Zawadi M. Kiarie

zawadikiarie@gmail.com | (+254)705155040 | LinkedIn: ZawadiKiarie | GitHub: ZawadiKiarie | Portfolio: Portfolio

EDUCATION

Jomo Kenyatta University of Agriculture and Technology(JKUAT)

B.Sc in Computer Science   *Expected Graduation, April 2026*

- o **Concentrations:** 3D Web development, Artificial Intelligence and Machine learning
- o **Related Coursework:** Computer Graphics, Data Structures & Algorithms, Computer Organization, Programming Languages, Software Engineering, Artificial Intelligence, Object-Oriented Programming, Probability & Statistics**,** System Analysis and design, Scientific Computing, Design and analysis of algorithms, Systems Programming, Simulation & modelling

WORK EXPERIENCE

Advatech Office Supplies Limited (Kenya Revenue Authority–approved ETR Solutions Provider)

Role: *Software & Technical Support Intern*   *June 2025 – Aug 2025*

Objective: Gain hands-on experience in software systems, hardware troubleshooting, and tax technology solutions.

Approach & Results:

- Assisted in servicing, configuring, and troubleshooting Electronic Tax Register (ETR) machines (Types A, B, and C) used by businesses for KRA eTIMS compliance.
- Supported clients in resolving synchronization issues between ETRs and KRA TIMS, ensuring accurate tax reporting and receipt generation.
- Developed a WPF (VB.NET) desktop application called *PDF Parser Smart Integrated Application* to extract structured data from invoices and generate compliant reports.
- Learned QuickBooks operations and invoice management workflows, contributing to improved customer support efficiency.
- Created and maintained job cards for device repairs and deployments, improving documentation consistency across departments.

Achievements:

- Strengthened technical troubleshooting and customer communication skills in a real business environment.
- Gained foundational understanding of enterprise tax systems, network configuration (RJ45 crimping, router setups), and software-hardware integration.
- Demonstrated initiative by contributing to internal tool development, combining programming and operational insights.

PROJECTS

GlycoSnap(AI-powered dietary assessment for diabetic patients)

Role*: Machine learning engineer*   *May 2024 – Aug 2024*

Objective: Build an AI model to accurately segment food images and estimate glycemic load in real time

Approach & Results:

- Led data collection and annotation(labeled 2,000+ food images via roboflow), boosting labeling efficiency by 40%.
- Trained, tested, and validated YOLOv8 models in Google Colab, fine-tuning hyperparameters for improved food segmentation accuracy.
- Integrated MiDaS depth estimation models to improve volume-based glycemic load calculations, reducing reliance on area-based assumptions.
- Challenges: Accuracy dropped by 5% for foods with overlapping or obscured boundaries; additional specialized training data was required.

Achievements:

- Data Pipeline Management: Gained hands-on experience designing end-to-end data pipelines, from image collection to annotation and model integration.
- Image Segmentation & Depth Estimation: Deepened understanding of computer vision techniques, hyperparameter tuning, and depth-based models.

SmartFood(Food tracking web application)

Role: *Web developer*   *Sep 2024 – Oct 2024*

Objective: Provide users with a convenient way to log meals and estimate the glycemic load from uploaded images

Approach & Results:

- Created a React-based food tracking app where users can log meals and track the glycemic load on their plate by uploading a picture.

- Designed and implemented a Node.js + Express backend API with PostgreSQL handling user authentication.
- Built a React-based frontend, ensuring a responsive, mobile-first UI for seamless user experience.
- Designed and developed the SmartFood landing page, showcasing the app's features and benefits.
- Deployed a backend segmentation API to calculate glycemic load based on segmentation masks from a trained AI model.
- Challenges: The segmentation API deployed on Render experienced slow response times when handling large uploaded images, requiring further performance optimizations.

Achievements:
- Full stack development: Enhanced proficiency in React, Node.js and PostgreSQL sharpening end-to-end web development.
- AI Integration: Learned how to integrate Machine learning-based segmentation into a live application, including handling image data and returning accurate glycemic load estimates.

3D Room Portfolio

Role: *3D Web developer*   *Sept 2025 – Oct 2025*

Objective: Create an immersive 3D portfolio experience that visually represents a developer's creative workspace using interactive storytelling and WebGL technologies.

Approach & Results:
- Designed and modeled a realistic 3D room in Blender, including custom assets such as a desk setup, keyboard, and décor elements to convey a personal brand identity.
- Implemented the 3D environment in React Three Fiber (R3F) and Three.js, optimizing materials, textures, and baked lighting for web performance.
- Integrated GSAP animations and scroll-based interactions for smooth transitions and camera movements, enhancing narrative flow.
- Deployed the experience as part of a personal creative portfolio, accessible across devices with responsive rendering and reduced load times through texture compression.

Achievements:
- Strengthened expertise in real-time 3D rendering, asset optimization, and interactive storytelling using web-based graphics.
- Merged artistry with engineering by blending Blender design workflows with R3F front-end development.
- Developed an understanding of UX for 3D experiences, focusing on user immersion, pacing, and visual hierarchy.

Crossing road Portfolio

Role: *Creative developer*   *Oct 2025 – Nov 2025*

Objective: Build an interactive, gamified 3D portfolio that communicates skills and personality through playful motion and environmental storytelling.

Approach & Results:
- Designed and built a stylized low-poly environment in Blender, featuring animated characters and props to represent different sections of the portfolio.
- Implemented the scene in React Three Fiber, using GSAP timelines, state management (Jotai), and camera path animations to synchronize user interactions with transitions.
- Incorporated hover and click-based interactions with raycasting, creating an exploratory experience that engages users while maintaining performance.
- Conducted performance profiling and optimization, reducing draw calls and ensuring stable frame rates across devices.

Achievements:
- Pioneered a creative web experience merging storytelling, 3D animation, and interactivity.
- Strengthened proficiency in animation curves and 3D scene composition for the web.
- Enhanced the personal brand portfolio with a playful yet professional 3D identity, showcasing both technical and creative skills.

CERTIFICATIONS

The Complete Web Developer Course   **Zero To Mastery**
- Course on building real complex applications and websites.

The Complete Junior to Senior Web developer Course   **Zero To Mastery**
- Course that teaches the technical and non-technical skills to become a Senior Web Developer.

The Complete UI/UX product design bootcamp   **Zero To Mastery**
- Course to learn and master web design, mobile design, Figma, UI & UX, and HTML + CSS.

Create a Design System From Scratch in Figma   **Awwwards**
- Course on how to create a Design System and how to apply it to your projects or company.

Building Better Experiences with a Product Thinking Approach   **Awwwards**
- Course on applying the Product thinking approach to your projects.

AI Engineering bootcamp: RAG(retrieval augmented generation) for LLMs   **Zero To Mastery**
- Course on making smarter AI systems by combining LLMs with Retrieval-Augmented Generation (RAG).

ACTIVITIES AND LEADERSHIP

Women in STEM Kenya (WSK)
Website Development Team Member
- Overseeing the development of a website and content strategy to amplify STEM opportunities for women.

SKILLS

Programming: Python, JavaScript, TypeScript, SQL, C, C++, Java
Web Development: React.js, Node.js, Express.js, HTML/CSS, Firebase, Tailwind CSS, Material UI, Three.js, React Three Fibre(R3F)
Artificial Intelligence & Machine Learning: PyTorch, YOLO, Scikit-learn, pandas, numpy, Matplotlib
Tools: VS Code, Jupyter Notebooks, Github, Docker, Postman, Figma, Hugging Face, Blender