Peter Milne

Principal Software Engineer | Data Platforms, Geospatial Analytics & Cloud Architecture

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Professional Summary

Principal software engineer and technical leader with 20+ years of experience building production software systems across Oil & Gas, energy analytics, and regulated sectors.

Deep hands-on expertise in cloud-native data platforms, geospatial analytics, machine learning systems, and full-stack product engineering, with a strong track record of translating complex scientific and operational requirements into scalable software solutions.

Experienced working directly with domain experts, stakeholders, and engineering teams to deliver production systems across AWS, Azure, Python, TypeScript, React, and Kubernetes environments.

Domain Expertise

- 20+ years across Oil & Gas, offshore engineering, industrial analytics, and energy markets
- Scientific and operational decision-support systems
- Geospatial and map-based data workflows
- Data-intensive systems in regulated and safety-critical environments

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Core Skills

Full Stack Development

- JavaScript / TypeScript application development
- React and Angular based front-end interfaces
- Backend services with Node.js, Python and C#
- REST and GraphQL API design
- SQL and relational data modelling

Cloud & Platform Engineering

- Azure and AWS cloud platforms
- Containerised services and distributed systems
- CI/CD pipelines and automated deployments
- Observability and production monitoring

Data & AI Systems

- Machine learning systems and forecasting models
- Feature engineering and evaluation pipelines
- Applying AI techniques to real-world operational problems

Engineering Leadership

- Agile delivery and Scrum environments
- Mentoring engineers and supporting team growth
- Technical architecture and roadmap planning
- Stakeholder engagement and technical demonstrations

Selected Systems & Products

Strata — Geospatial ML & Decision Support for Offshore Well Planning (42Analytics - Strata)

2025 - 2026

Led the design and delivery of a production-grade geospatial analytics and decision-support platform for offshore drilling planning, spatial analogue modelling, and predictive performance forecasting.

- Built map-based exploratory workflows and geospatial decision tooling for technical users working with complex subsurface and offshore datasets
- Architected a multi-layer data model separating physical wells, analytical features, and similarity-graph domains to ensure correctness and explainability
- Built a spatial analogue engine using KNN over geographic distance and water depth, producing defensible peer sets for comparison
- Developed a drilling difficulty framework based on neighbour-derived rate distributions, enabling relative difficulty assessment rather than naïve duration prediction
- Designed forecast workflows for planned wells, converting spatial similarity into predicted drilling days with quantified uncertainty
- Delivered an interactive Mapbox-based front end supporting exploratory analysis and scenario planning
- Designed the platform for future multi-tenant SaaS deployment with clean ownership and billing boundaries

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Fishfacts — ML Forecasting Platform for Fisheries

2024 – 2025

Designed and deployed a production-grade LSTM-based quantile regression system forecasting fish market prices across UK ports and species.

- Built production data pipelines, model evaluation workflows, and cloud-hosted inference services for real-time forecasting and decision support

- Built point + delta quantile models with classifier-derived uncertainty weighting
- Developed parallel XGBoost classifiers for catch detection and quantile shaping
- Achieved strong calibration and accuracy through log transforms, residual filtering, and SHAP-based feature selection
- Deployed on AWS ECS with PostgreSQL backend and Angular-based visualisation
- Implemented infrastructure-as-code using AWS CDK and end-to-end ML pipeline orchestration

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Technology Stack

Languages
Python, TypeScript, JavaScript, Go, C#

Frontend
React / Angular, modern JavaScript frameworks, interactive data visualisation

Backend
Node.js services, REST APIs, GraphQL, Fast API

Cloud & Infrastructure
Azure, AWS, Docker, Kubernetes, CI/CD pipelines

Data & AI
PostgreSQL, data pipelines, geospatial analytics, machine learning workflows, forecasting models

Observability
Prometheus, Grafana, Loki, OpenTelemetry concepts

Professional Experience

Burendo / UK Health Security Agency (UKHSA) — Remote Contract

Technical Lead / Principal Engineer — Observability & Platform Engineering
2026 – Present

Working within a national public health technology programme to improve observability and operational insight across distributed services.

- Developed **Python-based** telemetry ingestion and analysis workflows supporting production observability and service diagnostics
- Designed a **semantic telemetry architecture** allowing applications to emit structured business events alongside infrastructure metrics
- Integrated telemetry into the existing **Prometheus, Grafana, Loki, and tracing stack**
- Developed prototype telemetry libraries enabling development teams to instrument services consistently
- Built dashboards and analysis tooling to support operational monitoring and incident investigation
- Produced architectural documentation and developer guidance for telemetry adoption
- Worked closely with platform and DevOps teams to integrate telemetry into CI/CD pipelines
- Collaborated with development teams to introduce improved observability practices into Agile workflows
- Worked directly with application teams to instrument services and improve production debugging workflows

Technologies: Python, Prometheus, Grafana, Loki, TypeScript, Kubernetes environments.

Subsea7 — Aberdeen, UK (Hybrid, Contract)

Technical Lead, Digital Transformation (Finance)
2024 – 2025

- Led a cross-functional engineering team modernising financial systems via Azure-hosted microservices
- Oversaw architecture, cost optimisation, security improvements, and hands-on development
- Worked directly with senior finance stakeholders to align delivery with strategic and regulatory requirements
- Developed backend services and integrations supporting financial workflows
- Introduced CI/CD and monitoring improvements across the platform

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S&P Global — Aberdeen, UK (Remote)

Director of Software Development
2022 – 2023

- Delivered large-scale data and analytics platforms supporting complex industrial and commodity-market workflows
- Directed a global engineering organisation of 40+ engineers across multiple product lines post-merger
- Led cloud migration to AWS, reducing compute costs by ~50% while improving system uptime
- Defined and delivered the roadmap for next-generation analytics products across energy and commodities markets

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IHS Markit — Aberdeen, UK (Remote)

Director of Software Development
2019 – 2022
Associate Director
2013 – 2019

- Led large-scale engineering transformation initiatives including cloud migration and CI/CD adoption
- Delivered API-first data ingestion and delivery platforms used by major Oil & Gas clients

- Scaled engineering teams to 40+ staff while improving agility, reliability, and technical depth

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Earlier Career

Senior engineering roles at Instalec Technology Group, Accenture, and Petroweb, delivering enterprise software systems, analytics platforms, and backend services across industrial and commercial sectors.

Education & Certifications

MSc Information Engineering — The Robert Gordon University, Aberdeen
BSc (Hons) Computer Science — The Robert Gordon University, Aberdeen

Certifications

- PRINCE2 Practitioner
- MCSD (.NET)
- Microsoft Certified Technology Specialist
- *Currently studying:* AWS Solutions Architect – Associate

References

Available upon request.