Almustapha Wakili

Towson, MD, USA | +1 (410) 301-3854 | awakili@towson.edu | towson.edu/awakili2
GitHub | LinkedIn | Google Scholar

Executive Summary

- **AI researcher specializing in Smart and Connected Health** with a strong record of peer-reviewed publications in Q1 journals and top IEEE venues, contributing original advances in non-invasive health monitoring (WiFi CSI), medical imaging with digital twins personalization, and IoMT security.
- **Proven educator and mentor** with teaching and research experience in both U.S. (Towson University) and Nigerian institutions, consistently earning outstanding student evaluations and mentoring the next generation of computer scientists.

Education

Towson University — Maryland, USA
Ph.D. in Information Technology — *2024 – 2027 (Expected)*
- GPA: 4.00/4.00

Mewar University — Rajasthan, India
M.Sc. in Software Engineering — *2019 – 2021*
- First Division with Distinction; CGPA: 3.57/4.0

Bayero University Kano (BUK) — Kano, Nigeria
B.Sc. in Computer Science — *2015 – 2019*
- First Class Honors; CGPA: 3.82/4.0

Jigawa State Institute of Information Technology — Kazaure, Nigeria
Associate of Science in Computer Science — *2013 – 2015*
- Distinction; GPA: 3.65/4.0

Research Experience

Research Assistant — Jan. 2024 – Present
Towson University — *Maryland, USA*
- Conducting doctoral research on non-invasive health monitoring using WiFi CSI, with models for breath classification and human activity recognition that can support fall detection in nursing homes.
- Developing hybrid CNN and Vision Transformer architectures for brain tumor segmentation, while also exploring federated learning with digital twin frameworks to enable privacy-preserving multi-institutional medical imaging analysis.
- Investigating new approaches to IoMT security, including large language model-based intrusion detection and power consumption-based botnet detection.

Lecturer II — Jun. 2022 – Jan. 2024
Bayero University, Kano — *Nigeria*
- Led research in applying machine learning to environmental health challenges, including the development of models for predicting heavy metal impacts on public health.
- Supervised undergraduate projects that combined applied machine learning and software engineering with local research needs.

Master's Student Researcher — 2019 – 2021
Mewar University — *India*
- Completed thesis work in machine learning and software engineering, producing early publications on climate change communication, quality assurance in agile methodology, and data mining in education.

Teaching and Mentorship Experience

- Adjunct Faculty, Towson University (2024–Present) – Taught undergraduate courses including Database Management (ITEC 315) and Advanced Data Management & Analysis (ITEC 451). Consistently earned outstanding student evaluations (5.0/5.0 rating), with feedback highlighting my effectiveness, care for students, and commitment to their success.
- Lecturer II, Bayero University Kano (2022–2024) – Developed and delivered curricula in Machine Learning, Software Engineering, and Java Programming. Supervised undergraduate projects that blended applied research with classroom instruction.
- Lecturer I, Jigawa State Institute of Information Technology (2021–2022) – Taught Software Engineering, Database Management Systems, and Object-Oriented Programming with Java. Mentored students in coursework and capstone projects.
- Mentor, Arewa Data Science Academy (2023–Present) – Mentoring recent graduates in data science, focusing on machine learning techniques (regression, classification, deep learning) and tools such as Python, TensorFlow, PyTorch, Scikit-learn, and SQL. Guiding students in research methodology, modeling, and real-world applications.

Publications

Peer-reviewed full journal papers are prefixed with J, peer-reviewed full conference papers with C, and preprints/under-review manuscripts with P.

⟨J1⟩ **Wakili, A. A.**, Asaju, B. J., Jung, W. "Breath as a Biomarker: A Survey of Contact and Contactless Applications and Approaches in Respiratory Health Monitoring." *Elsevier Smart Health (Q1)*, 2025.

⟨J2⟩ **Wakili, A. A.**, Asaju, B. J., Jung, W. "Breath Rate Detection in Single and Multi-User Scenarios Using Wi-Fi CSI." *Techno-computing Journal*, 1(1):42–51, 2025.

⟨J3⟩ Amuda, K., **Wakili, A. A.**, Amoo, T., Agbetu, L., Wang, Q., Feng, J. "Detecting SARS-CoV-2 in CT Scans Using Vision Transformer and Graph Neural Network." *Algorithms*, 18(7):413, 2025.

⟨J4⟩ Jibrin, A. M., Abba, S. I., **Wakili, A. A.**, et al. "Tracking the Impact of Heavy Metals on Human Health and Ecological Environments in Complex Coastal Aquifers Using Improved Machine Learning Optimization." *Environmental Science and Pollution Research*, 31(40):53219–53236, Springer, 2024.

