EBERE JOSEPHINE UBA
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CAREER SUMMARY:

With over 10 years of experience in digital health and microbiology, I have advanced from Junior Microbiologist to Supervising Digital Health Microbiologist, specializing in the integration of artificial intelligence into healthcare solutions. At AptVet Laboratory, I led a digital strategy that improved infectious disease surveillance and patient care, successfully managing digital health and telehealth programs that established the laboratory as a national leader in health innovations. I have received several accolades, including the Outstanding Leader of the Year 2024 at the Digital Revolution Global Awards and Digital Transformation Leader of the Year 2023 at the Media Innovator Global Awards. Additionally, I have won multiple Thought Leadership Awards from Mondaq (2021–2024) and was nominated for AI and Data Science Leader of the Year at the WomenTech Global Awards 2023. As a multi-sector speaker on AI at various conferences and a passionate author on AI regulations, I actively engage with professional associations in digital health and IT. I am committed to leveraging AI and Big Data to drive healthcare advancements and promote interdisciplinary collaboration for infectious disease control, with the goal of leading AI-driven healthcare initiatives through continuous innovation and research.

EDUCATIONAL QUALIFICATIONS & BUSINESS/TECHNOLOGY CERTIFICATIONS

1. **Master of Science (MSc.) – International Business**
   School: European Institute of Business Management
   Timeline: Sept. 2023 – Sept. 2024
   Grade: Distinction

2. **Bachelor of Science (BSc.) - Microbiology**
   School: Chukwuemeka Odumegwu Ojukwu University (COOU) (Formerly: Anambra State University)
   Timeline: 6th Sept. 2010 – 10th Oct. 2014
   Grade: Second Class Upper (CGPA: 4.08/5.00)

3. **Diploma in Data Science and Machine Learning**
   School: RolaSoft Technologies Academy
   Timeline: 28th June 2021 – 17th June 2022
   Grade: Distinction (CGPA: 4.88/5.00)

4. **Certificate of Achievement: Artificial Intelligence**
   Accenture with The CPD Certification Service, UK
   Date: 14th June 2023

5. **Certification in Data Science & Analytics**
   Institution: Indian Institute of Hardware Technologies
   Timeline: Jan. 2019 – Jan. 2020
   Grade: Distinction

6. **Certificate of Achievement: Building with Artificial Intelligence**
   Saylor Academy, Washington DC, USA
   Date: 5th October 2024

7. **Certificate of Achievement: Python for Data Science**
   Saylor Academy, Washington DC, USA
   Date: 5th October 2024

8. **Certificate of Completion: Artificial Intelligence in Healthcare**
   Greatlearning Academy
   October 2024

9. **Mini MBA on Business Administration & Management**
   Institution: International Business Management Institute (IBMI), Berlin Germany

10. **Diploma in Cybersecurity: Cybercrime and Cyber Law**
    School: RolaSoft Technologies Academy
    Timeline: 28th Feb. 2022 – 24th Feb.2023
    Grade: Distinction (CGPA: 4.88/5.00)

11. **EC Council International Certificates of Achievement:**
    Cybersecurity & Cybersecurity Essentials
    Timeline: 1st - 8th June 2023

12. **West African Senior School Certificate Examination (WASSCE)**
    School: Immaculata Girls Secondary School, Nnewi
    Timeline: Sept. 2003 – July 2009

EMPLOYMENT HISTORY

Employment 1: Supervising Digital Health Microbiologist			
Employer Name	AptVet Laboratory	***Start Date – Current***	10th January 2022 – Till Date
Address	12 Ota Road Oke-Odo, Epe Lagos Nigeria.	***Working Hours/Week***	48 Hours/Week

Main Tasks & Responsibilities

- Provided strategic direction to over five professionals in the Digital Health and Infectious Disease Informatics Unit, integrating ICT and AI initiatives to enhance microbial culturing, bacterial identification, and infectious disease surveillance.

