Calum Mortimer MEng MSc

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		Notice:	3 months

Professional Summary

I am an experienced full stack software engineer focused on delivering practical, well-timed solutions that align with evolving short and long-term business requirements. I thrive in roles where I have the autonomy to make impactful technical decisions and take ownership of projects from concept to deployment.

I am particularly interested in slightly backend-biased roles that involve statically typed languages (TypeScript / NodeJS, Go or Java), relational databases (PostgreSQL, MySQL) and infrastructure as code concepts (CDK, Terraform). My expertise includes designing concurrency-safe, clearly written, and well-tested systems, but I am equally confident in delivering full stack solutions, including greenfield projects.

Highlights

- Leads and encourages engineering best practices, excellent communication skills in all business contexts
- Advanced practical knowledge of AWS services, best practices and Infrastructure as Code
- Polyglot developer with deep knowledge of TypeScript and Go, but capable of developing in Java, C#, Python, Laravel, Rails or any other language where necessary
- Comprehensive understanding of client-server and pub-sub communication techniques – REST APIs, GraphQL, notifications, queues and message brokers
- Great knowledge of React, including the latest trends in server-side rendering, static site generation and data management techniques, NextJS app and pages models, custom hooks, context, React Query and Redux
- Instinctively identifies and addresses edge-cases effectively, developing high-quality unit, integration and end-to-end test suites, and manages complexity into different functions and services where appropriate
- Develops efficient SQL queries, with awareness of CTEs, correlated queries, and query execution planning
- Understands when and where to apply NoSQL databases such as MongoDB, DynamoDB and Redis
- Strong knowledge of database management, pitfalls, trade-offs and security risks – ACID compliance, migrations, ORMs, query-builders, SQL injection, VPC placement, multi-AZ, read-replicas, failover, etc.
- Experienced with docker and familiar with container orchestration concepts (e.g. Kubernetes)
- Proficient in deploying and using Grafana for application observability

Timeline

07/2024 – *present* Re:Co Insights, London – Software Engineer
https://re.co.com

I am currently based in a startup focused on ESG (Environmental, Sustainability and Governance) within the private equity industry and have been in this role for around 7 months.

Re:Co suffered from the loss of their engineering team, who left behind a complex code base involving TypeScript NodeJS Lambda functions and PHP (Laravel) services communicating via an SNS and SQS pub-sub architecture. The web application was served by a NextJS frontend with difficult tight coupling issues. The challenge for my team was to successfully refactor the code base into a more rational and maintainable state, by moving towards a consistent NodeJS application and deprecating PHP while still maintaining regular feature releases for the Client Solutions team. We have successfully achieved this and are driving the company towards growth.

With the support of the pre-existing engineers, I have improved my testing skills and gained more practical knowledge of MongoDB / Mongoose. I also gained new experiences working with Content Management Systems (CMS) and solving

problems emergent in trade-offs between relational design theory (prioritising normalisation) and user access patterns. I am also contributing to a greenfield project utilising Large Language Models (LLMs) to improve our sales offering.

10/2020 – 07/2024 JWF Process Solutions, Glasgow – Head of Software Development (promoted KTP Associate)
https://www.jwfltd.com/

JWF Process Solutions embarked on a two-year Knowledge Transfer Partnership (KTP) with Innovate U.K. and the University of Strathclyde, where the primary objective was to transform the business from traditional goods distribution to a company which sells data.

With no roadmap, and joining the company during the height of COVID-19 pandemic, I designed a system architecture which enabled oxygen measurement across NHS hospitals in Scotland. What started as a proof of concept, quickly became a production system involving the majority of NHS real estate. I reflect on this period of my career as a time when I really made a difference. Our company were awarded a CEED Scotland award, a Strathclyde Business School Knowledge Exchange Award, and were shortlisted for the Innovate UK Business Impact and Transformation, and Innovate UK Best Management KTP awards in 2024.

Our primary system was a highly scalable IoT architecture on AWS. It consisted of NodeJS lambda functions which implemented routing and alarm logic, HTTPS APIs, time-series databases and caching behaviour within a Redis caching layer. As the founder, I gained practical experience at all levels of the stack, from setting up DNS records and load balancers, to writing type-safe business logic, to effective database selection and query implementation.

I was quickly elevated to a CTO role within the business and led a team of three developers to build scalable “measurement as a service” solutions. In addition to this, I managed executive level meetings with our partners and customers. I built up a software engineering workflow from scratch with little guidance and support, and the business now continues to reach new milestones under the supervision of my ex-colleagues.

09/2019 – 09/2020 MSc Software Development
The University of Strathclyde, Glasgow

Achievements Distinction (first class)
Dux Medallist and winner of Strathclyde Masters Scholarship

08/2017 – 08/2019 AtkinsRéalis: Assistant Engineer (promoted Graduate Engineer)
https://www.atkinsrealis.com/

As part of the EC&I (Electrical, Control & Instrumentation) team, I provided project-specific EC&I solutions which were compliant with both safety and regulatory requirements. I excelled at my role designing control systems for the nuclear and sub-surface gas storage industries, but I chose to make a powerful and risky career decision and switched into software engineering.

09/2012 – 06/2017 MEng Electronic and Electrical Engineering with International Study
The University of Strathclyde, Glasgow

Achievements Distinction (first class)
Winner of the Magnus MacLean Memorial Award (Dux Medallist)