

**OLUKUNLE OWOLABI, PhD**

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**SUMMARY**

Senior Machine Learning Engineer/Research Scientist with 7+ years of research and industry experience in leading projects that apply Machine Learning tools to tackle difficult problems. Highly enthusiastic about applying my knowledge to proffer solutions to problems in new, challenging, or unfamiliar terrains. Experience in Optimization, Natural Language Processing, Anomaly Detection, Time series, Recommender Systems and Computer Vision.

SKILLS	TOOLKIT	OTHERS
General	Python, SQL, Spark	<b>Modelling:</b> Neural Networks (LSTM, feed-forward), Collaborative Filtering, LLMs (Text), Ensemble Models, Collaborative Filtering, Bayesian Optimization, Clustering Algorithms, A/B testing, Latent Feature Modeling, Deep Reinforcement Learning.
Cloud	AWS, Azure, GCP	
Big Data	Hive, Hadoop, Kafka	
ML Platform	Sagemaker, Databricks, Snowflake	
ML Pipeline & Deployment	Airflow, Kubernetes, Terraform, Dataswarm	
Machine Learning	Sklearn, Pandas, Numpy, NLTK, OpenCV	<b>Non-technical:</b> Agile Methodology, Problem Formulation, XFN collaboration, Excellent Communication, Pattern Recognition, People Management
Statistics	StatsModels, SciPy	
Deep Learning	Pytorch, TensorFlow	
Data Preprocessing	NumPy, Pandas, OpenCV	
Data Visualization	Matplotlib, Seaborn, Tableau	
Time Series	Kats, Prophet	

**PROFESSIONAL WORK EXPERIENCE****META**

Boston, Massachusetts

**Senior Machine Learning Engineer/Research Scientist**

**May 2021 –**

- Deployed & managed end-to-end batch processing machine learning pipeline for accurate real-time capacity estimation and quota management for Facebook and Instagram Live.
- Built ML pipeline for Hyperparameter tuning in real-time demand forecasting use case that improves performance, reliability, and time-to-convergence of forecasting models.
- Designed & orchestrated deployment of dynamic real-time ML models for core database to optimize memory and CPU usage while leveraging information retrieval (IR) methods to improve query performance by 5% for our millions of users.
- Developed and productionized an Automated, Scalable, Config-driven Machine Learning Solution for large scale demand forecasting that increased onboarding speed by 80X.
- Built complex mixed integer programming optimization models for cross region traffic and placement of replicas that resulted in efficiency wins of ~12 Petabytes of idle storage capacity.

**PREDICTIVE RISK INVESTIGATION SYSTEMS (PRISM) [Contract]**

Medford, Massachusetts

**Machine Learning Research Scientist**

**Sept 2019 – May 2021**

- Feature Engineering & development of critical metrics to system correlation with risk factors e.g., Energy vs Ecology CRI.
- Led data extraction from community science sources. Pre-processed and onboarded big data into the PRISM Database at the Columbia University (<https://iridl.ldeo.columbia.edu/SOURCES/.EOEEA/>).
- Developed Bayesian and hierarchical Machine Learning forecasting models for improving power outage risk prediction while integrating adjacent data sets and variables from ecology and climate domains.
- Applied machine learning and data science techniques to improve price volatility risk prediction in electrical distribution systems.

**TILLIX**

Edinburgh, United Kingdom

**Senior Machine Learning Engineer [Contract]**

**Sept 2019 – May 2021**

- Analysed and built batch processing pipelines for ML models on large volumes of data to gain predictive insights into customer behaviour and identify opportunities to improve operations for clients in a variety of energy, cleantech and ACES mobility markets.
- Built time series models for optimally sizing clean energy micro grids while account for demand and behavioural patterns from semi-structured data.
- Analysed impact of micro-grid on stakeholders based on cost-benefit analysis using economic model in HOMER.

**NAYO TROPICAL TECHNOLOGY****Analyst**

Abuja, Nigeria  
**June 2019 – Aug 2019**

- Pre-processing of high resolution, noisy, inconsistent load data in three underserved communities
- Analysis and development of optimal sizing solution for hybrid micro-grid using pre-processed data

**CENTER FOR RENEWABLE ENERGY AND DATA ANALYTICS (CREDA)****Research Scientist**

Ilorin, Nigeria  
**Jan 2017 – Aug. 2018**

- Collaborated with researchers to understand trends in energy consumption in urban areas and its implication for sustainability based on the United Nations Sustainable Development Goals (UNSDG 7).
- Led demand modelling for unavailable data points backed by careful assumptions. Also carried out trend analysis combined with qualitative information to interpret the findings and its correlation with energy efficiency.

**DOVEWELL****Research Engineer**

Port Harcourt, Nigeria  
**June 2015 – Dec. 2015**

- Applied analytical and computational techniques to a variety of oil and gas production engineering problems.

**OTHERS****Natural Language Processing**

- Built unsupervised ML model to for extractive summarization of articles that capture the United Nations Sustainable Development Goals.
- Data collection, cleaning as well as pre-processing operation for articles including tokenization and removing stop words
- Used cosine similarity to generate similarity matrix and rank to produce summarized sentences

**Deep Learning – Predictive Model**

**Owolabi, O. O.**, & Ogungbamigbe, S. E. Application of Artificial Neural Networks in Predicting Critical Rates for Vertical Wells in Oil Rim Reservoirs. SPE NAICE. (2017, July 31). <https://doi.org/10.2118/189153-MS>

- Carried out Sensitivity Analysis to determining the important input variables and the magnitude of their impacts on critical rates.
- Develop a feed-forward layered network with 12 input variables and Bayesian regularization to predict critical rates.
- Comparison of results from the Neural Network with other correlations for predicting critical rates.

**Optimization and Forecasting**

**Owolabi, O.O.**; Sunter, D.A. Bayesian Optimization and Hierarchical Forecasting of Non-Weather-Related Electric Power Outages. Energies 2022, 15, 1958. <https://doi.org/10.3390/en15061958>

- Built a Bayesian optimization and hierarchical time series forecasting models to estimate non-weather-related power outages (NWO) with high accuracy, significantly outperforming baseline ARIMA and SARIMA models.
- Defined a robust metric for NWO (non-weather outage count index, NWOCI) and leverage advanced pre-processing and forecasting techniques in Kats and Prophet.

**EDUCATION****TUFTS UNIVERSITY**

PhD Mech. Engineering [Applied ML Research]

Medford, Massachusetts

**2022**

**THE UNIVERSITY OF EDINBURGH**

MSc. Engineering (Distinction)

Edinburgh, Scotland

**2019**

**UNIVERSITY OF IBADAN**

BSc. Engineering (First class Honours, 91%)

Ibadan, Nigeria

**2016**