

OMAR OSSAMA

Energy Data Scientist | Analytics Engineering, Smart Metering, Data Pipelines & Savings Verification

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PROFILE

Senior analytics engineer and data scientist with seven years of experience building scalable data pipelines and analytical products, now focused on the energy transition. Designed and led Vodafone's consumption anomaly detection and savings verification platform across 10 European markets, delivering EUR 838,000 in verified savings in a single month with data lineage behind every published figure. Strong in SQL and data modelling, statistical modelling, machine learning, CI/CD and code review, curated and documented datasets, and stakeholder engagement across markets, with experience mentoring analysts and setting data quality standards.

CORE EXPERTISE

Energy domain: Smart meter data analytics, AMI-derived consumption data, measurement and verification (IPMVP Option C aligned), counterfactual baseline modelling, non-routine adjustment detection, day-type consumption profiling, cohort benchmarking, energy performance indicators, savings verification, revenue protection

Programming: Python, PySpark (Apache Spark), SQL, R, VBA, DAX, Power Query M

Cloud and data platform: Google Cloud Platform (BigQuery, Cloud Storage, Cloud Run, Pub/Sub, Dataplex), OpenLineage, Apache Spark, Parquet, pandas, NumPy

Statistics and methods: Robust statistics (median absolute deviation, robust z-scores, Theil-Sen), changepoint detection, empirical-percentile calibration, empirical-Bayes shrinkage, uncertainty quantification, forecasting, feature engineering

BI and visualisation: Power BI (TMDL/PBIP, DAX, row-level security), Deneb/Vega-Lite, Tableau, Qlik Sense, Looker, IBM SPSS, Excel

Engineering and governance: SQL data modelling, scalable data pipelines, ETL, CI/CD and release gating, code review, API integration, data contracts, schema validation, data lineage, data governance, data quality frameworks, idempotent checkpointed pipelines, pytest, Git, JIRA

Leadership: Team leadership and mentoring, architecture ownership, technical specification authoring, code and design review, cross-market stakeholder alignment, architecture decision records

PROFESSIONAL EXPERIENCE

Energy Data Scientist | _VOIS (Vodafone Intelligent Solutions)

Apr 2025 – Present

Architect and technical lead of the energy anomaly detection and savings verification platform for Vodafone's European estate.

- Lead and mentor a team of 2 analysts across a 10-market programme. Own the architecture, the specifications and the release quality gate.
- Delivered **EUR 838,000** and **8.83 GWh** of verified savings in June 2026 across four European markets, measured through the measurement and verification loop I designed.
- Designed that M&V loop after my own architectural gap analysis found the programme could not substantiate its savings claims: counterfactual baselines built from pre-intervention same-day-type robust medians, with reported uncertainty bands, aligned to IPMVP Option C.
- Built the detection platform in PySpark over **53,391** smart meters and **19.4 million meter-days**, using MAD-scaled robust z-scores, per-meter empirical-percentile calibration, changepoint detection and Theil-Sen trend estimation.
- Automated non-routine event detection through changepoint tests, so structural breaks in consumption are excluded from the savings baseline rather than counted as savings.
- Built a synthetic ground-truth benchmark and an automated quality gate that blocks any release degrading detection accuracy. Recall held at 95%.
- Built a non-destructive data repair layer of 9 ordered plausibility rules. Raw meter reads are never overwritten, every correction is attributed and reversible, and estimated or imputed days are excluded from savings calculations.
- Designed a data lineage module on Google Cloud Platform (BigQuery, Cloud Run, Pub/Sub, Dataplex, OpenLineage) that traces any published figure back to its raw source rows with integrity evidence attached at every hop.
- Delivered the executive Power BI layer: 152 DAX measures across 13 market-level row-level-security roles.
- Standardised data definitions, governance rules and reporting formats across all 10 markets.

DLM Enterprise Data Analyst | _VOIS (Vodafone Intelligent Solutions)

Mar 2023 – Apr 2025

Device lifecycle, inventory and billing analytics for enterprise customers. GBP 2.4M in combined annual savings.

- Built a predictive ordering system in Python and Power BI that cut obsolete equipment by 31% and saved **GBP 1.67M** a year.
- Automated invoice reconciliation, cutting billing processing time by 42% and saving **GBP 730,000** a year.
- Integrated a data validation tool that **reduced data errors by 86%**.
- Uncovered over **GBP 200,000** of undercharged contracts through analytics on enterprise billing data.
- Built the Onboarding Dashboard (onboarding time down 38%), the Operational Dashboard (operational efficiency up 30%) and the Device Report Card (proactive maintenance up 20%).
- Built the team capacity tracker (productivity up 11%) and ran training on data tools and processes (task completion up 12%).

Lead Data Analyst | BasilicoEG

Mar 2021 – Mar 2023

- Led the data function for a restaurant management group. Managed data flow and specified a cloud-based point-of-sale system that centralised data storage.
- Built reusable querying, transformation and visualisation pipelines in Tableau, Qlik Sense, Power BI, SQL and Python, integrating multiple sources into a single view.
- Feature-engineered datasets to improve analysis and forecasting accuracy.
- Owned the technology function and ran business analysis across several departments.
- Forecast sales using data mining and statistical modelling at a 95% confidence interval in IBM SPSS.

Business Analyst | AWAD Associates

Mar 2019 – Mar 2021

Business expansion planning and sales forecasting for an architectural design and contracting firm.

- Grew revenue by **EGP 7M** through analysis of customer behaviour, vendor relationships and internal workflows.
- Analysed business operations and fixed operating inefficiencies, saving 46 man-hours a month.
- Ran in-depth research and analysis to support business expansion planning and sales forecasting.

EDUCATION AND CERTIFICATIONS

Inferential Statistics Duke University	2023
Data Scientist Program Data Insight	2021
Data Scientist with Python Data Insight	2020
Advanced Data Analysis EGfwd	2020
Predictive Analytics: Customer Segmentation and Market Basket Analysis Skillsoft	2024
Business Analysis Activities and Tools Skillsoft	2024
Google Data Analytics and Google Project Management Certificates Google	2022
Bachelor of Science, Architecture Faculty of Fine Arts, Alexandria University	2014 – 2019