MUSTAPHA ABDULLAHI

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RESEARCH INTERESTS

Machine Learning Systems, Reinforcement Learning, and Large Language Models

EDUCATION

Aalto University   **April 2024 - Present**
PhD Computer Science   *Espoo, Finland*
Advisor: **Prof. Bo Zhao**

Queen Mary University of London   **Sept. 2022 - Sept. 2023**
MSc Artificial Intelligence [Computer Vision and Robotics] - ***Grade: 80% (Distinction)***   *London, U.K.*
Supervisor: **Prof. Bo Zhao**

Ahmadu Bello University   **Oct. 2015 - Nov. 2021**
BEng Computer Engineering - ***CGPA: 4.90/5.00 (First-class)***   *Zaria, Nigeria*
Supervisor: **Prof. Habeeb Bello-Salau**

Federal Government College, Kaduna   **Sept. 2012 - July 2015**
West African Secondary School Certificate (W.A.S.S.C.E)   *Kaduna, Nigeria*

MINOR EDUCATION

Mediterranean Machine Learning Summer School (M2L School), Thessaloniki, Greece. **Aug. - Sept. 2023**
The Cornell, Maryland, Max Planck Pre-doctoral Research School (CMMRS), Germany   **Aug. 2023**
Reinforcement Learning Summer School (RLSS), Barcelona, Spain   **June - July 2023**

INDUSTRY EXPERIENCE

QuantumBlack AI Labs (McKinsey & Company)   **Oct. 2023 - Jan. 2024**
Software Engineer Intern   *London, U.K.*
- Developed a one-click CLI tool for effortless deployment of **Kedro** projects on **Databricks** Platform.
- Implemented essential client study feedback as integral components within software production pipelines.

Play4Work   **Feb. 2021 - March 2022**
Chatbot Developer   *Canada(Remote)*
- Collaborated with a team of 5 to design conversation mappings required to build an interactive chatbot.
- Spearheaded a team of 2 to develop a chatbot with over 700 conversation nodes with Google DialogFlow.
- Reduced 60% of the company's workload of candidate's matching and responses processing.

Huawei   **Jan. 2020 - Feb. 2020**
Big Data/Cloud Intern   *Lagos, Nigeria*
- Set up and managed FTP Server, WordPress (Windows & Linux), Windows Share Point Server, etc. on Huawei Elastic Cloud Server (ECS).
- Performed Relational Database migration using Cloud Data Migration Tool. Utilised Squoop to migrate data between Apache HDFS, Apache HBase, Apache Hive and MySQL database.
- Performed Data Analysis of Smart IoV solution with over 400,000 data points utilizing HiveQL for offline analysis, Apache HBase for real-time query and retrieval and Spark-SQL to migrate the offline analysis service.

RESEARCH EXPERIENCE

Large-Scale Data & Systems (LSDS), Imperial College London   **June 2023 - Aug. 2023**
Research Intern [Master's Thesis] (Advised by: **Prof. Bo Zhao** & **Prof. Peter Pietzuch**)   *London, U.K.*
- Evaluated tradeoffs among three distribution policies of MindSpore Distributed RL.

PUBLICATIONS

[1] Mustapha, A.J. 2021. *An Artificial Intelligence of Things (AIOT) based Assistive Smart Glass for the Visually Impaired.* [Poster Presentation]. Department of Computer Engineering, Ahmadu Bello University, Nigeria. ⬈

