

# Mohamed Saad Eldin Elmansy

Senior Data Scientist | Project Management | PMO Setup & Digital Transformation | GenAI & MLOps | Python · NLP  
· BI Developer | O&M · NRW Expert | ML Automation · Data-Driven Strategy | Consultant & Trainer  
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## Profile Summary

A Project Consultant and Digital Transformation Leader with 14+ years of international experience delivering large-scale PMO operations, donor-funded development programs, and AI-driven transformation projects across Egypt, Saudi Arabia, UAE, and Oman. I bring a proven record in EU, USAID, GIZ, KfW, and VNG projects, delivering impact in Non-Revenue Water management, economic growth, infrastructure modernization, and sustainability. Skilled in policy dialogue, contract management, KPI frameworks, and stakeholder engagement, I align government, private sector, and financial institutions around actionable strategies. As a Senior Data Scientist, I leverage Python, cloud analytics, GenAI, and explainable AI (XAI) to design and deploy LLM-powered tools, intelligent dashboards, and compliance automation systems, enabling organizations to accelerate reporting, optimize decision-making, and achieve measurable efficiency gains. I have delivered over 1,700 hours of professional training, led cross-functional stakeholder workshops, and overseen digital transformation programs that integrate governance, compliance, and data strategy. Currently pursuing an Executive MBA (Cardiff Institute, UK), I specialize in bridging policy, finance, and technology to foster public-private partnerships and drive sustainable, innovation growth under the Global Gateway framework.

## Key Skills

- Project Management & Governance: PMO Processes, Contract Management, KPI Tracking, Scope & Budget Control, Stakeholder Engagement, Risk Mitigation, Agile Delivery.
- Data Engineering & Big Data: Cloudera CDP (HDFS, Hive, Impala, Oozie), Apache Spark, PySpark, Informatica DEI/EDC (PowerCenter-equivalent), Apache Airflow, Kafka, On-premise architecture, Data Contracts, ETL pipelines, Data Modeling.
- Programming & Automation: Python (Pandas, NumPy, Scikit-learn), SQL, PySpark, RESTful APIs, Workflow Automation, Git, API Integration, Data Quality Scripts.
- Cloud & Infrastructure: AWS, Azure, GCP, CDC, On-premise deployment, DataOps, CI/CD, Cloud-to-OnPrem Integration.
- Machine Learning & Analytics: Regression, Classification, Clustering, Forecasting, Model Deployment, MLOps Collaboration, Explainable AI (XAI), Feature Store Design, Model Monitoring, Prompt Engineering, LangGraph.
- BI & Dashboards: Power BI (DAX, Dataflows), Tableau, Rationalization, KPI Automation, Operational & Legal Analytics.
- Governance & Ethics: Responsible AI, Data Contracts, Data Privacy, Compliance Management, Blockchain for Finance, Metadata Governance, Audit-Ready Pipelines.
- Domain Expertise: SCADA, GIS, NRW Control, DMA Zoning, Utility Infrastructure Analytics, Contracts Evaluation.
- Leadership & Delivery: Technical Mentorship, Stakeholder Engagement, AI-Driven HR, ChatGPT Business Use, Innovation Management, Cross-Functional Collaboration, Agile Delivery, O&M Strategy, 1700+ Hours of Technical Training.

## Experience

### **Engineering Consultant - National Water Company (NWC), Saudi Arabia**

**2024–Present**

- Led contract management and evaluation frameworks across nationwide O&M programs, developing scoring models, KPI-based dashboards, and SLA compliance systems used for vendor performance benchmarking.
- Negotiated with contractors and internal stakeholders to ensure alignment with contractual obligations, reducing disputes and accelerating approvals by 25%.
- Deployed AI solutions for predictive maintenance, increasing asset uptime by 22%.
- Built centralized data platforms and automated KPI dashboards, SLA benchmarking tools, and operational and legal analytics visualizations, improving reporting speed by 40%.
- Established PMO processes for governance, compliance reporting, and executive dashboards, ensuring transparency and alignment with strategic objectives.
- Designed contract evaluation tools (spider charts, scoring models) used across the kingdom.

