

Curriculum Vitae

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Google Scholar Citation: <https://scholar.google.com/citations?user=resWmX8AAAAJ&hl=en>

Researchgate: https://www.researchgate.net/profile/Olalekan-Awujoola-2?ev=hdr_xprf

Research and Professional Aspirations

A seasoned Chief System Analyst Programmer with several years of service at the Nigerian Defence Academy, specializing in technological innovation, computational modeling, and algorithm development. I possess extensive experience in machine learning, deep learning, and artificial intelligence, with a focus on real-world applications in both healthcare and cybersecurity. After completing a Ph.D. in Computer Science, I have dedicated my career to leveraging advanced models and innovative algorithms to address critical challenges in diverse domains, including healthcare (e.g., breast cancer, brain tumors, leukemia, hypothyroidism) and cybersecurity (e.g., network intrusion detection, malware detection and classification, digital forensic analysis).

Education

- **Ph.D. Computer Science** (September, 2024)
Nigerian Defence Academy, Kaduna
 - **Master of Science (Msc)** Computer Science (2016)
Ahmadu Bello University, Zaria
 - **Master of Science (Msc)** Nuclear and Radiation Physics (2012)
Nigerian Defence Academy, Kaduna
 - **Master of Science (Msc)** Information Technology (2024)
National Open University of Nigeria
 - Bachelor of Technology in Mathematics Education with Computer Science (1995-1998)
Federal University of Technology, Minna, Niger State
 - Nigerian Certificate in Education (NCE) Mathematics / Physics (1990-1993)
Institute of Education, Ahmadu Bello University, Zaria (FCE Zaria)
 - West African School Certificate (W.A.S.C) O'Level (1983-1989)
Bishop Onabanjo High School, New Bodija, Ibadan, Oyo State
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Work Experience

Nigerian Defence Academy, Kaduna

Chief System Analyst / Programmer

August 7, 2001 – Present

- Led development and implementation of machine learning models for real-world challenges.
- Authored numerous research papers and book chapters in machine learning and deep learning.
- Managed project teams and mentored junior staff.
- Designed and developed innovative solutions in computational theory and practical applications.

➤ **Lectured computer science cadets from 2013 - Till Date**

- ✚ Formal Methods of Software Development
- ✚ Net-centric Computing
- ✚ Operating System
- ✚ Data Communication

Skills

- Machine Learning: TensorFlow, PyTorch, scikit-learn, Keras
- Deep Learning: TensorFlow, PyTorch, scikit-learn, Keras
- Programming Languages: Python, PHP
- Data Visualization: Matplotlib, Seaborn
- Microsoft Excel
- Databases: SQL

Honors and Awards

- Commendation for electronic transcripts software design and development, Nigerian Defence Academy (March 13, 2012)

Certification

- International Computer Driving License (ICDL) CERTIFICATION (NG2007827), March 12, 2021

Member of Professional Bodies

- Cyber Security Experts' Association of Nigeria (340361)

❖ Academic Publications

- Ado, A., Awujoola, O. J., Abdullahi, S. D., & Ibrahim, S. H. (2025). Integration of layer-wise relevance propagation, recursive data pruning, and convolutional neural networks for improved text classification. *FUDMA JOURNAL OF SCIENCES*, 9(2), 35-41.

