UNIVERSITY OF NAIROBI

Faculty of Engineering

NEWSLETTER

AFRETEC NETWORK
BY CARNEGIE MELLON-AFRICA

Afretec Network Principal Investigators Meeting June 2-4, 2025 in Kigali, Rwanda

Vol 1 Issue 1 Newsletter | June 2025

Inside

AFRITEC PI Meeting

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EDITOR'S NOTE

In this newsletter we are happy to share with you updates on the Afretec Network Principal Investigators Meeting held in Kigali, Rwanda, between 2nd and 4th June 2025. Abstracts of presentations by UoN team will be presented here.

It is important to note that Afretec started with six members. Now there are nine.

This newsletter embodies the insights, experiences, and positive impact that the team from the University of Nairobi made. I had the pleasure to be jointly enriched by a remarkably productive Afretec PI Meeting.

The CMU team sent a message to all of us expressing that it was immensely grateful for the contributions that UoN team made in making the Afretec PI Meeting an enriching and an enjoyable collaborative experience.

There were many very exciting presentations over the two days. On the second day, Corey Toler-Franklin from Columbia University made a presentation as the visiting guest. The abstract is included in this newsletter.

Many thanks to the organizing team from CMU whose efforts were pivotal in coordinating the event:

You all deserve a perfectly sequenced round of applause:

1 - 2 - 👏 - 4 - 👏 - 👏 - 7 - 8 - 👏 - 👏 - …

Eng. Prof. Siphila W. Mumenya

Introduction

The meeting started with Welcoming Statements by Conrad Tucker, the Director of Carnegie Mellon Africa. The highlight of his welcoming statements was asking the participants the following: "what generational impact do we want to have on the African continent and beyond?".

The welcoming remarks were followed by Opening Remarks by Ismaila Dabo, the Afretec Coordinator who is based at Carnegie Mellon Africa. He broke down the grants as dispatched between 2023 and 2026 as follows:

- 11 Full grants (3 Years; $300,000);
- 5 full grants $250,000;
- 8 seed grants (1 year 50,000);
- X Full grants (3 years 250,000), and
- Y Seed Grants (1 yr 50,000)

There are currently three clusters, namely: Health, Sustainability & Environment, Education & Entrepreneurship. But are these enough?. There has also been five members, who have now increased to nine. The new members to understand the philosophy of Afretec Programme.

In total, there were 24 presentations, among which the team from the University of Nairobi had eight. The students had Poster Presentations and at the close of the meeting, there was an online vote for best student posters.

Revolutionising Hospital Oxygen Supply through Water-Electrolysis: A Modular, Solar-Powered Solution for Kenyatta National Hospital

Dr Davies Rene Segera[1*], Prof Grace Irimu[1], Prof Nageh Allam[2], Prof Rose Alani[3], Prof T. O. Mbuya[1]
[1]University of Nairobi, Kenya [2]American University in Cairo, Egypt [3]University of Lagos, Nigeria

Introduction and Objectives

Water-electrolysis now stands as the most economically viable route to medical-oxygen supply for East African hospitals. While cryogenic plants require minimum capacities of ⇠ 100 t O2 d_1 and PSA systems plateau at 93–95% purity, PEM and alkaline electrolysers deliver "99.5% O2 with co-production of revenue-generating green H2. Recent alkaline membrane technology achieved 95% efficiency using inexpensive nickel compounds. Maggio et al. demonstrated that 1 MW PV-powered systems achieve positive returns when oxygen exceeds 3–4 C kg_1—a threshold Kenya surpasses with current prices of $19–58 per 6.8m3 cylinder [1].

