

Public Lecture: Transformative Potential of Data-Driven and Context Driven Approach in Shaping Interdisciplinary Breakthroughs

The [University of Embu](#) in Kenya bore witness to a remarkable event on August 24, 2023, at Charter Hall. The event, titled "Collaborative Research to Maximize the Potential of Data-Driven Approaches in Interdisciplinary Breakthroughs," was a public lecture aimed at fostering knowledge and innovation synergy. It drew a diverse audience and underscored the critical role of collaboration and data-driven research in tackling contemporary challenges. This lecture garnered substantial support from the university's leadership, faculty, students, and external participants, ensuring its resounding success. The financial backing from the University of Embu (UoEm), in conjunction with UNESCO, the Organization for Women in Science for the Developing World (OWSD), and the Mawazo Institute, played a pivotal role in its success. Notably, this public lecture marked a significant milestone in [Dr. Marilyn Ronoh's 2022 Early Career OWSD Fellowship](#). It served as a crucial public engagement event, one of the key deliverables in the UNESCO-OWSD funded project.

The public lecture received the esteemed presence of the University of Embu's Vice-Chancellor, [Prof. Daniel Mugendi](#), who not only delivered the keynote address but also officially inaugurated the workshop. Furthermore, [Prof. Kotut Kiplagat](#), the Deputy Vice-Chancellor (Academics, Research, and Extension), and [Prof. Eucharika Kenya](#), Deputy Vice-Chancellor (Planning, Administration and Finance), both from the University of Embu, graced the occasion with their attendance and delivered opening remarks, highlighting the lecture's paramount significance within the academic community.

In addition to the University of Embu's faculty and students, the lecture attracted professionals from diverse sectors, including the National Syndemic Diseases Control Council (NSDCC), Maisha Youth Representatives, and a global online audience of researchers. Noteworthy among the attendees were those actively participating in and facilitating the "2023 [Hackathon Workshop](#) on Computational Modeling to Empower Young African Researchers." This dynamic workshop unfolded at the Senate Boardroom of the University of Embu, Kenya, spanning from August 21 to August 25, 2023. [Dr. Peter Rugano](#) of the University of Embu effectively coordinated the event.

The public lecture kicked off with a captivating presentation by the researchers of [Innovate AI Health Lab](#), featuring Dr. Marilyn Ronoh, Dr. Victoria Mukami, Dr. David Mugo, and Dr. Consolata Gakii. This interdisciplinary team from the University of Embu provided a vivid glimpse into the lab's ongoing research, underscoring the innovative technological solutions being forged to tackle pressing challenges faced by Kenyan youth in their battle against HIV/AIDS. Among the standout innovations showcased was the HIV chatbot, a remarkable artificial intelligence tool

designed to provide vital HIV/AIDS information and support to the Kenyan youth. Following this enlightening presentation, the distinguished guests took centre stage to share their wealth of expertise and experiences in harnessing data-driven methods and collaborative research to drive forward ground breaking interdisciplinary advancements.

To begin with, we were introduced to the world of tomatoes by [Professor Dr. Anna Matuszyńska](#), a Computational Life Science Expert hailing from [RTWH Aachen University](#), Germany, and her co-presenter, [Mr. Marvin Van Aalst](#), a Computational Biologist representing [Heinrich Heine University](#), Düsseldorf, Germany. Their joint endeavor painted a vivid picture of their groundbreaking work on modeling tomatoes. They demonstrated how data-driven modeling can lead to increased agricultural yields and the production of high-quality tomatoes, contributing to food security and economic growth.

Next, we were treated to the wisdom of [Professor Faraimunashe Chirove](#), a Mathematical Modeling Expert from the [University of Johannesburg](#), South Africa. Prof. Chirove's discourse revolved around embracing a paradigm shift in the realm of research. He highlighted how interdisciplinary collaboration and data-driven research have the potential to unlock new frontiers of knowledge and innovation, challenging traditional approaches to problem-solving.

[Dr. Otho Mantegazza](#), a [Data Scientist Expert](#) from Milan, Italy, then took the stage to shed light on a different facet of digital development. His presentation delved into the non-technological hurdles commonly encountered in digital development projects. Dr. Mantegazza underscored the paramount importance of an effective digital interface, emphasizing how it serves as a linchpin for the success and sustainability of technological solutions. Furthermore, he stressed the necessity of clear communication to bridge the gap between the technical and non-technical stakeholders in these projects.

Our journey continued with Dr. Caroline Mose, Director of Programmes at the Mawazo Institute. Her captivating discourse centered on the profound impact of interdisciplinary collaboration. Dr. Mose's presentation revolved around the transformative potential of interdisciplinary collaboration. She shared insights into how diverse teams of researchers could reimagine research, innovation, and problem-solving, resulting in more efficient and context-driven solutions. She urged the participants to contemplate data-driven approaches and strive for contextually relevant solutions.

In this public lecture, these brilliant minds from Kenya, Germany, South Africa, Italy, and beyond wove together a narrative of innovation, collaboration, and the transformative power of data-driven approaches. Their stories inspire us to look beyond the confines of our fields, embrace

change, and work together to address the challenges of our time.

The University of Embu's public lecture served as a vital platform for knowledge exchange and networking among participants from diverse backgrounds. It underscored the enormous potential of collaborative research and data-driven methodologies in addressing intricate societal challenges. The event's success reaffirmed the university's dedication to fostering innovation and interdisciplinary cooperation, extending beyond academia. As the academic community continues to explore innovative solutions, it's evident that collaborative research and data-driven approaches will play a pivotal role in shaping the future of research and development, not only in Kenya but on a global scale.

Today's national and global challenges are too complex, too multifaceted to be tackled in isolation. Genuine innovation thrives when experts from diverse domains—whether they are computational modeling experts, artificial intelligence researchers, medical practitioners, biologists, data scientists, and ethicists among others—unite with a shared purpose. This serves as a reminder that no single discipline possesses the sole solution; instead, the fusion of expertise propels progress. It is time for the academic community to reconsider traditional approaches that have long favored single-discipline-centric research. Collaborative research flourishes when we endorse data openness and promote the practice of open science. However, it is essential to note that adopting open science is still in its early stages, both locally and globally, posing a challenge that requires attention.

This public lecture also serves as an exemplary illustration, underscoring the importance of regularly hosting such talks and lectures within academic institutions. These events effectively showcase collaborative research outcomes and play a pivotal role in encouraging local and global researchers to embrace collaborative research practices and share their findings with audiences from diverse backgrounds, whether technical or non-technical. Such initiatives inspire the public to recognize the critical role of data-driven, collaborative, and context-driven research in addressing everyday challenges. The noteworthy work being conducted at the [Innovate AI Health Lab](#), along with their transparent dissemination of research through their website, captured the attention of the National Syndemic Disease Control Council. This initiative led to the Council's active participation in the public lecture, where they expressed interest in establishing a partnership with the [Innovate AI Health Lab](#). The primary objective of this collaboration would be to jointly expand the HIV chatbot initiative to a regional scale. Their enthusiastic involvement in the event was followed by a consultative meeting during which the potential for collaboration was further discussed.

The lecture resounded with a powerful and actionable message: a rallying cry to forge purposeful collaborations that break free from disciplinary constraints and traditional research boundaries. It urged the promotion of open science and open data practices across all fields, emphasizing the importance of disseminating research findings with the wider public, not just within academic circles through public engagement events. The message underscored how the abundance of accessible data today can act as a catalyst for global-scale breakthroughs. By fostering collaborative research, researchers can harness diverse expertise and insights, enabling them to navigate complex challenges with far greater effectiveness than in isolation.

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