AWARDS & ACCOLADES

- Finland Fellowship [for doctoral studies at Aalto University]   2023
- AEGEAN Scholarship - Travel Grant to attend M2L School (one of 10 top students)   2023
- Best Graduating Engineering Student Award, NSE (Nigerian Society of Engineers)   2022
- 2023 Rhodes Scholarship Finalist [West Africa]   2022
- Google DeepMind Scholar   2022-2023
- QuantumBlack (McKinsey Company)/Office of AI Scholar   2022-2023
- i-Scholar Initiative (iSI) Awardee   2022
- Best ICT Competition Instructor, Huawei ICT Competition Sub-Saharan Africa   2022
- 1st Place, Dept. of Computer Eng. Final Year Undergraduate Project Exhibition   2021
- 3rd Best Engineering Graduate in Nigeria (Awarded by CODET)   2021
- NCS (Nigerian Computer Society) Jim Ovia Scholarship Award   2020-2021
- Grand Prize Winner, Huawei ICT Competition Global Final - Cloud Track   2020
- 1st Place, Huawei ICT Competition Regional Final (Southern Africa) - Cloud Track   2020
- 3rd Place, Huawei ICT Competition National Final - Cloud Track   2019
- Nigeria Higher Education Foundation Scholar (Class of 2019)   2019
- 2nd Runner Up, Professor Ayodele Awojobi Design Competition (PAADC) 3.0   2019
- NNPC/Total National Merit Scholarship Award   2018-2021
- China-Nigeria October 1st Scholarship   2018
- Federal Government Scholarship Award [Undergraduate Award]   2017-2021
- Agbami Special Medical and Engineering Professionals Scholarship Award   2017-2021

TALKS

Kedro Databricks Deploy, QuantumBlack AI Labs, London, U.K.	**Dec. 2023**
Beyond Building Machine Learning Models ↗, Data Science Nigeria, Nigeria	**June 2021**

PROJECTS

Evolving AlexNet CNN Maize Plant Disease Classification   **July 2021 to Oct. 2021**
- Collaborated to propose a modified Binary Particle Swarm Optimisation (BPSO) algorithm to optimise the structure of the fully connected (FC) layers of CNNs.
- Developed a Tensorflow code implementation of AlexNet model
- Collaborated to derive an optimised model architecture achieving an improved accuracy of 98.3%.

iGlass   **April 2020 - Oct. 2021**
- A smart assistive device for the visually impaired for reading out text, object detection, scene description, etc. using Raspberry Pi, AWS Rekognition, and Google Cloud AI.
- Spearheaded the development of iGlass prototype.

CompengBot   **March 2021 to April 2021**
- A fast and efficient chatbot to answer queries of students and the general public related to the computer engineering department. Deployed on the departmental website and Telegram page.
- Easy and improved access to information about department and school.
- Quick access to details about courses and lecturers contact.

Transfer Learning for Classification of Cat, Dog and Pandas   **Dec. 2020**
- Used densenet-161 as feature extractor and achieved an accuracy of 97.3%.

VOLUNTEERING

Arewa Data Science Academy	**Feb. 2023 - Present**
Machine Learning Mentor	*Nigeria*
2023 IEEE International Conference on Robotics and Automation (ICRA)	**May 2023**
Volunteer	*London, U.K.*
Kada Hive Innovation and Tech Hub	**May 2022**
Robotics Instructor - Play Tech Kids Programme	*Kaduna, Nigeria*
Data Science Nigeria	**June 2021**
Data Science Tutor	*Zaria, Nigeria*

- Assisted participants in setting up data science software and packages.
- Supported the lead tutor in introducing participants to machine learning tools (such as numpy, pandas and scikit-learn).
- Participation Certificate. ↗

Ahmadu Bello University	**Feb. 2018 – April 2021**
Tutor - Control Engineering (COEN303, COEN407, COEN507)	*Zaria, Nigeria*
Computer Engineering, Ahmadu Bello University	**Aug. 2019**
Instructor - Python Bootcamp for Kids	*Zaria, Nigeria*

TECHNICAL SKILLS

Programming Languages: Python, Scala, C++, MATLAB, LaTeX, ROS
ML Frameworks: PyTorch, Tensorflow, Keras, Kedro, Apache-Spark, Scikit-Learn, XGBoost
Cloud Services: GCP, AWS, Databricks Platform, Huawei Cloud Platform
Operating System: Linux (Ubuntu, Cent OS 7.*), Windows
Big Data Tools: Hadoop, Apache Spark, Apache Hive, Hbase, MySQL, Huawei MapReduce Service, Gremlin
Microprocessors: Raspberry pi (zero, 3), Arduino, ESP32, ESP8266
Soft Skills: Leadership, Problem solving, Team Player, Time Management, Interpersonal Skills

PROFESSIONAL MEMBERSHIPS

- Black in AI, member
- Black in Robotics, member
- Nigerian Computer Society (NCS), member
- Data Science Nigeria, member
- Nigerian Society of Engineers (NSE), Graduate Member

HOBBIES

Watching anime; playing football; talks about AI and the future