Kenyatta National Hospital (KNH) currently spends KES 24 million monthly on trucked liquid oxygen while consuming 4,000–8,000 litres daily—representing both financial burden and

supply-chain vulnerability [3]. Our Afretec-funded initiative aims to develop a scalable PEM electrolyser technology platform through systematic research, targeting a multi-stack system capable of meeting 15–25% of KNH's oxygen demand while generating saleable green hydrogen, aligning with Kenya's National Green Hydrogen Strategy [4]. The program employs modular scaling: characterizing a 3-cell PEM fuel cell stack, developing a sophisticated IoT monitoring system,
and integrating these into a larger multi-stack system comprising multiple 4 cm2 PEM units powered by Kenya's exceptional solar resources (>5 kWh/m2/day). A modular header-based IoT architecture features Arduino-based microcontroller with SIM800L GSM module, DS3231 RTC, and standardized sensor connectors supporting I2C, UART, and analog protocols. This establishes a replicable foundation for oxygen production across Kenya's 47 county hospitals, advancing SDGs 3, 7, 9, and 13.

Envisioned Publications

1. Modular IoT monitoring for electrochemical applications, in preparation for submission to Wiley Journal of Computer Networks and Communications
2. HMI dashboard for electrolyser monitoring, in preparation for submission to Wiley Journal of Mobile Information Systems
3. ChatGPT-powered IoT electrolyser analytics, in preparation for submission to Wiley Journal of Software:

Birds' Detector and Repellent System for Large-Scale Smart Farming

Emmanuel Ndashimye, PI (CMU-Africa); Evariste Twahirwa, Co-PI (University of Rwanda); Mutugi Kiruki Co-PI (University of Nairobi); Christine Niyizamwiyitira, Co-PI (CMU-Africa); Peace Bamurigire, Co-PI (University of Rwanda); Moise Busogi, Co-PI (CMU-Africa)

Introduction and Objectives

The overall objective of this project is to develop a low-cost sensor device that can effectively detect the presence of birds and deploy appropriate deterrent measures to protect crops in agricultural environments. This initiative aims to address the significant challenge of bird damage to agriculture, which causes economic losses, disrupts social dynamics, and even affects educational pursuits as children are often kept out of school to guard crops. When it comes to the context of large agricultural farms, current bird detection and repellent methods are often ineffective, highlighting the need for innovative solutions.

To achieve this overall objective, the specific project objectives are four-fold:

1. *Vision-Based Bird Detection*: We will implement computer vision algorithms for bird detection based on visual cues.
2. *Building an Acoustic Sensor-Based Bird Detection*: We will develop a cost-effective bird

detection system using acoustic sensors by leveraging robust signal processing algorithms and machine learning.

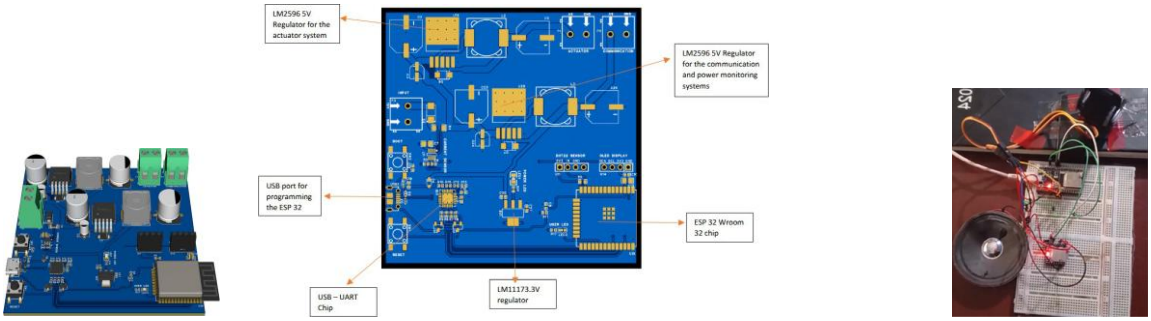
3. *Repellent System Development*: We will design and implement an environmentally friendly bird repellent system, exploring various deterrent measures. We will assess the effectiveness of

repellent strategies against different bird species, optimising for cost-effectiveness and minimal impact on non-target species.

