Umar Faruk Abdullahi

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EDUCATION

Erasmus Mundus Master in Engineering of Intelligent Systems **Aug 2023 – Jul 2025**
M.Sc. Intelligent Systems [Computer Vision and Robotics]; University of Balearic Islands. *Palma, Spain*
M.Sc. Computer Engineering; Åbo Akademi University - **GPA: 5.00/5.00** *Turku, Finland*

Ahmadu Bello University **Oct 2015 – Feb 2020**
B.Sc. Computer Science - **CGPA: 4.72/5.00 (First Class Honours)** *Zaria, Nigeria*

ADDITIONAL EDUCATION

Mediterranean Machine Learning Summer School (M2L School), **Sept 2024**
Milan, Italy.

The Cornell, Maryland, Max Planck Pre-doctoral Research School **Jul - Aug 2024**
(CMMRS), Saarbrucken, Germany.

Oxford Machine Learning Summer School (OxML), Oxford, England. **Jul 2024**

WORK EXPERIENCE

Turing San Francisco, US (Remote)
LLM Engineer *May 2024 – Present, Contract*

- Assessing the accuracy of code responses generated by Large Language Models (LLM) in multiple programming languages e.g Java, Python, Go, JavaScript etc. , providing ratings based on correctness and relevance.
- Conducting comprehensive code reviews to identify areas for improvement, and implement solutions to optimize performance and maintain code quality.
- Documenting findings and improvements for training purposes and for future reference to enhance team knowledge and efficiency.

Fingletek Espoo, Finland
Machine Learning Engineer Intern *Jun 2024 – Sept 2024, Internship*

- Leveraged transformer models i.e DistillGPT2 for the creation of a synthethic dataset for 5G network slicing mimicking real-world data distributions with more than 80% similarity.
- Designed and trained a collaborative machine learning system for the prediction of network slices and their resources based on user requirements using ensemble learning e.g Random Forests, Gradient Boosting and sequential attention techniques i.e TabNet with ~90% accuracy on the multi-classfication to regression task.
- Modelled, trained and evaluated a reinforcement learning agent for intelligent dynamic resource allocation based on predictions from the collaborative supervised models.
- Created APIs using Python and FastAPI to enable seamless integration with the system and also built a frontend user interface using Streamlit for accessible demonstration to users and stakeholders.

Mercurie Lagos, Nigeria
Software Engineer *Oct 2021 – Aug 2023, Full-time*

- Led the development of a multi-tier microservices application in both Go and Python for automating ads across client platforms with more than $6 million in revenue.
- Orchestrated the deployment of API specifications and gateways for both microservices, utilizing API Gateway, Cloud Load Balancing on Google Cloud and deployed efficient distributed workloads using event driven techniques such as Pub/Sub, Kafka and Task Schedulers.
- Implemented secure inter-micoservices communication using proto buffers with gRPC protocol on the TCP/IP layer.
- Architected and implemented a custom role based (RBAC) authorization SDK used by various microservices in the system enabling creation of staff accounts with varied access levels.

Research Experience

Turku BioScience Turku, Finland

Machine Learning Research Assistant *Oct 2023 − Present, Part-time*

- Research on current techniques in identification of Parkinson's disease biomarkers using machine learning methods based on genomics, proteomics and transcriptomics data.
- Created a custom pipeline for training and evaluation of canonical machine learning models such as LinearSVC, XGBoost, RandomForests, MLP that accurately classify Parkinson's disease and healthy individuals with average accuracy of 90% including interpretability using explainable AI techniques like SHAP and LIME.
- Implemented various image generation techniques from numerical data e.g DeepInsight, IGTD to generate images based on omics data for training with custom 2D CNN models.
- Created a custom dashboard for easy communication of project findings and results using Streamlit.

AILiveSim Helsinki, Finland

Computer Vision Intern *Oct 2023 − Jan 2024, Internship*

- Worked on the "Out-of-Distribution" project in AILiveSim's research division under the supervision of Dr. Jarno Ralli.
- Conducted in-depth research on cutting-edge out-of-distribution for object detection models and key performance indicators for OOD while curating and annotating real and simulated datasets with more than 10,000 samples for robust model training.
- Trained variations of custom YOLOv8 object detection using PyTorch models for out-of-distribution detection in maritime environments with an mAP of 92%.