- Led the implementation of machine learning algorithms and advanced analytics for improving diagnostic accuracy and infectious diseases outbreak response, managing digital projects to ensure timely delivery and budget adherence.
- Conducted research on digital health solutions and applied computational biology to analyze genomic data, focusing on antimicrobial resistance (AMR) and identifying novel therapeutic targets.
- Managed change strategies for the adoption of digital innovations and provided training to laboratory staff on bioinformatics and AI applications, enhancing digital microbiology practices.
- Oversaw daily operations of the Digital Health and Infectious Disease Surveillance Unit, managing telehealth programs and ensuring compliance with healthcare regulations.
- Supervised quality control procedures and established data governance policies to maintain data integrity, security, and compliance with privacy laws.
- Collaborated with interdisciplinary teams to integrate computational findings into clinical practice, advancing research objectives and enhancing public health impact.
- Conducted assessments of emerging technologies, evaluating their feasibility and potential impact on laboratory practices, particularly in relation to AI applications in healthcare.
- Supervised the transition to laboratory automation, optimizing workflows through smart technologies and innovative techniques for sample collection.
- Facilitated the digital transformation of laboratory records, enabling real-time data sharing and consultation, and implemented systems for high-resolution culture images to enhance clinical decision-making.

Notable Accomplishments

- ✓ Successfully led the implementation of digital technologies that improved diagnostic accuracy and outbreak response through machine learning algorithms, significantly enhancing the laboratory's capabilities in infectious disease detection.
- ✓ Engaged in global health initiatives, leveraging digital technologies to address infectious disease challenges and enhance AptVet's global health impact, thereby positioning the laboratory as a leader in digital health solutions.
- ✓ Directed transformative projects focusing on AMR, applying computational biology to elucidate resistance mechanisms and promote evidence-based antibiotic stewardship, directly contributing to improved public health outcomes.
- ✓ Effectively managed digital projects, ensuring timely delivery and adherence to budget constraints, while optimizing resource utilization to enhance overall operational efficiency.
- ✓ Provided training and support to laboratory staff on bioinformatics and AI applications, significantly improving their proficiency in digital microbiology and reinforcing AptVet's leadership in the field.

Employment 2: Senior Digital Health Microbiologist

Employer Name	AptVet Laboratory	***Start Date – End Date***	7th January 2019 – 7th January 2022
Address	12 Ota Road Oke-Odo, Epe Lagos Nigeria.	***Working Hours/Week***	48 Hours/Week

Main Tasks & Responsibilities

- Led the integration of automation technologies and artificial intelligence tools in laboratory processes, including smart technologies and AI-driven tools for microbial detection, diagnostics, and antimicrobial susceptibility analysis.
- Oversaw the implementation of advanced bioinformatics tools and developed machine learning algorithms for complex genomic data analysis, predictive modeling, and outbreak forecasting in infectious diseases and antimicrobial resistance.
- Spearheaded research initiatives and collaborations with national health organizations, focusing on understanding antimicrobial resistance and assessing emerging technologies' applications in healthcare.
- Developed and executed training programs for laboratory staff on digital microbiology techniques, artificial intelligence applications, and advanced laboratory practices to enhance skills and promote a culture of continuous improvement.
- Established robust data governance policies and implemented quality control measures, ensuring data integrity and accuracy in laboratory results while adhering to regulatory standards.
- Collaborated with interdisciplinary teams, incorporating insights from medicine, engineering, and basic sciences to address antimicrobial resistance challenges and enhance healthcare solutions.
- Led antibiotic stewardship programs utilizing AI analytics to optimize antibiotic use, improve patient care outcomes, and promote digital health strategies such as telehealth.
- Facilitated effective communication between laboratory personnel and healthcare providers through digital record-sharing and implemented standardization protocols to optimize specimen collection and processing workflows.
- Conducted continuous evaluations of digital microbiology practices, identifying areas for improvement, and championed initiatives promoting innovation within the laboratory.
- Participated in conferences and workshops to stay updated on advancements in computational biology, bioinformatics, and digital health technologies, and engaged in scoping reviews of scientific literature impacting public health.

Notable Accomplishments

- ✓ Successfully integrated AI-driven diagnostic testing methodologies and automation technologies, improving accuracy and efficiency in microbial detection and antimicrobial resistance monitoring.
- ✓ Spearheaded initiatives that led to multiple scientific publications and presentations, significantly contributing to the understanding of antimicrobial resistance and the genetic basis of infectious diseases.
- ✓ Developed comprehensive training programs that enhanced the skills of laboratory staff in digital microbiology techniques and AI applications, fostering a culture of continuous learning and improvement.
- ✓ Established robust data governance frameworks that ensured data integrity and compliance with regulatory standards, significantly enhancing the laboratory's research capabilities and output.
- ✓ Led the implementation of an antibiotic stewardship program using AI analytics, resulting in optimized antibiotic use, reduced resistance rates, and improved patient care outcomes across the laboratory's operations.

