EKENEDIRICHUKWU NELSON OBIANOM
EMBEDDED AI ENGINEER

PROFESSIONAL SUMARY

A highly skilled and professional Embedded Artificial Intelligence Engineer with over 4+ years of experience embedded system design, machine learning model development and deployment, signal analysis, technical documentation, and delivering high-value projects on time and within budget while ensuring efficiency, reliability, and innovation.

Quality-driven professional with expertise in machine learning model development using MATLAB and Python, alongside electronic circuit design with SPICE-based tools such as LTSpice, Proteus, Altium, and Eagle. Skilled in microcontroller-based system development, applying innovative solutions to real-world challenges in security, smart homes, and health monitoring. A natural problem solver, adept at bridging cross-disciplinary challenges, technological solutions, and business objectives. Recognized for sharp analytical skills and the ability to identify key details that others overlook. An effective communicator with strong organizational and planning abilities, complemented by extensive experience in team collaboration, project management, and system development life cycle (SDLC) models like Spiral, Waterfall and Agile.

CORE & TECHNICAL SKILLS

• Biomedical Engineering	• MATLAB / Simulink	• Team Leadership
• Electronics Engineering	• Python/Embedded C	• Communication Skills
• Electrical Engineering	• Arduino/Raspberry	• Problems solving
• Machine Learning	• LTSpice / Proteus	• Time Management
• Signal analysis	• Altium / Eagle	• Team Collaboration
• Circuit design	• LabVIEW	• Analytical Reasoning
• PCB design	• HTML	
• Data analysis	• Docker, Slurm	

CAREER SUMMARY

UNIVERSITY OF LEICESTER, UK.   **AUG 2023 – Present**
RESEARCH ASSISTANT

Outline:
Responsible for researching, designing and enhancing conceptual ideas within the Electrocardiology, contributing to advancements in biomedical signal processing and embedded medical systems.

Key Responsibilities:
- Investigating existing technologies to prevent redundant redesign, ensuring efficient innovation and optimization of biomedical solutions.
- Collaborating with a cross-disciplinary university team, integrating expertise from biomedical engineering, electronics, and data science to develop versatile and high-impact medical technologies.
- Prototyping conceptual designs using Simulink, Arduino, and LTSpice, conducting initial feasibility testing before full-scale development.
- Designing and building electronic circuits, including PCB design and fabrication, for both microcontroller-based and standalone biomedical devices.
- Developing and analysing machine learning models using Python and MATLAB for the classification and reconstruction of human body potentials, improving diagnostic and monitoring accuracy.

- Integrating and deploying ML models onto embedded systems, ensuring real-time signal analysis and decision-making capabilities.
- Conducting rigorous system testing, identifying and debugging defects to enhance system reliability, accuracy, and efficiency.
- Authoring technical documentation, including design reports, research papers, and user manuals, for both internal and external stakeholders.
- Engaging with the global Electrocardiology research community, attending conferences, networking with experts, and exploring collaboration opportunities.
- Publishing research findings in peer-reviewed journals, contributing to the broader scientific and engineering community.
- Applying for research grants, securing funding to support ongoing and future biomedical innovation projects.

Key Achievements:
- Delivering two projects from conception to completion within 1.5 years, demonstrating strong project management and technical execution.
- Increasing team efficiency and reducing wasted time by 15% through the implementation of Agile methodology, streamlining workflows and enhancing collaboration.

CONTRACTOR   **JAN 2021 – SEPT 2022**
ELECTRONICS ENGINEER
Key Responsibilities:
- Assessed and analysed client needs, conducting detailed consultations to define project requirements, technical specifications, and desired outcomes.
- Led conceptual discussions and feasibility studies, performing cost analysis and risk assessments to ensure the technical and financial viability of prospective projects.
- Designed and developed embedded systems using Proteus and Altium, while programming in Embedded C and Python, aligning solutions with client specifications and industry standards.
- Engineered and assembled custom PCBs, handling circuit design, layout optimization, component selection, soldering, and system integration to ensure reliability and performance.
- Developed firmware and software solutions for embedded systems, ensuring seamless operation, efficiency, and scalability.
- Conducted hardware testing, debugging, and optimization, verifying system functionality and compliance with performance benchmarks.
- Prepared comprehensive technical documentation, including user manuals, schematics, and design reports, ensuring clarity and usability for clients and end-users.
- Managed project timelines and budgets, ensuring on-time delivery while maintaining high-quality engineering standards.

FEDERAL POLYTECHNIC NASARAWA   **MAY 2021 – APR 2022**
ASSOCIATE LECTURER
Key Responsibilities:
- Prepared and delivered engaging lectures in Mathematics, Electrical Principles, and Communication Systems, ensuring students gained a strong theoretical foundation and practical insights into real-world applications.
- Designed and conducted hands-on tutorials and laboratory sessions, integrating practical demonstrations, simulations, and project-based learning to reinforce key concepts.

- Developed and assessed coursework, assignments, and practical exercises to evaluate students' understanding, problem-solving skills, and technical proficiency.
- Provided guidance and mentorship to students, encouraging critical thinking, innovation, and independent learning in engineering and applied sciences.
- Supervised and facilitated practical projects, ensuring students applied theoretical knowledge to real-world engineering challenges using industry-standard tools and methodologies.
- Conducted assessments, invigilated examinations, and graded tests with a commitment to maintaining fair, transparent, and constructive evaluation processes.
- Incorporated modern teaching methods, including the use of simulation software, embedded systems, and circuit design tools, to bridge the gap between academic knowledge and industrial applications.

NOTABLE PROJECT ACHIEVEMENTS

- **ECG recording system for out-of-hospital use (2025)**
  Developed an innovative, user-friendly ECG recording system designed for home use. This project improved remote patient monitoring by increasing data collection efficiency and reducing response times in early cardiac anomaly detection, thereby enhancing research into early intervention strategies.
- **Machine learning models for the reconstruction of ECG (2024)**
  Designed and implemented advanced machine learning algorithms to reconstruct ECG signals with higher fidelity. Compared to traditional methods, these models boosted reconstruction accuracy by 5%, directly contributing to more reliable diagnostic data and advancing research in signal processing for biomedical applications.
- **Tag-following shopping cart (2022)**
  Engineered an intelligent shopping cart that follows tags held by the user, streamlining the in-store experience. This project not only reduced item retrieval time but also provided a data-rich environment that improved the research on human–machine interaction and retail automation.
- **Vein Blockage Detection and Dilation System (2022)**
  Developed an automated system for early detection and dilation of vein blockages. Preliminary studies indicate that this system increases detection and response rate, which is critical for reducing complications and improving patient outcomes. This project has paved the way for more precise and proactive vascular research.

Publication overview is available via ORCID: https://orcid.org/0009-0003-2313-5493
Projects overview is available via my personal website: https://ekene.obianom.com/projects/

EDUCATION & CERTIFICATIONS

- PhD Biomedical Engineering, University of Leicester, UK — 2026
- BEng (Hons) Electrical Electronics Engineering, Bells University of Technology, Nigeria — 2020

REFERENCES AVAILABLE ON REQUEST