- Developed RESTful APIs for secure data exchange and automation workflows.
- Ensured analytics delivery aligned with data privacy regulations and client-sensitive data standards across regulated domains.
- Developed ETL pipelines using Informatica DEI/EDC for metadata management and data lineage in compliance environments.
- Built and deployed LLM-based agents using Langchain for automated KPI generation.
- Trained 100+ staff on O&M workflows, KPI-driven contract evaluation, tax reporting, and data governance compliance.
- Enabled AI-driven pipelines for predictive asset risk modeling and cost deviation detection.
- Launched a stakeholder-friendly web system for O&M data sharing and tracking.

### ***Freelancing***

#### ***Data Scientist & Analyst & Trainer, Online and Onsite***

**2020–Present**

- Developed interactive dashboards (Power BI, Tableau, Python Dash) that improved decision-making speed by 30%.
- Created full analytics pipelines using Python, SQL, and APIs to automate workflows and reporting.
- Supported 500+ students and professionals in training, research, statistical modeling, and Python mentoring.
- Collaborated with product managers and data engineers to deploy scalable analytics solutions aligned with business objectives.
- Designed PMO-style monitoring systems for donor-funded projects, integrating contract KPIs, procurement tracking, and compliance reporting to improve accountability and transparency.

#### ***IT & Software Engineer, Global / Remote***

**2010–Present**

- Developed and maintained full-stack web platforms using Django, WordPress, Joomla, PHP, JavaScript, and SQL, ensuring secure, scalable, and high-performance applications.
- Designed and implemented RESTful APIs in Django and Python to enable smooth integration between backend and frontend.
- Optimized relational databases (MySQL/PostgreSQL) for performance, integrity, and security, including schema design, indexing, and query optimization.
- Collaborated with clients to translate requirements into technical solutions, improving delivery speed and system reliability.
- Implemented AI-powered modules that increased user engagement by up to 40%.
- Managed full-stack IT environments, including server deployment, version control (Git), and application performance monitoring for small-to-medium clients.

#### ***Senior NRW Engineer, Holding Company for Water and Waste Water, Egypt***

**2016–2024**

- Led data-driven utility optimization strategy using analytics and anomaly detection, achieving a 30% performance gain.
- Executed DMA & DMZ rollout, integrating GIS, SCADA, and field data into real-time dashboards.
- Created Excel/Python tools for anomaly detection, cutting manual processing time by 50%.
- Delivered over 40 training sessions on NRW analytics and operational KPIs.
- Oversaw procurement, contract compliance, and donor reporting for international programs, ensuring projects met governance and performance standards.

#### ***O&M Engineer, Greater Cairo & Damietta Water Companies***

**2011–2016**

- Led field operations for leakage detection, SCADA-integrated meter calibration, and preventive maintenance; supervised teams on pump installation, valve testing, and asset upgrades including STP pipelines.
- Collaborated with GIS teams to define DMA zones and build hydraulic models; delivered field training on advanced leakage detection tools and diagnostics.

### ***Highlighted Training Courses Delivered***

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- AI-Powered Presentations – *Ministry of Transport, Onsite, Oman (2025)* - Enabled 20+ professionals to cut design time by 50% using AI tools, improving clarity and audience impact.
  - Data Mining – *Online, KSA (2024)* - Empowered 60+ attendees in pattern discovery and clustering; 90% reported boosted trend.
  - Applied Statistics & Data Analysis (KAUST) – *Online, KSA (2024)* - Achieved 85% improvement in participants' Python-based statistical accuracy on real datasets.
  - Power BI for Data Analysis – *Onsite, Oman (2024)* - Guided analysts through building dynamic dashboards; 100% achieved hands-on project delivery.
  - Statistical Reporting with Excel – *Royal Oman Police, Onsite, Oman (2024)* - Enhanced report quality across 4 departments; reduced errors by 30% through structured Excel analysis.

