Grace Muthoni Kaimburi

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Research Interests: Artificial Intelligence (Humanitarian Tech & AI), Climate Informatics (Leveraging big data and machine learning for Climate change prediction), Responsible AI (Ethical AI & Societal Impact), Machine Learning (Utilizing ML algorithms, especially deep learning, for real-time environmental monitoring, prediction, and mitigation of climate threats), IoT for Smart Cities & Sustainable Development, Augmented Reality (Investigating the role and representation of women in emerging fields and its applications for educationand training.)

Education:

Bachelor's Degree: Software Engineering   09/2020 — 04/2024

University of Eastern Africa, Baraton   Eldoret, Kenya

Department of Information Systems and Computing - First Class Honors

Certificate: Data Analysis   05/2023 — 11/2024

ALX, Africa   Nairobi, Kenya

Certified Data Analyst from Explore Academy

Certificate: Community Leadership   01/2024 — 04/2024

Aspire Institute   Online

Aspire Leadership Program (Masterclass)

Certificate: Entrepreneurship   02/2024 — 05/2024

Dunin-Deshpande Queen's Innovation Center Institute   Online

Explore Entrepreneurship Course

Experiences:

Research Associate - Climate and AI, African Group of Negotiators Experts Support (AGNES) - Physical

African Group of Negotiators Experts Support (AGNES)   **Oct 2024-Present**

In this role, I contribute to expanding In my role as a Research Associate in Climate and AI, I work with the African Group of Negotiators Experts Support (AGNES) to leverage artificial intelligence in addressing Africa's climate challenges. My contributions focus on utilizing machine learning and data-driven approaches to develop climate policies and strategies aimed at strengthening the resilience of African nations. I collaborate closely with interdisciplinary teams to analyze climate data, provide actionable insights, and enhance negotiation strategies for Africa in global climate discussions. This position allows me to apply my technical expertise to shape sustainable policy frameworks, particularly in the areas of emissions reduction and climate adaptation.

Co-Designer, Centre for Social Action (CfSA) - Remote

The Diana Award   **April 2024 - Present**

I am engaged in the innovative development of the Centre for Social Action, an initiative reflective of Diana, Princess of Wales ' legacy that underscores the power of youth in global change. In this role, I contribute to expanding The Diana Award's mission through strategic design and implementation of a Center for Social Action Platform that empowers young individuals to initiate and sustain social change. My responsibilities include collaborating on multi-disciplinary teams to create impactful solutions and engaging with stakeholders to ensure the programs not only inspire but equip young leaders for effectiveactivism.

Next Generation Resource Governance Leaders Program - Physical

Africa Centre for Energy Policy [ACEP], Accra Ghana   **April 2024 -July 2024**

As a participant in this prestigious program, I am being equipped with essential skills in resource governance, transformational leadership, and policy analysis. This role enhances my professional and personal development, enabling me to tackle complex resource governance challenges effectively within Africa. The program prepares me to contribute significantly to the pursuit of good governance worldwide, focusing on policy analysis, resource management, and additional pertinent skills.

Founder and CEO - Hybrid

Eco-Hydrate Solutions, Nairobi, Kenya   **September 2022- ongoing**

As the founder, I spearhead our groundbreaking efforts in combating water scarcity, which is as a result of Climate Change, by developing innovative solutions that integrate IoT and AI technologies. My responsibilities include

overseeing the implementation of the Water Transportation Initiative, a key project underpinned by our patented technology. This initiative showcases our commitment to addressing water scarcity through cutting-edge approaches, and my role is central to driving these advancements. With a focus on sustainability and efficiency, I lead our team in creating impactful solutions that leverage advanced technology to tackle one of the world's most pressing challenges.

UI/UX Designer - Hybrid

Taquana Limited, Nairobi, Kenya   **August 2023 – ongoing**

Entrusted with the design and optimization of user interfaces, I champion the creation of intuitive and visually captivating UIs that elevate the overall user experience. My design approaches ensure seamless user journeys, emphasizing both aesthetics and functionality.

Software Engineering Intern

Attain Enterprise Solutions Limited   **May 2023 - July 2023**

Secured a coveted internship where I immersed myself in real-world software engineering challenges. This hands-on experience allowed me to sharpen my technical skills, deepen my industry knowledge, and understand the nuances of software development in a professional setting.

Huawei Student Ambassador

Attain Enterprise Solutions Limited   **May 2023 – July 2023**

As a Huawei Student Ambassador on my campus, I have taken a leading role in organizing events, writing comprehensive reports, and guiding fellow students since January 2023. This has enhanced my leadership and organizational skills and has provided me with the opportunity to foster a deeper connection between Huawei and the student community. Through planning and executing various initiatives, I have facilitated knowledge exchange, promoted technological advancements, and contributed to building a vibrant tech-focused culture among my peers.