⟨C1⟩ **Wakili, A. A.**, Asaju, B. J., Jung, W. "Evaluating BiLSTM and CNN+GRU Approaches for Human Activity Recognition Using WiFi CSI Data." In *IEEE/ACIS International Conference on Software Engineering Research, Management and Applications (SERA)*, 2025.

⟨C2⟩ Asaju, B. J., **Wakili, A. A.**, ... "Safeguarding Smart Inhaler Devices and Patient Privacy in Respiratory Health Monitoring." In *Proc. 20th International Conference on Cyber Warfare and Security (ICCWS)*, 2025.

⟨C3⟩ Hussaini, A., **Wakili, A. A.**, Musa, U. S., and Yu, W. "LLM-Based Framework for Next-Generation Cyber Threat Detection." In *IJCAI-25 Workshop on AI for Time Series (AI4TS)*, 2025.

⟨C4⟩ **Wakili, A. A.**, et al. "TwinSegNet: A Digital Twin-Enabled Federated Learning Framework for Collaborative Brain Tumor Analysis." In *IEEE Vehicular Technology Conference (VCC)*, 2025.

⟨P1⟩ **Wakili, A. A.**, et al. "TumorVisNet: A Hybrid CNN + Vision Transformer Model for Enhanced Brain Tumor Segmentation." Submitted to *IEEE International Conference on Biomedical and Health Informatics (BHI)*, 2025. (Under Review)

⟨P3⟩ **Wakili, A. A.**, et al. "Advancing IoT Security: Machine Learning Strategies for Power Consumption-Based Botnet Detection." Submitted to *IEEE International Conference on Security*, 2025. (Under Review)

Awards & Scholarships

- **Graduate Assistantship Funding** – *Towson University, 2024–2027.* Awarded competitive Graduate Research Assistantship providing full PhD tuition support and stipend for research in Information Technology.
- **Summer Research Fellowship** – *Towson University, 2025.* Received $5,000 competitive award to conduct independent summer research in AI-powered health monitoring and IoMT security.
- **Professional Development / Travel Fund Award** – *Towson University, 2025.* Received funding support to present at IEEE/ACIS SERA (Las Vegas, NV) and to register in leading professional bodies, including IEEE, ACM, and AAAI.
- **Kwankwasiyya Development Foundation Masters Scholarship** – *2019–2021.* Highly competitive merit-based scholarship for the top 1% of graduate students in Kano State, Nigeria.
- **Winner, Mewar Tech Expo** – *Mewar University, 2020.* Recognized for innovative software solution development.

Professional Memberships

Memberships in these leading professional societies reflect recognized standing in the global AI, computing, and engineering research community.

- **Institute of Electrical and Electronics Engineers (IEEE)** – Graduate Student Member since 2025
- **IEEE Computational Intelligence Society (CIS)** – Member since 2025
- **IEEE Young Professionals** – Member since 2025
- **Association for Computing Machinery (ACM)** – Professional Member since 2025
- **Association for the Advancement of Artificial Intelligence (AAAI)** – Graduate Student Member since 2025
- **International Association of Engineers (IAEng)** – Member since 2021
- **International Association for Computer and Information Science (ACIS)** – Member since 2024

Industry Experience

Software Engineer (Part Time) 2023 – 2024
Perfect Timing Technologies *Remote*
- Led front-end development for enterprise applications, including ConiaCloud, ConiaSoft Accounting, ConiaSoft SQL Backup, and E-Coniasoft.
- Implemented modern web interfaces using React.js, TypeScript, and Tailwind CSS, enhancing usability and workflow efficiency.

Software Engineer (Part Time) 2021 – 2023
StemLab Nigeria *Kano, Nigeria*
- Developed and deployed decentralized applications, including the STEM-TAS token auction platform.
- Applied React.js, TypeScript, and JavaScript to ensure seamless user experience and transparent interactions.

Intern, Blockchain Engineer Jan. 2022 – Jul. 2022
Near Protocol *Remote*
- Built smart contracts in Solidity and Rust for token creation and decentralized e-commerce platforms.
- Contributed to blockchain infrastructure projects supporting decentralized finance and marketplace applications.

Technical Skills

Languages: Python, Java, C++, JavaScript, TypeScript, SQL
AI/ML & Data Science: PyTorch, TensorFlow, Keras, scikit-learn, pandas, NumPy, MATLAB;
LLMs: Prompt Engineering, Retrieval-Augmented Generation (RAG), Fine-tuning, LLM Agents
Web/Mobile Development: React, Tailwind CSS, Kotlin, Flutter, Android Development
Blockchain: Solidity, Rust, Web3.js
Databases: MySQL, PostgreSQL, Oracle 11G, SQL Server
Cloud Platforms: AWS (EC2, S3), Google Cloud, Firebase
Developer Tools: Git, Docker, Jupyter, VS Code, Google Colab