4. *Integration and Testing*: We will integrate acoustic and vision-based systems with the chosen repellent mechanism into a functional unit. We will also develop a user-friendly interface and conduct extensive real-world testing to assess and validate the performance, accuracy, and efficiency of the system.

Envisioned Publications

No publications to report for the moment.



Strengthening Water Access and Quality in Selected African Countries

Research Team:

1. Prof. M.O.H. Amuda, University of Lagos, Nigeria (Principal Investigator)
2. Assoc. Prof. F.O. Agunbiade, University of Lagos, Nigeria (Co-PI WP1)
3. Prof. T. Lawanson, University of Lagos, Nigeria (Co-PI WP1)
4. Prof. T.A. Fashanu, University of Lagos, Nigeria (WP2)
5. Prof. T.O. Mbuya, University of Nairobi, Kenya (Co-PI, Kenya)
6. Prof. U.G. Wali, University of Rwanda (Co-PI, Rwanda)
7. Dr. A.A. Yinusa, University of Lagos, Nigeria (WP2)
8. Engr. Micheal Ogundero, University of Lagos (Ph.D. Student)

Introduction and Objectives

The overarching aim of this project is to provide a platform for harnessing human capital through multi-institutional partnerships to develop an Afrocentric knowledge ecosystem for providing solutions to some of Africa's existential challenges via innovation and digital inclusion. In the present project, the focus is on addressing water insecurity as an existential challenge.

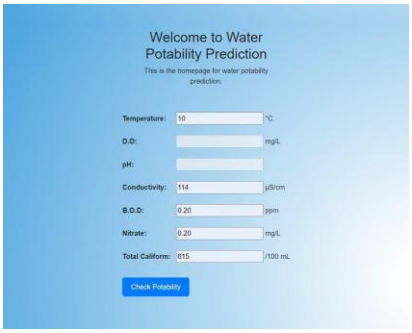
Specific objectives

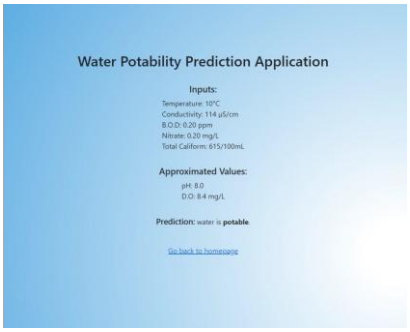
1. Deploy the concept of community participation in the design, implementation, and validation of a digital technology framework capable of real-time monitoring of contaminants which will continually advise on the choice of optimum filtration policy and procedure.
2. Use knowledge and understanding obtained through citizen science in conjunction with parametric optimisation of transport of contaminants through porous media to develop a scalable, replicable, fitfor-purpose smart water purification technology to strengthen water access and quality.
3. Provide a platform for multi-institutional collaboration in the creation of Africa's knowledge ecosystem for building human capital for the transformation of the African economy, improving job creation and prosperity.
4. Develop a sustainable pathway for the consolidation of the multi-institutional partnership which will include the co-creation of graduate learning activities, staff exchange, joint graduate research supervision, joint publications, co-hosting of scientific meetings and exhibitions.
5. Implement a framework for technology transfer and policy declarations for consolidating and extending the pilot project to wider communities in the African continent as well as building a

resilient strategy to improve health and economic well-being.

Peer-Reviewed Publications Resulting from this Project

1.Ogundero, M., Fashanu, T., Agunbiade, F., Orolu, K., Yinusa, A., Daudu, U., & Amuda, M. (2025). A Soft Sensor Based Inference Engine for Water Quality Assessment and Prediction. Air, Soil and Water Research, https://doi.org/10.1177/11786221251315618.
2. Others are under review





Application of AI Techniques for Extracting Carbon from Landfill Waste for Renewable Energy