Teaching Experience

Yusuf Maitama Sule University Kano, Nigeria

Teaching Assistant *Dec 2020 − Oct 2021, Full-time*

- Instructed and assessed over 200 first-year undergraduate students in **CS103 Introduction to Programming**, ensuring a comprehensive understanding of programming fundamentals and practical skills.
- Designed and facilitated experiments, guiding students through hands-on learning experiences in **CS305 Digital Electronics** and **CS403 NetCentric Computing** courses.
- Designed and developed a robust proprietary internal electronic library system for the Computer Science Department using PHP, MySQL and JavaScript, which was instrumental in the accreditation of the Information Technology programme by the Nigeria Universities Commission (NUC).

Select Projects

ML Projects | *GitHub*

- A collection of four machine learning projects tackling different problems: classification, regression, unsupervised learning (clustering) and image classification using CNN (ResNet 101) with accompanying detailed PDF reports.

Bayani | *GitHub*

- A web application enabling users to engage in simultaneous chat discussions across multiple PDF documents, developed using Vector Database; LangChain and GPT3.5 embeddings.

Udagram | *GitHub*

- Constructed a cloud-native, microservices-based image-sharing application on AWS Elastic Kubernetes Service, DynamoDB, and AWS API Gateway. Additionally, revamped and implemented a serverless version using the Serverless Framework and AWS CloudFormation.

Cosmic-Calc | *GitHub*

- Performed spatial distribution analysis of galaxies in the universe using the two-point angular correlation function. Developed three versions of the solution: one in pure C, one utilizing OpenMP for parallel processing, and a GPU-accelerated version based on CUDA..

Selected Honors, Awards & Achievements

Grand Prize, Nokia Challenge Finland: Won the first place in the Nokia hackathon for presenting a solution for intelligent network optimization through generation of NetworkAsCode scripts using AI. (Oct 2023)

European Union Erasmus Mundus Scholarship: Fully funded prestigious scholarship awarded to top 3% of students for masters study in European institutions. (Aug 2023 − Jul 2025)

MasterCard Foundation Scholarship Awardee: Fully funded scholarship for masters study in select top African institutions. (Apr 2023)

Best Competition Mentor (1st place), Kaduna Innovation Challenge: Awarded for serving as mentor to the team that won first place in the state government's organised hackathon. (Jun 2022)

BlackAndBrilliant AI Accelerator Recepient: Selected from hundreds of applicants for the AI accelerator program featuring mentors from leading research labs and institutions worldwide. (Mar 2022)

Best Graduating Computer Science Student: Awarded to the graduating student with the highest CGPA . (Feb 2020)

Service Award, Nigeria Association of Computing Students (NACOS): For service as voluntary tutor during the entire academic programme and as software director of the association. (Nov 2019)

Guaranty Trust Bank Best Graduating Student, Crescent International: Awarded to the best overall graduating student (Sciences and Humanities) during the entire six years of secondary education. (Jul 2015)

Macmillan Publishers Best Graduating Student, Lufaloy Schools: Awarded to the best overall graduating student during the entire six years of primary education. (Aug 2009)

Volunteering

Academic Tutor, Computer Science, Bayero University: Served as a voluntary academic tutor on computer science subjects to students in the Faculty of Computing. (May 2021 − Aug 2023)

Software Director, National Association of Computing Students (NACOS): Led the development of software solutions for the association and tutored students in web and mobile app development. (Jan 2019 − Jan 2020)

Academic Tutor, Computer Science, Ahmadu Bello University: Served as a voluntary academic tutor on computer science subjects to fellow and junior students in the department of computer science. (Apr 2017 − Nov 2019)

Selected Talks

Potentials of Transformer-based AI Models | *Slides*
- Presented on the transformer architecture, how it enabled larger models with higher intelligence and various applications of such models in text, audio and images.

A Primer on Modern Web Development | *Slides*
- Presented a workshop on getting started with modern web development through mastering the fundamentals, clear definition of a problem and selecting appropriate tools to solve such problems.

Adapting Your Apps for Android 11 Privacy Changes | *Slides*
- Presented on the latest developments in Android 11 and how developers can leverage the new Android APIs in securing their users data and ensuring privacy in their apps.

Skills

Languages: Python, Go, Java, JavaScript, C/C++, SQL, Dart

Frameworks: Android, Flutter, Flask, FastAPI, Node.js, React.js, Vue.js, MySQL, MongoDB, Firebase, Git, Docker, AWS, GCP, Kubernetes

Machine Learning: Tensorflow, Keras, OpenCV, PyTorch, Scikit-Learn

Methodologies: Research, Agile, Scrum, OOP, DevOps, CI/CD, TDD