Kabir **Abdulmajeed**

Data Scientist · ML, DL, CV, AI, Robotics,

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Summary

I'm an Intelligent systems enthusiast. I have passion for data-driven systems and intelligent insights through analytics. My experience ranges from applying predictive analytics in the pipeline inspection industry and advanced machine learning techniques for solving tough asset integrity problems to collaborating with institutions to build forecasting models and supporting ESG related services with data science. Over the years, I have developed skills in areas such as Machine learning, Deep learning, Data Analysis and Visualization, Computer Vision, and Robotics.

Education

Georgia Institute of Technology
Atlanta - Georgia, USA

M.Sc in Computer Science
Aug. 2018 - Dec. 2021

- Specialization in Machine Learning - 3.9/4.0

King Fahd University of Petroleum and Minerals
Dhahran, S.Arabia

M.Sc in Systems Engineering
Jan. 2015 - Jan. 2017

- Specialization in Systems, Robotics, and Control - 3.72/4.0

Osun State University
Osun, Nigeria

B.Eng in Electrical and Electronics Engineering
Sept. 2009 - Mar. 2013

- Specialization in Signals and Communications - 4.7/5.0

Work Experience

Enduro Pipeline Services
Calgary, Canada

Data Scientist
Oct. 2020 - PRESENT

- Led next-generation sizing algorithms using hierarchical machine learning models. This model outperformed all current sizing models and resulted in improved accuracy and satisfaction for oil and gas asset integrity.
- Experience with MLOps and writing Production level code. Built ML pipelines using MLFlow, tracked training cycles with TensorBoard, and experiments using Weights-n-Biases. Familiarity with DVC for data version control, FastAPI for inferencing, and Heroku for deploying models.
- Developed object detection and classification algorithms to identify and categorize different types of corrosion signatures from data sources. Implemented class-imbalance corrections, model complexity analysis, and created 'Dact' - a new neural network activation function.
- Built ETL pipelines, automated EDA and data quality checks, enhanced feature engineering, data fusion streams, and monitored dataset creation processes. Wrote SQL scripts to modify and process field data.
- Initialized and configured GCP instances for high computation workloads especially when exploring randomized algorithms for neural network training. This enabled quick turnaround in testing and evaluating different neural model architectures.

ROSEN
Dubai, UAE / Dhahran, KSA

Machine Learning and Data Scientist - Rosen R&D
Jul. 2018 - Oct. 2020

- Led the project on the automatic detection of illegal offtakes from ILI data in oil and gas pipelines. This project involved developing novel and confidential machine learning algorithms and sensor configurations to find locations of illegal taps where vandals steal product flows. Results led to savings worth millions of dollars for the global inspection business.
- Spearheaded the intelligent cleaning project in which pipeline data was used to assess the state of pipeline installations. These include automatically detecting components such as tees, valves, bends, launchers, receivers using data from IMU sensors and analyzing features such as corrosion, crack, and other defects with regression and classification machine learning models.
- Developed Algorithms for wall-thickness measurements, defect analysis, and feature characterization. These include coating disbondment in Saudi-Aramco coupons, coating removal analysis, crack detection from ultrasound image scans of steel plates.
- Worked on deep learning algorithms for dataset augmentation, nonlinear probabilistic filters for distance-to-time mapping and visualization of geometry pigs. Built desktop software for interfacing with models, automatic inspection report generator, and managed local repository of code and articles.

Abike Memorial Clinics
Kwara, Nigeria

Data Analyst Consultant
Jan. 2017 - Jun. 2018

- Developed software for the enhancement of medical ultrasound images. This project aimed to improve the quality of medical images obtainable from cheap and old ultrasound equipment to support rural healthcare. A GUI was developed with image processing routines such as contrast enhancement and alpha blending.
- Designed the framework for the digitization of patient OPD forms using optical character recognition (OCR). This work supported healthcare digitization with which hospitals and clinics can convert traditional paper-based OPD forms to digital tables stored in local databases.
- Managed the installation, troubleshooting, maintenance of clinical software, and hardware. Performed an advisory role on the purchase and upgrade of technology infrastructure.

