Cariad Eccleston

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SUMMARY

I'm a senior software engineer with more than 20 years' experience. At digiLab I design and build Python backends, AWS infrastructure as code, security, and CI/CD for the *Uncertainty Engine*, a SaaS machine learning platform for safety-critical sectors like fusion energy.

WORK EXPERIENCE

January 2025 - Present

Senior Software Engineer

digiLab Solutions Ltd, Exeter, United Kingdom

- As the primary infrastructure engineer in a small team, I designed the platform's architecture for over 50 SQS-driven workers and FastAPI services running as Docker containers on ECS Fargate, each with an IAM role and security group scoped tightly to its work.
- I proposed an architectural change that made our workers' load balancers unnecessary, then removed them from over 200 deployments without downtime, and built scale-to-zero autoscaling, which cut AWS costs by about a quarter in 2 months.
- I built the AWS CDK application that launched production and deploys every customer environment, and cut provisioning from days to hours. I prototyped it in hand-written CloudFormation to verify the design, and colleagues provision from my documentation.
- I implemented controls such as CloudWatch monitoring, S3 access logs, and VPC flow logs for the SOC 2 audit that digiLab passed, which got us through a nuclear energy customer's procurement. I tracked compliance in Sprinto, and tested my disaster recovery runbook by deleting my own data in production and restoring it all from AWS Backup in under an hour.
- I wrote the proposal for our single sign-on service, then designed and built it in Python. It uses Cognito for OAuth 2.0 and OpenID Connect with PKCE, and keeps refresh tokens server-side. It runs behind a WAF in non-root containers with all Linux capabilities dropped.
- I replaced the prototype's long-lived CI access keys with a least-privilege IAM role per kind of job, assumed by GitHub Actions via OIDC. When GitHub changed its subject claims, I added our organisation's immutable ID to the trust policies rather than a wider wildcard.
- Over 70 of our repositories use the composite GitHub Actions I built in Bash for CI/CD, including ones that push Docker images to ECR and authenticate Poetry to CodeArtifact.
- I built our deployment pipeline and designed each release as a fixed set of immutable images, so production receives only what we tested in UAT. I run our UAT and production deployments.
- I wrote the framework that the engineering team uses to test every AI worker's non-deterministic outputs, by asserting the expected shape and values within a tolerance. I traced intermittent test failures to parallel processes racing on our SDK's token cache, and fixed the SDK to write its cache atomically, which stopped the failures.
- I cut developers' wait to test a change against real workflows from up to an hour to seconds by proposing and building a Bash script, with supporting infrastructure, that starts AI workers locally and registers them in cloud environments. I teach it in workshops, so most forward-deployed engineers now build experimental workers without help.

July 2019 - January 2025

Self-employed Software Engineer

Sole Trader, Exmouth, Devon, United Kingdom

After 14 years at Thomson Reuters, I chose to take a career break with a few contracts. I pursued indie video game development, and learned art and music to make my own media.

At Freyda—a Google-backed fintech SaaS startup—I planned and built AWS architecture with the CTO, built CI/CD in GitLab CI, wrote Python services for Fargate and Lambda, and led the fixes for third-party penetration test findings. I contracted there part-time, on and off until 2024.

At NHS Digital in 2020, I was contracted for six weeks to get a life-critical SOAP service's migration from C# .NET Framework to .NET Core over the line. We completed it on time, and I wrote its integration tests on my own initiative.

May 2005 - July 2019

Software Team Lead

Thomson Reuters Tax & Accounting, Exmouth, Devon, United Kingdom

I joined Thomson Reuters as a junior software engineer building Windows desktop applications. I rose to senior engineer, then in 2015 to Software Team Lead, where I was technical lead of our migration to web applications in AWS, and later of the Tax & Accounting Global DevOps team.

- I built and supported microservices in C#, Node.js, and Go, and helped to plan our private cloud SaaS architecture.
- I led a DevOps team of ~5 engineers that migrated our platform from private cloud to AWS. I was jointly responsible with a Principal Engineer for reaching production within a year, and we went live on time in 2016.
- I planned the AWS architecture for the migration, wrote infrastructure as code in Terraform, TypeScript, Python, and PowerShell, and built CI/CD pipelines in Jenkins. Provisioning an environment went from weeks to hours. Deploying code went from weeks to minutes, because my pipelines replaced the manual intervention our private cloud needed.
- We kept RabbitMQ rather than move to SQS. Our code already used it and the team knew it, so it was worth the extra administration.
- My team was the first in the company to use AWS, so I published what I learned on my internal blog and made weekly videos on the migration's progress. Engineers outside my project took an interest, and I was invited to speak across the UK and USA. I also presented the migration at AWS User Groups in London and Nottingham.
- I led a global DevOps team of ~10 engineers across the UK, USA, and India—a role I was invited into after the migration succeeded. We wrote disaster recovery runbooks, defined multi-tenancy practices, and built scripts to manage secrets. Other teams used our runbooks, adopted secrets management with our tools, and took their own projects into production.
- I was a UK lead of Thomson Reuters' global Pride at Work LGBTQ+ network, and presented a talk with our global leadership at the Out & Equal Workplace Summit in Baltimore in 2012.

EDUCATION

1999 - 2004

BSc (Hons) Computer Science

The University of Salford