Image Annotator - Remote

Worked remotely on image annotation tasks provided by Waymo self-driving cars, contributing to the improvement of their machine learning models by accurately labeling and categorizing images.

Research work and Projects:

Navigating Trustworthy AI and Addressing Bias in the Era of Rapid Technological Emergence Initiative   July 2024

Published Paper link: https://birj.ueab.ac.ke/journal-articles/

In July 2024, I researched and published a paper on Navigating Trustworthy AI and Addressing Bias in the Era of Rapid Technological Emergence Initiative, where I explored the ethical implications of artificial intelligence (AI) systems, particularly in addressing algorithmic bias. This initiative focused on creating frameworks for developing trustworthy AI models that prioritize fairness, transparency, and accountability. My research and findings were published in the Baraton Interdisciplinary Research Journal (BIRJ), reflecting my commitment to advancing ethical AI in the face of rapid technological innovation.

Water Transportation Initiative   September 2022 - ongoing

Patent: KE/P/2023/4406

Developed a mechatronic IoT system to optimize water distribution in Kenya. The system employs hydraulic ram pump control integrated with artificial intelligence, ensuring efficient pneumatic operations and real-time water quality monitoring. This innovation catalyzed the establishment of the Eco-Hydrate Solutions, where I serve as the founder.

AI-Driven Financial Modeling for Climate Change Prediction   Dec 2023

Publication: https://openreview.net/forum?id=zRzPI7ThXi

Conducted groundbreaking research on employing AI in financial modeling to analyze carbon credits, providing insights into predicting climate change patterns.

Emphasized the role of technology in addressing environmental challenges, contributing to the advancement of sustainable technology.

Carbon Dioxide Emission Measurement and Reporting System for Automobiles   September 2023 – ongoing

Patent: KE/P/2023/4708

Innovating a device and system to measure, monitor, and report CO_2 emissions from individual vehicles, filling a critical gap in emission monitoring at the consumer level. This system provides specific readings of a vehicle's CO_2 emissions, linking them to

engine performance and enabling users to optimize operations for reduced carbon footprints.

Climate Policy Analysis   August 2023 – ongoing

African Group of Negotiators, Experts and Support [AGNES]

Partnered in a groundbreaking analysis utilizing artificial intelligence to understand and offer solutions for climate change. This research aimed to inform and reshape climate policies for a sustainable future.

Mwambaphila   September 2023 - ongoing

I got a collaborative opportunity with Mwambaphila during and after a triumphant hackathon at the Deep Learning Indaba 2023 in Accra, Ghana. My role is as a UI Designer and a pivotal role in reviewing AI and health regulations in Africa.

TeleMama App   June 2023

TeleMama App Project

Collaborated on a telemedicine solution during my venture at ALx Africa, targeting expectant mothers. The app addresses the prevalent issue of prolonged waiting times at maternal clinics, providing timely and efficient medical consultations.

Writing Endeavors   May 2023

Regular contributions to Medium, highlighting topics on technology, societal change, and women's empowerment.

Awards and Honors:

- 2024 Wangari Maathai Impact Award - Link, Link
- Poster Award for being innovative at the Deep Learning Indaba
- Academic Dean's Prize Award 2022 & 2023
- Huawei Seeds for the Future Programme 2023
- Google Computing Credits hackathon awards

Skills:

Soft Skills: Problem Solving skills,   Systematic Thinking, Leadership , Human Centered Design Thinking   Team Work, Technical Skills,   Software Development and Android Design

Programming Skills: Agile Project Management, Machine Learning - ModelTraining, Data Analysis, Python Programming, UI/UX Designing, Javascript Framework - Node.js

Volunteer Positions:

Deep Learning Indaba : Applications and Selection Committee [link] - I volunteered to help organize the Global Deep Learning Indaba conference held in Dakar Senegal from 1st - 7th September 2024. This included months of meeting meticulous planning, organizing and problem solving.

Indaba X Kenya : Key Organizer [link] - I volunteered to Organize the Kenyan Indaba that was held at Dedan Kimathi University. As a Key organizer I was incharge of moderating sessions,applications and selection and getting sponsors for the event.

References:

Supervisor:
Mr. Eliasu Ali
Policy Lead - Minerals & Mining Policy
Africa Centre for Energy Policy (ACEP)
Email: eliasuali@acep.africa
Phone: +233542713303

Mentor and Trainer:
Dr. David AwolalaTeam Lead
African Group of Negotiators Experts and Support (AGNES)
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Grace Muthoni Kaimburi

Personal Mentor:

Beth Mwangi
Software Engineer - Full-Stack
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