Alcatel-Lucent   *Lagos, Nigeria*

3G Systems Engineer   *Feb. 2011 - Aug. 2011*

- Maintained Alcatel-Lucent's state-wide 3G BTS Node-B Software, radio configurations, and fiber networks serving Global Telecommunications.
- Worked on Node-B installations, commissioning, integration, and troubleshooting. Similarly worked on RRH configuration, installation, commissioning, and troubleshooting. Most notably, peformed the installation of the earliest 3G cellular station for the Yaba-axis of Lagos State.
- Developed expertise with 2G and 3G Networks covering UTRAN/UMTS, site survey, and acceptance. Responded to over 250 telecoms cell site NMC/NOC alarms without supervision.

Projects and Skills

Computing Skills

Languages, Software, Packages

- Experience programming in Python including data analysis with Pandas, NumPy, SciPy, and Matplotlib. Familiarity with R and Matlab.
- Experience developing models with Scikit-learn, Keras/TensorFlow, XGBoost. Familiarity with Pytorch, PyQt, Git.
- Exposure to MLOps tools such as MLFlow, TFX, WnB, DVC, FastApi, Heroku. Comfortable working with MySQL and PostgreSQL
- Understanding of web HTML, CSS, JavaScript and design tools such as Figma, Adobe Illustrator, and other tools such as OpenCV and HDF5.

Papers

Published papers and written articles

- Kabir Abdulmajeed, David Joyner, Christine McManus. (2020). Challenges of Online Learning in Nigeria. ACM Conference on Learning@Scale.
- Kabir Abdulmajeed, Monsuru Adeleke, Labode Popoola. (2020). Online Forecasting of COVID-19 using Limited Data. Elsevier Data in Brief.
- Abdulwahid Al-Saif, Kabir Abdulmajeed, Sami El-Ferik. (2020). Active Disturbance Rejection Optimal Control for Quadrotors. Submitted to International Conference on Systems, Signals, and Devices (SSD2020).
- Kabir Abdulmajeed. (2018). Autonomous Control of a Quadrotor-Manipulator; Application of Extended State Disturbance Observer. ArXiv
- Obiseye Obiyemi, ..., Kabir Abdulmajeed. (2015). Quantification of Rain Induced Artifacts on Digital Satellite Television Reception. Nijotech

Academic Thesis

Masters and Bachelors Thesis

- M.Sc. | Designed Autonomous Quadrotor for deploying sensors in open fields
- B.Eng. | Design and Construction of a Mobile Phone Cellular Network Jammer.

Projects

Please visit my Webpage for more details.

- Pedestrian tracking with Kalman and Particle Filters, Machine Learning Algorithms for Trading, Exposure Fusion, Seam-Carving for Image resizing, Sea Lion Classification using CNN, ADRC Controller for Quadrotors, Image Panoramas, Anomaly Detection with Variational Auto-Encoders, Evaluation of Supervised Machine learning Algorithms: Support Vector Machines, K-Nearest Neighbors, Decision Trees (+ AdaBoost), Random Forests, and Neural Networks

Honors & Awards

2015	**KFUPM-DGS,** King Fahd University Graduate Fellowship	*Dhahran, S.Arabia*
2014	**B.E.S.T,** Runner-Up National Budding Engineers and Scientists Award - Fed. Ministry of Education	*Abuja, Nigeria*
2013	**Pro-Chancellor's Award,** Overall 2nd best Undergrad performance, Osun State University	*Osun, Nigeria*
2013	**Vice-Chancellor's Award,** Overall best performance from the College of S.E.T, Osun State University	*Osun, Nigeria*
2013	**Departmental Award,** Best performance from the EE Department, Osun State University	*Osun, Nigeria*
2013	**FELD Award,** Runner-Up, National Undergraduates Competition	*Lagos, Nigeria*

Referees

Dr. Samir Al-Amer   *samirha@kfupm.edu.sa*

Associate Prof. SCE, King Fahd Uni. of P&M

Prof. Alamu O.J.   *alamuoj@uniosun.edu.ng*

Former VC, Osun State Uni.

Dr. Lasisi H.   *lashammed@yahoo.com*

Lecturer EE, Osun State Uni.