Adelopo AbdulGaniyu[1], Siphila Wanjiku Mumenya[2], Babatunde Sawyerr[3], Sarath Tennakoon[4]
1Waste and Water Quality Unit, Works and Physical Planning Department, University of Lagos, Nigeria, 2Department of Civil & Construction Engineering, University of Nairobi, Kenya, 3Department of Computer Sciences, University of Lagos, Nigeria, [4]Carnegie Mellon University Africa, Kigali, Rwanda

Introduction and Objective

African cities are grappling with increasing waste generation due to rapid urbanization, leading to overburdened landfills and growing environmental concerns. These landfills, often unmanaged or poorly regulated, consume valuable land, emit greenhouse gases, and lack structured data systems to support material recovery and resource reuse. Despite global advancements in digital waste management, African municipalities remain constrained by limited capacity for technology adoption, especially in leveraging data for waste to wealth. This project explores the application of Artificial Intelligence (AI) to address these gaps by using Convolutional Neural Networks (CNNs) to predict the carbon recovery potential of landfill waste for renewable energy storage, with a specific focus on carbon conversion for use in supercapacitors. AI models have demonstrated global success in improving waste sorting accuracy and reducing operational costs; however, their integration into African landfill systems remains underexplored. Recent studies

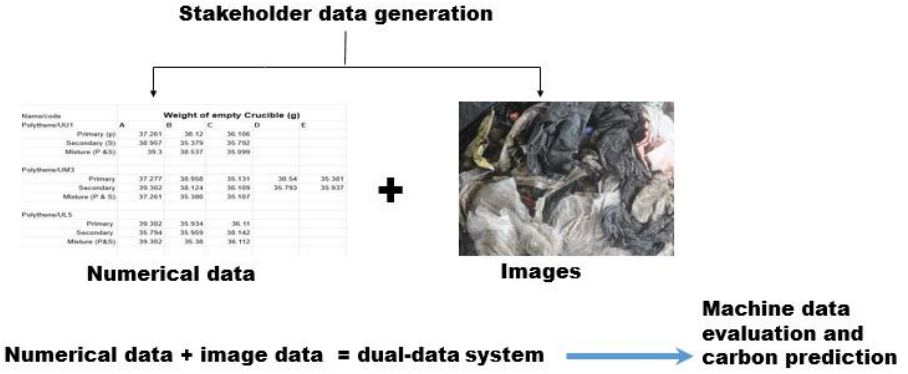
show that AI-enhanced material classification can increase recycling efficiency by over 35%, especially when supported by sensor-enabled data systems (Kalantar-Zadeh et al., 2024). Furthermore, carbonized waste materials, particularly biochar from municipal waste, are increasingly being researched as viable electrode materials for renewable energy devices (Tetteh et al., 2023). The pilot study targets municipal landfills in Lagos (Nigeria) and Nairobi (Kenya), aiming to map the composition of waste, evaluate operational practices, and identify environmental factors that influence carbon yield. It will also assess stakeholder readiness and capacity for digital transitions, particularly among informal waste workers and municipal authorities.

The objectives of the project are to:

1. Identify the data types and parameters essential for training AI models to predict carbon yield from landfill waste.
2. Assess stakeholder needs and existing knowledge gaps in AI-based landfill monitoring.
3. Perform systematic field sampling and laboratory analysis to extract and characterize carbon from landfill materials.
4. Develop, train, and validate machine learning models (e.g., CNNs) to predict carbon extraction potential based on waste profiles.
5. Establish a standardized and scalable landfill dataset that can serve as a benchmark for future AI-driven landfill management systems.