Employment 3: Microbiologist

Employer Name	AptVet Laboratory	***Start Date – End Date***	5th January 2016 – 4th January 2019
Address	12 Ota Road Oke-Odo, Epe Lagos Nigeria.	***Working Hours/Week***	48 Hours/Week

Main Tasks & Responsibilities

- Conducted comprehensive research projects focused on antimicrobial resistance (AMR) and infectious diseases, designing experiments, analyzing data, and preparing reports.
- Cultured and isolated various bacterial strains from diverse sources (food, environmental, animal, clinical) while ensuring strict aseptic techniques and maintaining the viability of cultures.
- Utilized molecular methods (PCR, DNA sequencing) for the identification of bacterial isolates at the species or genus level and conducted antibiotic susceptibility testing to assess resistance profiles.
- Employed advanced computational biology and bioinformatics tools to analyze genomic data of bacterial isolates, identifying genetic factors associated with antibiotic resistance and contributing to public health initiatives.
- Ensured compliance with quality control procedures, including maintenance of laboratory equipment, verification of reagents, and adherence to standard operating procedures to guarantee reliable results.
- Actively participated in interdisciplinary research collaborations, engaging with professionals across medicine, basic sciences, and engineering to explore novel technologies and applications in biomedicine and infectious disease control.
- Assisted in the training and supervision of laboratory personnel, providing guidance on techniques, safety protocols, and best practices in bacteriology and computational biology.
- Diagnosed bacterial infections, monitored antimicrobial resistance patterns, and supported public health laboratories in controlling the spread of infectious diseases and zoonotic pathogens.
- Maintained up-to-date knowledge of advancements in bacteriology, bioinformatics, and digital health by attending conferences, workshops, and seminars.
- Handled and maintained samples containing infectious agents, ensuring adherence to safety policies and procedures for accurate laboratory testing and risk management.

Notable Accomplishments:

- ✓ Led and contributed to AptVet Laboratory's innovation and research projects on AMR and zoonotic diseases that have advanced knowledge and understanding in the field, enhancing public health outcomes.
- ✓ Implemented advanced molecular techniques for bacterial identification that improved diagnostic accuracy and informed treatment options for antibiotic-resistant infections.
- ✓ Played a pivotal role in fostering collaborations across various disciplines, resulting in innovative solutions to complex health challenges and improving disease management strategies.
- ✓ Developed and refined laboratory quality control procedures, significantly increasing the reliability and accuracy of test results, which improved overall laboratory performance.
- ✓ Established a robust training program for laboratory personnel that enhanced team competencies in bacteriology and bioinformatics, contributing to a more skilled and knowledgeable workforce.

Employment 4: Junior Microbiologist

Employer Name	AptVet Laboratory	***Start Date – End Date***	5th January 2015 – 4th January 2016
Address	12 Ota Road Oke-Odo, Epe Lagos Nigeria.	***Working Hours/Week***	48 Hours/Week
Designation	Junior Microbiologist		

Main Tasks & Responsibilities

- Led the collection, processing, and analysis of microbial samples from diverse sources, conducting antimicrobial susceptibility testing and employing biochemical and serological methods to identify bacterial isolates.
- Conducted detailed microscopic examinations using advanced techniques and played a pivotal role in data analysis and reporting from various microbiological experiments, contributing valuable insights for public health interventions.

- Collaborated with interdisciplinary teams to prepare comprehensive reports based on microbiological data, supporting enhanced disease surveillance systems and guiding effective public health strategies.
- Maintained stringent adherence to quality control procedures, ensuring the accuracy and reliability of microbiological test results.
- Collaborated with interdisciplinary teams in global health projects, enhancing research outcomes and contributing to innovative solutions in biomedical technology and patient-centered healthcare systems.
- Actively contributed to public health by executing antimicrobial susceptibility testing and preparing comprehensive reports based on microbiological data.

