

# Samuel Omole

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## PROFESSIONAL SUMMARY

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Results-driven Data Scientist with a PhD in Mechanical Engineering and hands-on experience delivering end-to-end, production-grade AI solutions. Proven record building reproducible data and ML products and translating technical solutions into operational decision tools that integrate with business processes. Skilled at feature engineering, model development, evaluation, deployment and lifecycle monitoring. Strong collaborator and technical lead who partners with product, engineering and business stakeholders to translate solutions into scalable decision tools that drive measurable outcomes.

## EXPERIENCE

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### Science and Technology Facilities Council (STFC), Hartree Centre

**Data Scientist**, July 2023 – Present

- Designed and deployed production-grade **time series foundation models** and **statistical models** for grid demand forecasting (<3% error margin). Built end-to-end ML pipelines with automated model versioning, monitoring, and deployment workflows, delivering AI-driven solutions that enhanced grid reliability and operational decision-making.
- Finetuned and deployed **geospatial foundation models** for water segmentation and flood detection on multispectral and hyperspectral satellite images, achieving >90% accuracy. Integrated **agentic** pipelines with **LLMs** to autonomously retrieve Sentinel-1/2 imagery from APIs and trigger model inference for automated flood risk assessment.
- Engineered production-grade deep learning pipelines for real-time vessel detection achieving ~85% accuracy and <2 minutes latency. Built end-to-end ML solution integrating DAS and AIS data streams, implementing robust model training and deployment workflows that enabled real-time maritime surveillance capabilities and decision-making.
- Designed, optimised and deployed **computer vision-based** models for fabric defect detection and classification, delivering >95% accuracy and **milliseconds** inference latency in production.
- Collaborated and co-led initiatives like [Smart Manufacturing Data Hub \(SMDH\)](#) and [BridgeAI](#) to develop and integrate diverse ML solutions for complex industrial applications in small and medium-sized enterprises (SMEs) to streamline processes, enhance productivity and competitiveness.
- Built production-ready **data engineering pipelines** on cloud platforms that transformed raw, multi-modal, and unstructured data into reliable datasets for real-time AI/ML predictive modelling and inference. Designed scalable ETL workflows with robust data validation, feature engineering, and integration processes that ensured data quality and pipeline reliability for AI-driven solutions.
- Actively research and apply emerging ML/AI methods, bridging technical findings with business applications to turn new approaches into prototypes and sharing learnings and documentation across teams to advance internal AI capabilities.

### DUFIL Prima Foods Plc

**Continuous Process Improvement Engineer**, February 2016 – September 2017

- Utilised statistical tools including R and Minitab to analyse production data, identify process inefficiencies, and define improvement projects, leading to a 15% reduction in cycle time and a 10% increase in yield across key production lines.
- Drove cross-functional initiatives using **Lean** and **6σ DMAIC** methodology to deliver data-driven digital solutions, achieving a 16% reduction in fat content of finished food products and a 19% decrease in unplanned production line downtime, significantly improving product quality and process efficiency.
- Developed and deployed a VBA-powered automated inventory tracking tool that integrated with existing ERP systems to digitalised production planning and asset management, reducing manual entry errors by 90%, cutting planning time by 40% and enabling Just-In-Time (JIT) production through real-time stock and asset monitoring.
- Implemented data-driven digital solutions to optimise storage utilisation and align raw material inventory with production schedules, increasing warehouse capacity by 25% and minimising stockouts and overstock by aligning demand forecasts with real-time supply data.

### De Kollar Limited

**HVAC Engineer**, January 2015 – January 2016

- Collaborated with clients to gather and analyse operational data, translating complex HVAC performance requirements into data-informed design solutions that met real-world constraints and improved system efficiency.
- Performed data-driven analysis of heating and cooling loads to determine precise ventilation and HVAC requirements, optimising system performance and ensuring compliance with building and energy efficiency standards.
- Contributed to R&D initiatives that transformed client challenges into technical solutions, leveraging analytical thinking and cross-functional collaboration to drive innovation and meet operational goals.

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## EDUCATION

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**Doctor of Philosophy in Mechanical Engineering |** University of Bath, United Kingdom, 2019 – 2023

**Publications:**

Omole, S., Dogan, H., Lunt, A.J.G., Kirk, S. and Shokrani, A., 2023. Using machine learning for cutting tool condition monitoring and prediction during machining of tungsten. *International Journal of Computer Integrated Manufacturing*, 37(6), 747-771. <https://doi.org/10.1080/0951192X.2023.2257648> (PhD work, primary author).

Omole, S., Lunt, A.J.G., Kirk, S. and Shokrani, A., 2022. Advanced processing and machining of tungsten and its alloys. *Journal of Manufacturing and Materials Processing*, 6(1), 15. <https://doi.org/10.3390/jmmp6010015> (PhD work, primary author).

**Master of Science in Mechanical Engineering (Distinction) |** Loughborough University, United Kingdom, 2017 – 2018

**Bachelor of Engineering in Mechanical Engineering (First Class Honours) |** University of Ilorin, Nigeria, 2009 – 2014

## TECHNICAL SKILLS

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- **ML & DL:** PyTorch, TensorFlow, Keras, OpenCV, HuggingFace, scikit-learn, Pandas, statsmodels; time series foundation models, time series modelling (ARIMA, LSTMs, transformers), computer vision (classification, object detection, image segmentation).
- **LLMs & Agentic AI:** LangChain, LM Studio, Ollama; RAG, prompt engineering, multi-agent systems design and orchestration, LLM finetuning.
- **Databases & Data Engineering:** PostgreSQL, Snowflake, BigQuery, Redis, Milvus; PySpark, Spark SQL, dbt, Prefect, Airflow.
- **MLOps & Deployment:** CI/CD, Git version control, Docker, Kubernetes, MLflow, PyTest, FastAPI, Flask.
- **Cloud & Distributed Compute:** GCP, AWS, Azure; distributed training, GPU acceleration.
- **Data Visualization:** Matplotlib, Seaborn, Dash, Plotly, Tableau, PowerBI, QuickSight

## AWARDS & ACHIEVEMENTS

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- Journal of Manufacturing and Materials Processing (JMMP) 2022 [best paper award](#)
- EPSRC DTP Studentship with United Kingdom Atomic Energy Authority (UKAEA), 2019
- Loughborough University Graduate School Development Trust Africa Scholarship, 2017/2018
- Best Graduating Student in the Department of Mechanical Engineering, 2014

## COURSES & CERTIFICATIONS

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- [DeepLearning.AI TensorFlow Developer Professional Certificate](#)
- [Exploratory Data Analysis for Machine Learning](#)
- [Deep Learning Specialisation](#)
- [Practical Machine Learning](#)
- [Lean Six Sigma Green Belt](#)
- AWS Certified Solutions Architect – Associate and Professional (TBC)
- AWS Certified Machine Learning – Specialty (TBC)
- Royal Statistical Society Data Science Professional (TBC)