References

1. Kalantar-Zadeh, K., Tiemann, G., & Morris, D. (2024). Smart waste systems: AI and sensor-enabled waste classification in urban environments. Journal of Sustainable Smart Cities, 12(1), 45–61. https://doi.org/10.1016/j.jssc.2024.01.004
2. Tetteh, E. K., Kader, S. H., & Muzenda, E. (2023). Carbonized municipal solid waste as an energy storage material: A path to sustainable urban energy. Waste Management & Research, 41(8), 938–950. https://doi.org/10.1177/0734242X231161052



Real-Time Noise-Level Web Mapping through Crowdsourcing: Toward Creating Sustainable Urban Environments

David N. Siriba[1], Ernest Uwayezu[2], Collins M. Mwange[1], Christine Musanesa[2]

[1]Department of Geospatial and Space Technology, University of Nairobi, [2]College of Science and Technology, University of Rwanda

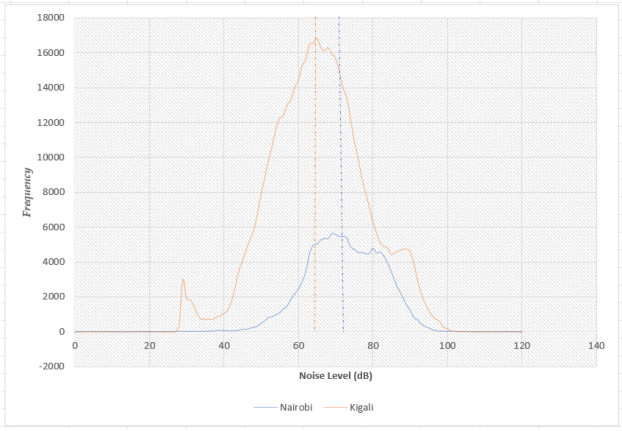
Introduction and Project Objectives

Urban noise pollution is an ever-increasing challenge in African cities, with significant concerns and implications for quality of life and public health. This project explores innovative, citizen centric approaches to urban noise monitoring through the development and deployment of mobile and web-based tools in Nairobi, Kenya and Kigali, Rwanda. Leveraging both the existing *Noise Capture* app and a custom mobile application tailored to local contexts, the initiative empowers residents to contribute real-time geotagged noise data (Figure 1).

Data collection campaigns, involving university students have been successfully conducted in selected high-traffic and residential zones in both cities. Preliminary analysis (Figure 2) reveals spatial paUerns in noise levels, with notable hotspots near transport corridors, markets, and construction sites. Comparatively, Nairobi records higher average noise levels (68.8dB) than 77 Kigali (63.7 dB); The noise levels also highlight differences in urban form, regulation, and socioenvironmental behaviours.

Peer Reviewed Publications/Presentation

None to report for the moment.



An Investigation of a Monitoring and Predicting Algorithm for Climate Change Related Diseases in African Urban Cities

Immaculata Nwokoro[1], David Rene Segera[2]. Mokọ́ládé Johnson[1], Abdulganiyu Adelopo[1], Tinuola Odugbemi[1], Oluyemi Akindeju[1], Ife Albert[1], Mina Ogbanga[3]
1University of Lagos, Nigeria, 2 University of Nairobi, Kenya, 3University of Port Harcourt, Nigeria

Introduction and Objectives

Climate change presents a growing risk to public health, particularly in urban African settings where rapid urbanization, poor waste management, and infrastructural deficits intersect with worsening environmental conditions. The increasing frequency of climate-sensitive health issues such as malaria, cholera, and heat-related morbidities demands innovative public health surveillance tools. This study seeks to address these emerging challenges by developing a community-centered, artificial intelligence-supported Interactive Voice Response (IVR) system that functions as an early warning and symptom surveillance mechanism. The main objective is to identify the information needs, user perceptions, and systemic gaps necessary to co-create and deploy a scalable digital health intervention adapted for resource-constrained and vulnerable communities. It aims to develop a comprehensive data-gathering system using Interactive Voice Response (IVR) connected to the Internet of Things (IoT), ensuring data inclusivity and confidentiality.