Notable Accomplishments:

- ✓ Part of the team that led antimicrobial susceptibility testing initiatives, providing critical data that informed public health strategies and interventions to combat antibiotic resistance in the local population.
- ✓ Supported the senior microbiologists in implementing rigorous quality control measures that significantly increased the accuracy and reliability of microbiological test results, resulting in improved diagnostic outcomes and patient care.
- ✓ Developed reports based on microbiological data, which played a key role in informing public health decisions and enhancing disease surveillance systems.
- ✓ Contributed to innovative research in digital health by collaborating on interdisciplinary global health projects, resulting in the development of novel biomedical technology solutions that improved patient-centered healthcare systems.
- ✓ Championed safety protocols and professional development within the laboratory, ensuring a culture of safety and up-to-date knowledge in microbiological practices among the team, thereby enhancing overall laboratory efficiency.

PROFESSIONAL MEMBERSHIPS & REGISTRATIONS:

GRADE/LEVEL	SOCIETY
Associate Member [33981]	Information Technology Professionals Association (ITPA), Australia
Community Member [6887547]	Victorian Information Communication Technology for Women Network, Australia
Entrepreneur [6112]	International Association of Innovation Professionals (IAOIP), United States
Member [mp-txn-64d310a3e81a5]	Institute for Digital Transformation, United States
Digital Technology Professional	STEM Women Global Network, Australia
Community Member [Global (107739)]	WomenTech Network Global, USA
HIMSS Digital Membership [000701252749]	Healthcare Information and Management Systems Society (HIMSS), United States
Full Member	Digital Health & Care Alliance (DHCA), United Kingdom
Member & Ambassador	everywoman Tech Hub, United Kingdom
Full Member	International Society for Development and Sustainability (ISDS)
Member	The European Public Health Association (EUPHA)
Associate Member [M-0226872]	Infectious Diseases Society of America (IDSA), United States
Full Member [NSM/23/791]	Nigerian Society for Microbiology
Member [105001]	British Society for Antimicrobial Chemotherapy (BSAC), UK
Affiliate Member [C043950]	Microbiology Society, United Kingdom

AWARDS & RECOGNITIONS:

S/N	Awards & Recognitions	Award/Awarding Bodies	Relevant Link
1	Winner - Outstanding Leader of The Year 2024 Award	Digital Revolution Awards	Award Show, Winner Interview, YouTube Link
2	Winner - Digital Transformation Leader of the Year Award 2023	Media Innovator Awards	Link
3.	Nominee - AI & Data Science Leader of the Year Award 2023	WomenTech Global Awards	Link

4	Winner - Mondaq Autumn Thought Leadership in Technology Award – Nigeria 2023	Mondaq Thought Leadership Awards	Link
5.	Winner - Mondaq Autumn Thought Leadership in Media, Telecoms, IT, Entertainment Award – Nigeria 2023	Mondaq Thought Leadership Awards	Link
6.	Winner - Mondaq Autumn Thought Leadership in Data Protection Award – Nigeria - 2023	Mondaq Thought Leadership Awards	Link
7.	Winner - Mondaq Autumn Thought Leadership in Food, Drugs, Healthcare, Life Sciences Award – Nigeria - 2023	Mondaq Thought Leadership Awards	Link
8.	Winner - Mondaq Thought Leadership All Topics Regional Award for Spring 2022 in Nigeria	Mondaq Thought Leadership Awards	Link
9.	Winner - Mondaq Thought Leadership - Data Protection Award in Nigeria for Spring 2022	Mondaq Thought Leadership Awards	Link
10.	Winner - Mondaq Thought Leadership - FinTech Award in Nigeria for Spring 2022	Mondaq Thought Leadership Awards	Link
11.	Winner - Mondaq Thought Leadership - Compliance Award in Nigeria for Autumn 2022	Mondaq Thought Leadership Awards	Link
12.	Winner - Mondaq Thought Leadership - Data Protection Award in Nigeria for Autumn 2022	Mondaq Thought Leadership Awards	Link
13.	Winner - Mondaq Thought Leadership - FinTech Award in Nigeria for Autumn 2022	Mondaq Thought Leadership Awards	Link
14.	Winner - Mondaq Thought Leadership - Government and Public Sector in Nigeria for Autumn 2022	Mondaq Thought Leadership Awards	Link
15.	Winner - Mondaq Thought Leadership - Compliance Award in Nigeria for Autumn 2021	Mondaq Thought Leadership Awards	Link
16.	Winner - Mondaq Thought Leadership – Immigration Award in Nigeria for Autumn 2021	Mondaq Thought Leadership Awards	Link
17.	Recent Global Media Publications *(Outstanding Tech Contributions Honoured)* for winning as " Outstanding Leader of the Year" Global Awards at Digital Revolution Awards 2024	Yahoo Finance, UK Business Wire, London Street Insider, UK Publisher Global	• Yahoo Finance • Business Wire • Street Insider • Publisher Global

