**Software** AWS, Terraform, Terragrunt, Pulumi, Ansible, GitHub Actions, Docker, Kubernetes, Git

## EXPERIENCE

### Freelance Software Engineer

January 2025 – present

Architected and built pharmaceutical research platform with natural language processing ingest, and IaC modules.

#### *Opinion Health*

- Architected and implemented AWS infrastructure with Terraform and Terragrunt, featuring account-isolated regional RDS Aurora clusters for data residency, SSO+MFA IAM database access from Ansible-controlled VMs, long-term audit log retention with Lambda export and storage in dedicated account, custom security alerts
- Developed Python natural language processing pipeline for extreme multi-label classification (1.4k labels) on 130k patient records using traditional techniques, AWS Bedrock embeddings and batch LLM prompting – used reasoning about health conditions to maximize specificity in labeling; user identity separated until ingest
- Deployed with CI/CD GitHub Actions pipelines with code quality and security checks

#### *Keygraph*

- Developed multi-account, -region and -environment AWS platform module for TypeScript/Node.js Pulumi IaC
- Deployed 6 containerized production Go apps using App Runner, RDS Aurora and SOPS secrets

#### *Historical Artist Website*

- Built [website](#) for acclaimed 20th-century San Francisco artist with Hugo, Cloudflare Worker and R2 deployment; Javascript OAuth proxy for client editing

### Visa Software Engineer

September 2023 – May 2024

Accelerated payment product rollouts on Google Cloud with TypeScript IaC and deployed cost monitoring across org.

- Implemented TypeScript Pulumi IaC package to repeatably deploy 256 resources across multiple GCP projects, meeting Payment Card Industry compliance, reducing deployment time and automating manual steps; also wrote packages for managing GKE, IAM and KMS resources
- Developed Pulumi packages with comprehensive unit testing using Mocha and Chai and created multi-language SDKs enabling TypeScript, Go and Python use cases
- Coordinated and deployed Cloudability FinOps in production projects; calculated 10% cost savings in 45 projects
- Installed and updated Kubernetes cluster addons using Argo CD, Kustomize and Helm
- Migrated Concourse CI pipelines to new load-test platform

### Visa DevOps Engineering Intern

Summer 2022

Created foundational AWS Terraform modules and development processes.

- Developed Terraform modules for AWS RDS Aurora and ElastiCache Redis for standardized multi-team use, including best practice configuration for enforced quality

### Tangible AI Natural Language Processing Intern

Summer 2021

Contributed Python ML-driven positivity-ranking news reader feature to open-source chatbot.

- Used Facebook post reactions and news articles to train emotion prediction model

## EDUCATION

**University of Edinburgh** BSc Computer Science, First-class honors

2019 – 2023

#### **Dissertation:**

- Microservices and message queue-based multi-receiver ADS-B aircraft tracking data aggregation system
- Written in Go, utilizing Apache Kafka, MongoDB and GraphQL, achieved 10ms end-to-end latency

## PROJECTS

- Home Kubernetes cluster deployed with Flux CD, Prometheus/Grafana, SOPS secrets, cert-manager, Ubuntu
- Built first [3D aircraft flight radar viewer](#) to see flight paths curving with the globe (instead of distorted 2D map)
- Empowered Siri with local aircraft tracking, achieving over 18,500 downloads from public image repository

## INTERESTS

[Long-distance bike touring](#), [aviation](#), FPV drones