- Data Visualization with Tableau – *Nama Company, Onsite, Oman (2023)* - Boosted data storytelling skills for 25+ staff; 75% demonstrated improved insight extraction.
- Advanced Power BI Techniques – *Online, KSA (2023)* - Elevated DAX, modeling capabilities; 80% applied solutions to BD.
- Advanced AI Applications – *Online, KSA (2023)* - Delivered hands-on ML model training; engineers reached 90%+ real-time.
- Infographic Design Fundamentals – *Online, UAE (2022)* - Transformed complex data into visuals; improved by 60%.
- Design Thinking for Visualization – *Online, KSA (2022)* - Led a 3-day workshop yielding user-centered dashboards.
- Creative Data Interpretation with Python – *Online, KSA (2021)* - Taught matplotlib & seaborn techniques; 95% of participants applied skills immediately in their roles.

## Highlighted Projects

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- O&M Contracts Bundling System – NWC, Saudi Arabia (2024) Developed and implemented O&M Contracts Bundling System, enabling structured procurement, performance monitoring, and compliance across nationwide contracts.
- Road Safety Dashboard – KAUST, Saudi Arabia (2024) – Reduced Road incidents by 15%.
- Online Ordering System – Hull, UK (2024) – Improved order efficiency by 30% and cut wait times 25%.
- NRW Reduction Phase – VNG, Egypt (2023–2024) – Lowered NRW by 25% through AI-based monitoring.
- NRW Program – USAID, Egypt (2019–2024) – Achieved 30% reduction in NRW via smart technologies.
- DMA Establishment – GIZ, Egypt (2018–2024) - Cut water loss by 15% through DMA zoning.
- Technical Support – EU, Egypt (2019–2023) – Enabled 20% NRW reduction by optimizing daily O&M practices.
- AI E-Commerce Platform – Canada (2023) – Boosted sales by 40% using predictive telecom-scale data Model.
- YOLO Person Detection – RMIT, Australia (2022) – Built real-time detection system achieving high accuracy.
- NRW Feasibility Study – EU, Egypt (2019–2022) – Delivered insights that shaped Egypt's national NRW strategy.
- DMA Monitoring – KFW/Dorsch, Egypt (2019–2020) – Reduced NRW by 20% through smart DMAs.
- Network Strategy Development – EU, Egypt (2015–2017) – Reduced NRW by 10%.

## Highlighted Certifications and Professional Training

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- Software Engineer – HackerRank, 2025
- Data Science Essentials with Python – Cisco, 2025.
- AI Fundamentals + Capstone – IBM, 2025.
- AI for Everyone – Cisco, 2025.
- Data Science Specialization – IBM, 2025.
- AICE (Artificial Intelligence Career Essentials) – ALX Africa, 2025
- Data Science – ALX Africa, 2023–2024.
- PMP Exam Preparation – PM-Tricks, KSA, 2024.
- Project Management Foundations, IBM, 2025
- Sustainable Water Services – Netherlands, 2023.
- NRW & Leakage Control (B) – Japan, Fuji TECOM, 2017.
- Water Plant & Network Operation / Chlorine Safety Training – Egypt, 2018.
- Electrical Systems Training (Cables, Motors, Transformers) – Egypt, 2012–2014.
- Water Meter Installation & Calibration – Egypt, 2012.

## Education

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- Executive MBA (in progress) – Cardiff Institute, UK (Expected 2025).
- B.Sc. in Electronics & Communication Engineering – Cairo University (2010).

## Languages

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- Arabic (Native). | English (Fluent).

## MEMBERSHIPS

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- Saudi Council of Engineers – Professional Engineer. | Egyptian Engineers Syndicate – Certified Engineer.