SPEAKING & FACILITATION ENGAGEMENTS:

S/No	Event Name	Month/Year	Role	Brief Description
1	Accelerated Digital Transformation (ADT) Summit 2024	Feb-24	Panellist	Panellist at ***"Regulating Artificial Intelligence for Growth"*** session in Abuja, Nigeria. Recognized as a thought leader in digital tech and AI-driven business transformation.
2	Digibank Summit 2024 - Nigeria and West Africa Edition	Feb-24	Panellist	Panellist discussing ***"AI application and hyper personalization in digital banking"*** in Lagos, Nigeria. Expertise in AI adoption within digital banking. (Link)
3	Digibank Summit 2023 - Ethiopia Edition	Oct-23	Panellist	Panellist discussing " ***AI Anthropomorphism within the digital banking sector****: Building the Pillars of Digital Trust*" in Addis Ababa, Ethiopia. (Link)
4	63rd Annual General Conference by the Nigerian Bar Association (NBA) 2023	Aug-23	Panellist	Panellist in a session on "***Artificial Intelligence and the Legal Profession in Nigeria***" in Abuja, Nigeria. Expertise in AI within professional services.
7	Digital Tech Career Counseling for NYSC and Fresh Graduates	Jan 2019 - Mar 2022	Facilitator	Facilitated NYSC Computer Career Counseling program, transferring tech and business skills in data science, cloud computing, UI/UX, Machine Learning and digital transformation

ENGLISH LANGUAGE PROFICIENCY	Pearson PTE Academic English Test			
Overall Score: 70	Listening	Reading	Speaking	Writing
	69	66	66	80

PROJECTS & EXTRA-CURRICULAR ACTIVITIES

Project 1: Name	**Leveraging AI for Sustainable Nanomaterial Solutions in Trimtabs Project**
Project Type	Capstone Project for Master of Science Degree (Thesis Research)
Description	This project explored AI-driven solutions in sustainable resource management using nanomaterials. Employing Human-Centered Design Thinking, the research aimed to develop innovative, data-backed approaches, incorporating AI to optimize processes and enhance the environmental impact of nanotechnology for a sustainable future.

Project 2: Name	**Centralization of Corporate Academy Using AI-Driven Learning Solutions in the Automotive Industry**
Project Type	Master's Case Study Project in Strategic Management Course
Description	This project investigates the use of AI to centralize corporate academies within an automotive group. It focuses on AI-driven personalized learning, predictive analytics for training needs, and scalable web-based platforms to optimize employee development, enhance engagement, and streamline knowledge dissemination across global locations.

Project 3: Name	**Isolation and Identification of Multi-Drug-Resistant Bacteria from Poultry Droppings**
Project Type	Undergraduate Thesis Research Project
Description	Poultry could carry pathogenic bacteria that can lead to zoonotic diseases in humans, and their droppings could spread antibiotic-resistant bacteria into the environment. This work was set up to identify bacteria isolated from poultry droppings that may be pathogenic to humans. 90% of *S. aureus*, 88% of *E. coli*, and 96% of *Salmonella spp*. isolates were multi-drug resistant. So, the study advised the regulatory agencies to act quickly and stop these antibiotic-resistant bacteria from growing and spreading.

Project 4: Name	**DNA Vaccine**
Project Type	Undergraduate Seminar Research Review
Description	DNA vaccination is a promising new approach for the prevention and treatment of many diseases. This seminar review provided a brief historical overview of DNA vaccine development, potential safety concerns, and delivery. It concentrated on the mechanisms by which DNA vaccination induces immune responses and the approaches being used to optimize them. The advantages and disadvantages, applications, and comparisons with other vaccine types were also presented.