- Ukorah, I. N., Owolabi, A. J., Ali, H., Onimisi, M. Y., Tafida, R. A., Olalekan, A. J., ... & Ugbe, R. U. (2024). Investigating the Performance of TIN-Based Perovskite Solar Cell with Zinc Selenide as an ETM and Graphene as an HTM Using SCAPS-1D. *Progress in Physics of Applied Materials*, 4(2), 171-181.
- Owolabi, A. J., Ali, H., Ukorah, I. N., Onimisi, M. Y., Tafida, R. A., Awujoola, J. O., & Gambo, H. (2024). Investigating the performance of Tin-based perovskite solar cell with Cadmium Sulphide as etm and graphene as htm using SCAPS-1D. *Physics and Chemistry of Solid State*, 25(4), 764-772.
- Enem, T. A., & Awujoola, O. J. (2023). Malware detection and classification using embedded convolutional neural network and long short-term memory technique. *Science World Journal*, 18(2), 204-211.
- Abioye, O., Thomas, S., Odimba, C., & Awujoola, O. J. (2023). Generic hybrid model for breast cancer mammography image classification using EfficientNetB2. *Duke University Journal of Physical and Applied Science*, 9(3b), 281-289. <https://doi.org/10.4314/dujopas.v9i3b.30>
- Awujoola, O. J., Odion, P. O., Ewwiekpaefe, A. E., & Obunadike, G. N. (2022). Multi-stream fast Fourier convolutional neural network for automatic target recognition of ground military vehicle. *Artificial Intelligence and Applications*.
- Awujoola, O. J., Odion, P. O., Ewwiekpaefe, A. E., & Obunadike, G. N. (2022). Multi-class dual-stream convolutional neural network for synthetic aperture radar automatic target recognition of ground military vehicle. *Journal of Scientific Research of the Banaras Hindu University*, 66(4), 107-113.
- Olorunshola, O., Oluyomi, A., Jonathan, C., & Awujoola, O. J. (2021). Synthetic minority over-sampling technique and resample approach for Android malware detection using tree-based classifiers. *Unpublished manuscript*.
- Awujoola, O. J., Francisca, O., Odion, P. O., & Martins, I. (2021). An intelligent homogenous model for prediction of network intrusion detection using synthetic minority over-sampling technique and local outlier factor. In *Proceedings of the 2020 LGT-ECE-UNN International Conference: Technological Innovation for Holistic Sustainable Development (TECHISD2020)*. May 2021.
- Awujoola, O. J., Odion, P. O., Irhebhude, M. E., & Aminu, H. (2021). Performance evaluation of machine learning predictive analytical model for determining the job applicants employment status. *Malaysian Journal of Applied Sciences*, 6(1), 67-79. <https://doi.org/10.37231/myjas.2021.6.1.276>

- Awujoola, O. J., Ogwueleka, F. N., & Odion, P. O. (2020). Effective and accurate bootstrap aggregating (bagging) ensemble algorithm model for prediction and classification of hypothyroid disease. *International Journal of Computer Applications*, 176(39), 0975-8887. <https://doi.org/10.5120/ijca2020920542>

❖ **Forthcoming Journal Articles (Under Review)**

- Awujoola O.J, Amaka Nwodo, Awujoola Abidemi E . (2025): Optimizing Machine Learning Age Prediction Models for Forensic Applications Using PCA and t-SNE: Insights from miRNA and circRNA Analysis
- Awujoola O.J, Rangon Dutta, Deborah Popoola, (2025): Integrative Phylogenetic and Machine Learning Analysis for Breast Cancer Subtype Classification and Relationship Mapping Based on Gene Expression Profiles.

❖ **Book Chapters (Scopus):**

- Awujoola, O. J., Ogwueleka, F. N., Odion, P. O., Awujoola, A. E., & Adelegan, O. R. (2023). Genomic data science systems of prediction and prevention of pneumonia from chest X-ray images using a two-channel dual-stream convolutional neural network. In *Data Science for Genomics* (pp. 217-228). Academic Press.
- Awujoola, O. J., Ogwueleka, F. N., Irhebhude, M. E., & Misra, S. (2021). Wrapper-based approach for network intrusion detection model with combination of dual filtering technique of resample and SMOTE. In *Artificial Intelligence for Cyber Security: Methods, Issues and Possible Horizons or Opportunities* (pp. 139-167). Springer International Publishing. https://doi.org/10.1007/978-3-030-72236-4_6
- Awujoola, O. J., Enem, T. A., Francisca, O. N., Adelegan, O. R., Oluwasegun, A., Uwa, C. O., Akuboh, V. U., Olorunshola, O. E., & Hassan, H. (2023). Enhancing credit card fraud detection and prevention: A privacy-preserving federated machine learning approach with auto-encoder and attention mechanism. In L. D. & A. Tyagi (Eds.), *Privacy Preservation and Secured Data Storage in Cloud Computing* (pp. 405-429). IGI Global. <https://doi.org/10.4018/979-8-3693-0593-5.ch018>
- Awujoola, O. J., Aniemeka, T. E., Ogwueleka, F. N., Abioye, O. A., Awujoola, A. E., & Uwa, C. O. (2024). Improved breast cancer detection in mammography images: Integration of convolutional neural network and local binary pattern approach. In P. B. Maruthi, S. Prasad, & A. Tyagi (Eds.), *Machine Learning Algorithms Using Scikit and TensorFlow Environments* (pp. 221-248). IGI Global. <https://doi.org/10.4018/978-1-6684-8531-6.ch011>

