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5 September 2022

UCT researcher awarded grant for scientific excellence

Dr Bessie Malila Photo: Supplied

The University of Cape Town's (UCT) Dr Bessie Malila, a junior research fellow in the Division of Biomedical Engineering, was recently awarded the African Research Initiative for Scientific Excellence-Pilot Project (ARISE-PP) research grant, an African Academy of Sciences initiative. Her proposal, geared towards the implementation of a digital health testbed for evaluating and validating telemedicine and mobile health (mHealth) applications, is the only award from South Africa for this scheme.

The potential for mobile technologies in supporting healthcare services delivery is on the rise. However, adoption into mainstream health systems remains limited. This is due to a lack of evidence of the efficacy of these solutions, concerns about their safety, and the security and privacy of patients' personal and health data.

"This project aims to develop a platform that can be used for testing and validating emerging and existing telemedicine and mHealth solutions, as well as modelling

concepts for virtual clinics and smart hospital design to increase access to care, improve the quality of care, and reduce healthcare delivery cost," explained Dr Malila.

ARISE-PP is providing funding to 44 emerging African research scientists to enable the recognition of their ideas while offering further development opportunities. The rigorous assessment included scientific excellence as a key criterion. The process was also structured as a continental bottom-up open competition in which the invitation to submit proposals was open to all researchers in Africa who met the set criteria. A step-by-step selection process based on the quality of the submission was done. This factored in the researcher's profile, the novelty of the proposed project, and institutional support.

A total of 929 applications were received from 38 African countries, 214 of which were submitted from South African research institutions, with a total of 24 from UCT. Of the 44 scientists whose work was selected, Malila's project, "Development of a secure 5G and beyond digital health testbed for modelling telemedicine systems, mHealth applications and smart hospitals", was the only final selection from South Africa and UCT. A testbed is a platform for conducting rigorous, transparent, and replicable testing of scientific theories, computational tools, and new technologies.

mHealth application on the rise in Africa

African health systems face many challenges, including shortage of health professionals, poor health infrastructure, a high burden of disease and limited finances and resources. Digital health solutions, supported by emerging 5G and beyond mobile technologies, are expected to address some of the challenges that keep the population from accessing low-cost quality care.

The proposed research will investigate ways in which these technologies can be leveraged by providing a platform for testing and validating emerging solutions. It'll involve the design, implementation, and evaluation of a digital health testbed, as well as the use of the testbed as a platform for testing new and existing telemedicine and mHealth solutions – some of which will be validated through clinical trials.

The envisioned impact of the project will include "contribution towards building human capacity for Biomedical Engineers in Africa through financial support towards cost of study; and the availability of a platform for acceleration of innovative ideas into healthcare service delivery solutions that can be adopted into mainstream health systems", said Malila.

Pulling from different strengths

This cross-discipline and cross-faculty project involves collaborations with other researchers in national and international research institutions. It will also involve scientists from telecommunications engineering, biomedical engineering and medicine, industry partners, international collaborators, and innovators in the digital health space in South Africa.

The collaborations address the need to develop solutions that are appropriate for the African context, through consultations with healthcare professionals, policy makers and technology innovators. The team aims to develop a learning platform based on the work of international researchers who have already implemented digital health testbeds in Europe to address European healthcare delivery challenges. This work also aims to

establish a platform for knowledge-sharing best practices in the development of telemedicine and mHealth solutions.

The grant will support the research for five years. Through it, Malila and colleagues also aim to investigate the concepts of virtual clinics and smart hospitals, with the aim of improving accessibility to personalised quality and affordable healthcare.

ENDS

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