Project 5: Name	**Isolation of Entamoeba Histolytica from Female Students of Anambra State University, Uli Campus**
Project Type	A Medical Parasitology Research Project
Description	E. histolytica is prevalent in humans and animals, infecting 0.5 - 50% of the world's population. It was isolated for the first time at Anambra State University using Lock's-egg media, which resulted in the discovery of numerous trophozoites in culture and subculture. Cultivation success was influenced by pH levels and hindered by Erythromycin (22%) antibiotic. This study aimed to find optimal conditions for in vitro cultivation of E. histolytica while considering environmental factors.

Project 6: Name	**National Association of Microbiologist Action Committee on AIDS/HIV (NAMACA)**
Project Type	Extracurricular Voluntary Activity (Pioneer President)
Timeline	12th March 2012 – 25th July 2014
Description	Acted as the pioneer president of NAMACA, leading the volunteer field interviewers and health educators on HIV prevention and control advocacy across the university and its environments, where we informed students about the risk of HIV and other STDs, increased individuals' knowledge of HIV prevention through training and counseling classes, provided continuous diagnosis and immunological testing to students, reduced the prevalence of HIV infection by 60%.

ARTICLES & PUBLICATIONS:

1. July 11, 2024: "The Role Of Artificial Intelligence In Cybersecurity: Navigating The Complexities Of Emerging Cyber,", https://www.mondaq.com/nigeria/new-technology/1491560/the-role-of-artificial-intelligence-in-cybersecurity-navigating-the-complexities-of-emerging-cyber-threats.

2. October 5, 2023: Artificial Intelligence (AI) Regulation In Nigeria: Key Considerations, Recommendations, Legal Framework, And Policy Development - https://www.mondaq.com/nigeria/new-technology/1373830/artificial-intelligence-ai-regulation-in-nigeria-key-considerations-recommendations-legal-framework-and-policy-development-for-artificial-intelligence-ai-in-nigeria

3. August 16, 2023: Artificial Intelligence (AI) Application In Cybersecurity: A Synergistic Approach To Safeguarding The Digital Realm - https://www.mondaq.com/nigeria/new-technology/1353056/artificial-intelligence-ai-application-in-cybersecurity-a-synergistic-approach-to-safeguarding-the-digital-realm

4. August 7, 2023: The Dual Nature Of Artificial Intelligence (AI): Transformative Power Of AI In The Growing Cybersecurity Threats And Cyber Attacks - https://www.mondaq.com/nigeria/new-technology/1351536/the-dual-nature-of-artificial-intelligence-ai-transformative-power-of-ai-in-the-growing-cybersecurity-threats-and-cyber-attacks

5. April 27, 2023: Artificial Intelligence (AI) And AI Attacks In Nigeria: A Call To Action For Nigerian Policymakers - https://www.mondaq.com/nigeria/new-technology/1309534/artificial-intelligence-ai-and-ai-attacks-in-nigeria-a-call-to-action-for-nigerian-policymakers

6. April 27, 2023: Artificial Intelligence (AI) Goes Wrong: Real-Life Cases And Regulatory Implications Of The Negative Effects Of Artificial Intelligence (AI) In Nigeria - https://www.mondaq.com/nigeria/new-technology/1309544/artificial-intelligence-ai-goes-wrong-real-life-cases-and-regulatory-implications-of-the-negative-effects-of-artificial-intelligence-ai-in-nigeria

7. October 5, 2023: Application Of Digital Innovation And Technologies In Infectious Zoonotic Diseases Prevention And Control: A Comprehensive Guide - https://www.enago.com/academy/guestposts/ubajosephine2/application-of-digital-innovation-and-technologies-in-infectious-zoonotic-diseases-prevention-and-control-a-comprehensive-guide/

8. October 5, 2023: Artificial Intelligence (AI) And The Legal System In Nigeria: Navigating The Evolving AI Regulatory Concerns, Ethical Considerations, And Challenges To The Legal System - https://www.mondaq.com/nigeria/new-technology/1373846/artificial-intelligence-ai-and-the-legal-system-in-nigeria-navigating-the-evolving-ai-regulatory-concerns-ethical-considerations-and-challenges-to-the-legal-system

9. September 28, 2023: Extracting The Most From Software Demonstrations - https://www.legalpracticeintelligence.com/blogs/technology-intelligence/extracting-the-most-from-software-demonstrations

10. June 18, 2023: Combating Antimicrobial Resistance (AMR) using a One Health Approach. https://aptvet.com/combating-antimicrobial-resistance-amr-using-a-one-health-approach/.