The project explores how digital health tools, particularly voice-based technologies accessible through basic mobile phones and multimedia, can bridge the gap in health surveillance and disease prediction. With a focus on Ìlàjẹ-Bàrígà, a climate-vulnerable urban slum community in Lagos, Nigeria, the study aims to: assess the feasibility and willingness of local users to engage with an AI-IVR system; identify the enablers and barriers to adoption; and generate community-informed content that can guide the system's design and implementation. Ultimately, the project aspires to create a scalable model for early detection and reporting of climate-induced health symptoms, supporting both proactive public health responses and long-term resilience strategies.

Wakanda AI: Engineering Smart Solutions for Mother Tongues by Advancing Language Technologies in the African Context

Bhiksha Raj, Ph.D*[1], Abraham Nyete, Ph.D[2], and Moise Busogi, Ph.D[3]
1Carnegie Mellon University 3Carnegie Mellon University Africa 2University of Nairobi

Introduction and Objectives

Despite significant publication efforts by the African Natural Language Processing (NLP) community, many of the published works have seen little to no practical use in real-world applications, especially in resource-constrained environments. Most language translation solutions for the African context are text-based and fail to serve populations where literacy levels are low, languages are primarily spoken rather than written, and technological deployment occurs in highly constrained environments. A substantial portion of the population who speak indigenous languages cannot access or benefit from text-based technologies due to limited literacy skills. Additionally, individuals with visual impairments face immense barriers in accessing written information, this includes the estimated 43 million people who are blind and 295 million with moderate to severe vision impairments. These challenges further increase the digital divide and limit the reach of digital AI solutions for machine translation in Africa. This project proposes a speech-first framework as a more inclusive and practical alternative. By leveraging speech-to-text, text-to-speech, and speech-to-speech translation systems, we aim to build solutions that align more closely with the communication needs of African communities. The project's core objective is to develop and deploy a scalable speech translation framework that bridges the gap between cutting-edge research and real-world usability.

The following objectives define the scope of this project:

1. Identify/Collect and annotate large-scale datasets of spoken (and optionally written) African languages to develop and evaluate machine learning models for speech-related tasks.
2. Assess the adaptability of current models addressing various aspects involved in seamless communication, including speech-to-speech translation (S2ST), speech-to-text translation (S2TT), textto-speech translation (TTST), text-to-text (T2TT) translation, and automatic speech recognition (ASR), to the selected African languages. This includes Translatotron models and SeamlessM4T among others.
3. Adapt existing speech processing technologies to the linguistic and cultural contexts of African languages, considering dialectal variations, sociolinguistic factors, and linguistic diversity within regions.
4. Define or adapt appropriate evaluation metrics and benchmarks to assess the performance and effectiveness of speech processing systems for African languages, ensuring reliable and consistent evaluation methodologies.
5. Map out key contributors to the speech processing ecosystem for African languages and promote open-source development and collaborative research initiatives to facilitate knowledge sharing, resource sharing, and community-driven innovation in the field of African language processing.
6. Establish standards, guidelines, and best practices for developing, deploying, and evaluating speech and text processing technologies for African languages, fostering interoperability and reproducibility in research and development efforts.
7. Address ethical considerations and societal implications of deploying speech processing technologies for African languages, including issues related to data privacy, cultural sensitivity, and linguistic rights.
8. Ensure that the resulting technologies are actually usable and accessible to diverse user populations, including those with limited literacy or technological literacy.

Deep Learning Driven Multiplexed Prospectivity Modeling of Rare Earths in Radiothermic Carbonatites

Angeyo[1] H.K., Kaniu[1] I.M., Usman[2] I., Rwabuhungu[3] D.E.
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Introduction and Objectives

There is increased demand for innovative mineral prospecting to identify and define strategic deposits as well as delimit the geologic structures that host them. Rare earths occur mostly in alkaline carbonatite complexes of which numerous are found in East Africa. Due to their unique properties rare earth elements (REE) are considered a strategic resource for applications in advanced technologies and carbon-free fuels.

