AYANFEOLUWA OLUYOMI

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EDUCATION

Doctor of Philosophy in Computer Science May 2025
Missouri University of Science and Technology **GPA: 3.63/4.0**
Selected Courses: Data Mining, Advances in Artificial Intelligence, Advances in Cyber-Physical System, Machine Learning in Computer Vision, Applied Graph Theory, Regression Analysis, Analysis of Algorithm, Cloud Computing and Big Data Management, Parallel Programming.

Bachelor of Technology in Computer Science (Cyber Security) October 2018
Federal University of Technology Minna, First Class Honors 2018 **CGPA 4.84/5.00**

SELECTED RELEVANT TECHNICAL PROJECTS

Bike Sharing Demand with AutoGluon 2023
Utilized KNN, Neural Nets, RF, and XGBoost for the Kaggle bike sharing demand competition, incorporating feature engineering, hyperparameter tuning, to enhance prediction performance.

Natural Language Processing: Fine-Tuning Phi 1.5 on the Know_sql Dataset 2023
Utilized Low-Rank Adaptation (LoRA) to fine-tune a Large Language Model (LLM).

Developing a Machine Learning Workflow for Scones Unlimited on Amazon Sage Maker 2024
Set up AWS SageMaker Studio to train and deploy an image classification model, authored Lambda functions and a Step Function for end-to-end ML workflow, and implemented model monitoring with visualizations, ensuring seamless integration and error handling.

Neural Network for Optical Character Recognition 2023
Designed and developed neural network from the scratch using only numpy, tested it with MNIST dataset.
Design and built a Convolutional Neural Network for CIFAR-10 dataset for object detection using Tensorflow.

RELEVANT EXPERIENCE

Graduate Research/Teaching Assistant Rolla, Missouri
Missouri University of Science and Technology, Rolla August 2021 – Present

- Conducted in-depth research to identify benign patterns and anomalies in cyber-physical systems with a water distribution network as a case study. An accuracy of 94.5% was attained.
- Developed a noise-resilient and scalable model for detecting anomalies in cyber-physical systems.
- Worked on parallelization of model training for efficient hyperparameter optimization, 50% improved training speed.
- Gained hands-on experience in setting up a home energy management system using Raspberry Pi with Message Queuing Telemetry Transport (MQTT).
- Cross-functional collaboration with electrical engineers where a hardware-in-the-loop system, namely Real-Time Digital Simulator (RTDS) was utilized to observe the impact of various attacks on communication protocols used in renewable power grid system, thus gaining hands-on experience in the process.
- Successfully taught C++ programming to undergraduate students, enhancing their coding proficiency focusing on classes, inheritance, polymorphism, and pointers.

Graduate Assistant Mando, Kaduna
Air Force Institute of Technology (AFIT) April 2020 – July 2021

- Collaborated with faculty members to instruct undergraduate students in the Faculty of Computing, focusing on foundational and advanced machine learning concepts like CNN, SVM, KNN, PCA, Decision Trees using python.
- Experimented and evaluated on various machine learning algorithms like MLP, Naïve Bayes, Bayes Net for the detection of Android applications malware, resulted into a peer-reviewed conference paper.

Information Technology Analyst Intern Mando, Kaduna
Air Force Institute of Technology (AFIT) - National Youth Service Corp (NYSC) April 2019 – March 2020

- Conducted a comparative analysis of structured system development life cycle (SDLC) methodologies, including Rapid Application Development, Prototyping, and Scrum, resulted into a peer-reviewed conference paper.
- Conducted an in-depth evaluation of machine learning techniques like Kstar, Random Forest, AdaBoostM1 for the detection of phishing URLs to determine the most preferred algorithm, resulting to a publication.

Information Technology Intern Garki, Abuja

National Information and Technology Development Agency (NITDA) April 2017 – October 2017

- Collaborated in the development of cyber security and consumer online protection guidelines for the agency.
- Utilized my skills in website development (HTML, CSS, PHP) to create a website that helps students find and rent accommodation near Gidan Kwano campus.
- Trained middle school students on web development at Young Innovators of Nigeria (YIN), Garki, Abuja.
- Completed CISCO CCNA1 training.

SELECTED PEER-REVIEWED PUBLICATIONS

- **A. Oluyomi**, S. Abedzadeh, S. Bhattacharjee and S. K. Das, "Unsafe Events Detection in Smart Water Meter Infrastructure via Noise-Resilient Learning," ACM/IEEE International Conference on Cyber-Physical Systems, 2024.
- **A. Oluyomi**, S. Bhattacharjee, and S. K. Das, "Detection of False Data Injection in Smart Water Metering Infrastructure," in 2023 IEEE International Conference on Smart Computing (SMARTCOMP) (pp. 267-272). IEEE.
- C.G. Onyiagha, S.O. Temiatse, **A. Oluyomi**, N. John, "Classification of Malaria Medicinal leaves Using Shallow Recurrent Neural Network," in Nigerian Journal of Biomedical Engineering, 13(1), 33–38, 2020.
- E. Olorunshola, **A. Oluyomi**, M. Irhebhude, "An Evaluation of some Machine Learning Algorithms for the detection of Android Applications Malware," Advances in Science, Technology and Engineering Systems Journal, 5(6), 1741–1749, 2020, doi:10.25046/aj0506208.
- O. Osho, **A. Oluyomi**, S. Misra, R. Ahuja, R. Damasevicius, and R. Maskeliunas, "Comparative evaluation of techniques for detection of phishing URLs," in Communications in Computer and Information Science, 2019, vol. 1051 CCIS, pp. 385–394, doi: 10.1007/978-3-030-32475-9_28.

SKILLS

Tools and Programming Languages: Excel, ns3, RTDS, Raspberry Pi, Linux, Tensorflow, PyTorch, Keras, Amazon S3, Amazon Sagemaker, Windows, Jupyter Notebooks, AWS, WEKA, MapReduce, HDFS, Hbase, MongoDB, Pig, Mahout, Apache Spark, Hive, R Studio, C++, Python (Pandas, Matplotlib, Scikit-learn), Hadoop, MPI, OpenMP, CUDA.
Techniques*:* Data Science, Machine Learning, Artificial Intelligence, Large Language Model, Deep Learning, Exploratory Data Analysis Data Cleaning and Preprocessing, High-Performance Computers for Coding Parallelization

RELEVANT CERTIFICATIONS

-Amazon Web Services (AWS) Machine Learning Fundamental, 2024. - AI Programming with Python by Udacity, 2024.

ADDITIONAL INFORMATION

- **Leadership**: President – International Students' Club, Missouri University of Science and Technology, Rolla (2024); Treasurer – International Students' Club (2023); President – Information Systems Audit and Control Association (ISACA) Student Group at Federal University of Technology, Minna (2018).
- **Languages**: Languages: English (Fluent), Yoruba (Native)
- **Honors and Awards**: Top 3 students in Federal University of Technology, Minna by Educational Opportunities of Nigeria (EON), Florida, (2017); Overall Best Graduating Student in the Department of Cyber Security Science (2018); Best Graduating B.Tech. Student in the University (2018); Vice Chancellor Prize for Best Graduating Student in the School of Information & Communication Technology (2018); Certificate of Commendation (as the president), ISACA Student Group conference at Federal University of Technology, Minna September 2018;; Commendation award by International Students' Club (2023); Semi-finalist for 3MT presentation (2022); Participant in graduate research showcase (2023).
- Attended and presented at 4+ conferences on the topics related to machine learning model, smart environment, smart grid, cyber-physical system, cyber security, security, trust and privacy in smart computing, and pervasive computing.