11. June 18, 2023: Addressing the Threats of Antimicrobial Resistance (AMR) to Humans. https://aptvet.com/combating-the-threats-of-antimicrobial-resistance-amr-to-humans/.

12. June 18, 2023: The Urgent Threat of Zoonotic Antimicrobial Resistance in Developing Countries: A One Health Perspective. https://aptvet.com/the-urgent-threat-of-zoonotic-antimicrobial-resistance-in-developing-countries-a-one-health-perspective/.

13. June 18, 2023: Tackling Antimicrobial Resistance: Developing Effective Approaches for AMR Surveillance and Diagnosis. https://aptvet.com/tackling-antimicrobial-resistance-developing-effective-approaches-for-amr-surveillance-and-diagnosis/.

REFEREES' INFORMATION

Full Name	Ada Obiapuna	**Full Name**	Michael Iyebeye
Designation	Director/Head of Unit	**Designation**	Director/Head of Unit
Unit	Microbiology & Quality Control Lab	**Unit**	Infectious Diseases Research Resources
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STATEMENT OF PURPOSE:
PhD in Computer Science – Artificial Intelligence Specialization at Columbia University
(By: Ebere Josephine Uba)

Throughout my academic and professional journey, I have been driven by a deep commitment to utilizing technology, data science, and artificial intelligence (AI) to transform healthcare, particularly in resource-constrained environments. With over a decade of experience at the intersection of microbiology, digital health, and AI-driven data science, I am now eager to advance my expertise through doctoral research in AI. My aspiration is to contribute to cutting-edge AI research with a focus on solving complex healthcare challenges in developing nations, including infectious disease surveillance, antimicrobial resistance (AMR) management, and precision healthcare. Columbia University's renowned PhD program in Computer Science, with its rich focus on AI, offers the ideal platform for this pursuit, and I am particularly excited by the possibility of working under the mentorship of Columbia's esteemed AI faculty.

Educational Background
My academic foundation is built on interdisciplinary study, starting with a B.Sc. in Microbiology from Chukwuemeka Odumegwu Ojukwu University in Nigeria, where I graduated with Second Class Upper Honors (CGPA 4.08/5.00) in 2014. My undergraduate studies introduced me to the computational aspects of biology, such as bioinformatics, and inspired my interest in data-driven approaches to solving biological problems. Courses like statistics, calculus, and introductory programming (CIS 101 and CIS 192) were pivotal in igniting my passion for computational sciences. My senior project on "Isolation and Identification of Multi-Drug-Resistant Bacteria from Poultry Droppings" sparked my interest in addressing global health challenges like AMR through data-driven solutions.

Additionally, I completed a Diploma in Data Science and Machine Learning at RolaSoft Technologies Academy, where I graduated with Distinction (CGPA 4.88/5.00) in June 2022. This diploma covered essential AI topics, including machine learning, big data, robotics, and algorithm design. These programs solidified my technical foundation in AI and data science, equipping me with the tools to engage in more advanced AI research.

To strengthen my technical skills, I pursued several certifications in Data Science and Artificial Intelligence:

- Certificate in Artificial Intelligence from Accenture (June 2023)
- Building with Artificial Intelligence from Saylor Academy (October 2024)
- Python for Data Science from Saylor Academy (October 2024)
- Artificial Intelligence in Healthcare from Great Learning Academy (October 2024)

Building on these, I obtained a Master of Science in International Business from the European Institute of Business Management in 2024, graduating with Distinction (CGPA 3.77/4.00). Though focused on business, this program exposed me to AI applications in international business analytics and deepened my understanding of how AI technologies shape industries globally. My capstone project explored the use of AI for sustainable technologies, focusing on nanomaterials, while a strategic management case study examined AI optimization of global training systems. I found parallels between the impact of AI on business and its potential for healthcare transformation.

Professional Experience
My career at AptVet Laboratory in Lagos, Nigeria, where I currently serve as the Supervising Digital Health Microbiologist, has been instrumental in shaping my research interests. In my current role, I lead the development of AI-driven diagnostic tools, utilizing machine learning algorithms to enhance diagnostic accuracy for infectious diseases. I also manage health data using Python and SQL, and develop predictive models for disease outcomes. By digitizing laboratory procedures and integrating AI into health diagnostics, I have demonstrated how AI can improve healthcare outcomes in real-world settings. An example of this is the AI-based alert system I developed for bacterial identification and genomic data analysis.