Alkaline carbonatites (which are the primary source of the world's rare REE) have been a natural part of the magmatic history of Eastern Africa [1-3]. The region's carbonatites contain particularly high (³ 40%) total rare earth oxides (TREO). The deposits occur in complex association with heavy minerals such as monazite, bastnaesite, synchesite and parisite [4]. The carbonatite complexes of East Africa include Mrima [5], Homa and Ruri [6], Kerio [7], Tinderet [1], Buru [8], Oldoinyo Nyegi, Shompole [6], Napak, Oldoinyo-Dili, Tundulu, Mbeya, Kerimasi, Hanang, Kwaraha, Lashaine, Kazekere, Mahoma, Fort Portal, Natron-Engaruka, Chilwa, Rufunza, Chilwa Island, Matopon, Rufunza, Rangwe, Sadiman, Burko, Esimingor, Katwe, Bunyaruguru, Kikorongo, Tororo, Sukulu, Teno, Lokupoi, Panda [9], Wigu, Ngualla [10], etc.

In the high background radiation area (HBRA) carbonatites the unusually high uranium content in some heavy minerals such as zircon and ilmenite, can point to igneous syngenetic radioactive deposits that are also the radiogenic sources driving the remarked geothermal activity in the deposits. The alignment of most of East Africa's carbonatites along the crustal locations of the Rift Valley indicates fractures of continental dimensions reaching into the mantle. Mantle-derived carbonatite melts are known to be

carriers of REE. Thus REE are typically associated with uranic mineralogy and could be used as proxies for uranium prospecting and for gaining insight into U-Th geochemistry [11] to delineate REE-U-Th co-dependency.

Little is known about the chemistry of fluids that immobilize and concentrate REE in the radiothermic carbonatites; or the favourable environments for their exploration, although preliminary (mostly radiometric) studies have been done in some of the carbonatite complexes [6, 12-15]. Carbonatites may be absent in some REE deposits; however their formation is closely related to carbonatite magma as the rare earth minerals of hydrothermal type are formed by fluids that evolved from magmas [16]. Consequently there is no reliable evidence to constrain the genesis of radiothermic carbonatites. As a result current prospective methods for radiothermic carbonatite REEs cannot accurately aggregate their complex attributes and model them in relation to the multivariate processes associated with their complex geochemistry and mineralogy.

There is a growing consensus that solutions to problems where it is infeasible to run mechanistic models at desired resolutions in space and time require methods that integrate physics-based modeling with deep
learning. This study, being at the realm where physics, geosciences and computing intersect is about turning
complex geo-scientific challenges into simple deep learning driven critical mineral resources prospectivity
solutions. This study investigates how and under what conditions deep learning driven spectral and imaging
analytical models can be used to detect and characterize the rare earths mineral prospect in the radiothermic carbonatites of East Africa in relation to the associated uranium and thorium potential. Carbonatite geochemistry is very diagnostic of both rare earth element (REE) and radioactive anomalies.

The Goal

The goal of the study is to develop in articfical intellgence (AI) computational domain, deep learning-driven multiplexed spectral and spectral imaging analytical models for direct analysis and characterization of the rare earths mineral prospect in the radiothermically stressed carbonatite complexes of Eastern Africa.

Specifically to;

(i) perform space-borne hyperspectral imaging to compute ‘hot spots’ corresponding to uranium and thorium associated REE in selected radiothermic carbonatite complexes of Eastern Africa.

(ii) Spectroscopically determine the concentrations of REE and associated minerals in the REE ore
matrices (soil, rock, sediment) of selected radiothermic carbonatite complexes of Eastern Africa.

(iii) perform spectral imaging and multivariate image analysis (MIA) of REE mineralogy and microstructure in the ore matrices of the studied carbonatites.

(iv) distinguish and resolve the geochemical ‘signatures’ of radiogenically and hydrothermaly stressed
carbonatite REE minerals using data from (i)-(iii) for the studied carbonatites.

(v) model via AI (chemometrics, machine learning, deep learning) the multivariate relationships
between occurrence, levels and composition of REE ore mineralogy of the studied carbonatites.