- Awujoola, O. J., Aniemeka, T. E., Abioye, O. A., Awujoola, A. E., Ajakaiye, F., & Adelegan, O. R. (2024). Improving leukemia detection accuracy: Contrast limited adaptive histogram equalization-enhanced image preprocessing combined with ResNet101 and Haralick feature extraction. In A. Sharma, N. Chanderwal, S. Tyagi, P. Upadhyay, & A. Tyagi (Eds.), *Enhancing Medical Imaging with Emerging Technologies* (pp. 99-132). IGI Global. <https://doi.org/10.4018/979-8-3693-5261-8.ch007>
- Awujoola, J. O., Enem, T. A., Ogwueleka, F. N., Abioye, O., & Awujoola, E. A. (2024). Machine learning–driven digital twins for precise brain tumor and breast cancer assessment. In A. K. Tyagi (Ed.), *Advances in machine learning and healthcare applications* (Chap. 21). Wiley. <https://doi.org/10.1002/9781394287420.ch21>
- Awujoola, J. O., Enem, T. A., Ogwueleka, F. N., Abioye, O., & Adelegan, R. O. (2024). Machine learning–enabled predictive analytics for quality assurance in Industry 4.0 and smart manufacturing: A case study on red and white wine quality classification. In *Industry 4.0, smart manufacturing, and industrial engineering* (1st ed., p. 33). CRC Press. <https://doi.org/10.4324/9781003473886>
- Oluwasegun, A., Olalekan, Awujoola, J., Musa, M. N., Ene, O. S., Shu'aibu, M., Nwuku, Y. E., ... & Bright, A. O. (2025). Optimized Binary and Multi-Class Classification With Biomarker Detection in Brain Cancer Gene Expression: Using Catboost and Principal Component Analysis. In *Spatially Variable Genes in Cancer: Development, Progression, and Treatment Response* (pp. 315-360). IGI Global Scientific Publishing.
- Oluwasegun, A. A., Evwiekpaefe, A., Odion, P. O., Olalekan, Awujoola, J., Bright, A. O., Racheal, A. O., ... & Malami, M. G. (2025). Optimizing Healthcare Operations With AI Algorithms by Enhancing Skin Cancer Diagnosis Using Advanced Image Processing and Classification Techniques. In *AI-Driven Innovation in Healthcare Data Analytics* (pp. 235-276). IGI Global Scientific Publishing.
- Awujoola, J. O., Enem, T. A., Owolabi, J. A., Akusu, O. C., Abioye, O., & Adelegan, R. O. (2025). Machine learning and predictive maintenance in smart grids. In S. Tiwari & A. Kumar Tyagi (Eds.), *AI and Blockchain in Smart Grids: Fundamentals, Methods, and Applications* (1st ed., pp. 36). Auerbach Publications. <https://doi.org/10.1201/9781003500391>
- Awujoola, O. J., Enem, T. A., Owolabi, J. A., Akusu, O. C., Abioye, O., Awujoola, E. A., & Adelegan, R. O. (2025). Exploring the intersection of quantum neural networks and classical neural networks for early cancer identification. In A. K. Tyagi, S. Tiwari, & S. V. Nagaraj (Eds.), *Quantum computing: The future of information processing* (pp. 147-168). CRC Press, Taylor & Francis Group LLC. <https://doi.org/10.1201/9781003499459-9>

Referees

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