From 2019 to 2022, as Senior Digital Health Microbiologist, I led efforts to integrate bioinformatics and AI into genomic sequencing for infectious disease control. I collaborated with national health organizations, including Nigeria's NCDC and Infectious Diseases Hospitals, to develop AI tools for AMR monitoring. These collaborations taught me the value of interdisciplinary work in creating AI-driven health solutions. Earlier, as Digital Health Microbiologist (2016-2019), I worked on analyzing large datasets of infectious disease patterns, refining my skills in data preprocessing for AI model training. As a Junior Microbiologist (2015-2016), I contributed to research on antimicrobial resistance, an experience that sparked my interest in computational biology.

My numerous professional publications further underscore my commitment to advancing AI in healthcare. My works include: *"The Role of Artificial Intelligence in Cybersecurity: Navigating the Complexities of Emerging Cyber Threats"*, *"Combating Antimicrobial Resistance (AMR) using a One Health Approach*", and so on. These articles, along with my speaking engagements at conferences such as the Accelerated Digital Transformation Summit 2024 and Digibank Summit 2023, reflect my ability to communicate complex AI concepts and their real-world applications, both in healthcare and beyond.

Research Interests and PhD Goals

At Columbia University, my research will focus on the application of AI and big data in infectious disease surveillance and AMR monitoring in developing countries. I am particularly interested in leveraging machine learning, natural language processing (NLP), and computer vision for improving diagnostic tools, early disease detection, and healthcare resource optimization in low-resource environments. My proposed research builds on my past experience at AptVet Laboratory, where I successfully implemented AI models for bacterial identification and disease outcome prediction. With Columbia's emphasis on deep learning, data science, and AI, I believe I can contribute meaningfully to the university's AI research ecosystem.

My proposed project, tentatively titled, *"Using Artificial Intelligence for Enhanced Infectious Disease Surveillance and Antimicrobial Resistance Monitoring in Developing Countries",* aligns with global health priorities. During outbreaks, AI has the potential to reduce response times by analyzing real-time data, enabling healthcare systems to act swiftly and effectively. This is especially critical in regions like Nigeria, where healthcare systems often lack the resources to respond quickly to emerging health threats. My research will focus on developing AI models that can integrate into existing health systems to improve disease surveillance and response times.

Why Columbia University

Columbia University's commitment to innovative AI research makes it the ideal place for my doctoral studies. The university's strengths in machine learning, computer vision, and NLP, as well as the diverse AI research conducted by faculty members such as David Blei, Shih-Fu Chang, and Julia Hirschberg, perfectly align with my research interests. Columbia's AI research community, particularly its focus on interdisciplinary collaboration, will provide a supportive and intellectually stimulating environment for my work. The opportunity to learn from and collaborate with leading AI researchers will empower me to push the boundaries of AI applications in healthcare.

Moreover, Columbia's location in New York City offers unparalleled opportunities to engage with a broad range of healthcare institutions and AI-driven startups. This dynamic ecosystem will enhance my ability to conduct impactful research with both academic and real-world implications. I am eager to contribute to Columbia's ongoing efforts in healthcare AI and to learn from its esteemed faculty.

Future Goals

Upon completing my PhD, I intend to return to Nigeria to lead AI-driven healthcare initiatives that address the pressing challenges of infectious disease surveillance and AMR monitoring. My goal is to collaborate with national health agencies, such as the Nigeria Centre for Disease Control (NCDC), to integrate AI into their existing health data systems. I also envision collaborating internationally, contributing to global AI research on healthcare applications, particularly in under-resourced regions.

Long-term, I aspire to work as a Senior AI Research Engineer in a global healthcare AI community, contributing to advances in AI-powered diagnostics, personalized medicine, and disease prediction models. I also plan to publish my research in leading AI journals and present my findings at international AI and healthcare conferences.

Conclusion

Columbia University's PhD program in Computer Science with a specialization in Artificial Intelligence offers the perfect environment for me to advance my expertise and make significant contributions to healthcare AI research. I am excited about the opportunity to work with Columbia's exceptional faculty and engage with its vibrant AI community. With my strong foundation in microbiology, AI, and digital health, I am confident that I can make meaningful contributions to Columbia's AI research and, ultimately, to the global effort to harness AI for the betterment of healthcare systems worldwide.