Evaluating Digital Transformation and Maturity in Youth-Led Micro, Small, and Medium Enterprises across Sub-Saharan Africa: A Comparative Study in the Health, Energy, Environment and Sustainability Sectors in Nigeria, Kenya, and South Africa*

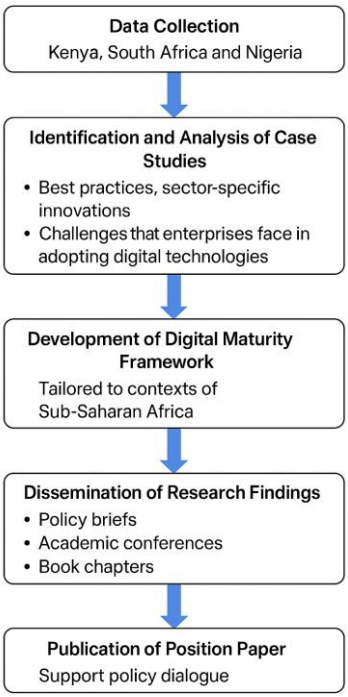
Ochieng’ Duncan Elly (University of Nairobi), Saruchera Fanny (University of the Witwatersrand), Obigbemi Imoleayo Foyeke (University of Lagos), Murimbika McEdward (University of the Witwatersrand), Omoro Nixon (University of Nairobi), Onsomu Zipporah (University of Nairobi) and Odock Stephen (University of Nairobi)

Project Objectives

This mixed-methods study investigates the digital transformation and maturity of Micro, Small, and

Medium Enterprises (MSMEs) across the health, energy, environment, and sustainability sectors in Kenya,
South Africa, and Nigeria. Using surveys and case studies, the research explores levels of digital adoption,

identifies key challenges and enabling factors, and offers policy-relevant insights to support inclusive and
sustainable digital growth.
The study aims to:
(a) Assess the current state of digital transformation among MSMEs in selected sectors
(b) Identify key barriers and enablers of digital maturity
(c) Identify and document illustrative case studies of youth-led MSMEs that demonstrate varying levels of digital maturity and innovation
(d) Generate data to support policy and practical interventions for enhancing digital capabilities
(e) Develop a region-specific Digital Maturity Framework tailored to the Sub-Saharan African context
(f) Disseminate findings and engage policy and ecosystem stakeholders



Multispectral Analysis and Deep Learning for Life Science and Biomedical Research

Corey Toler-Franklin (Columbia University)

This talk presented novel techniques that combine optical imaging, physics and artificial intelligence (AI) to further life science and biomedical research. First, I will introduce a method that models unified local and global attention interaction in vision transformers (ViT) for improved cancer tumor detection in complex medical datasets. I will compare results with our earlier multiscale cancer tumor detection methods. Next, I will present a texture transfer framework that leverages unique multispectral signatures (in the ultraviolet, visible and infrared spectra) to reconstruct invisible (or faded) appearance properties in organic materials with complex color patterns. Contributions include an ultraviolet illumination system that records changing material property distributions, and a color reconstruction algorithm that uses spherical harmonics and principles from chemistry and biology to learn relationships between color appearance and material composition and concentration. The results accurately reconstruct the shape and appearance of eroded biological materials, and hierarchical material layers that exhibit subsurface scattering and spatially varying surface reflectance. I will show applications of this reconstruction pipeline in forensic science.

Best Student Posters

- Culturally Sensitive Social Robotics for Africa
- Enhanced Cardiovascular Diseases Discovery in Medically Underserved Communities via AI-Assisted Stethoscopy
- Real-Time Noise Level Web Mapping through Crowdsourcing: Toward Creating Sustainable Urban Environments*

- Leveraging Additive Manufacturing to Improve Access to Quality Prosthetic and Orthotic Services in Developing Countries*

*With University of Nairobi representation

Display of Certificates for the Best Student Posters

Example of a Research Team with Participants in the Background