African Political Communication (Media/Politics/Social)

AI in Diagnostics: An Exploration of AI Applications in Resource-Limited Healthcare Settings in Malawi

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Abstract

This study addresses a current research gap in Computer Science concerning AI Applications for Disease Diagnosis in Resource-Limited Healthcare Settings in Malawi in Malawi. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. AI Applications for Disease Diagnosis in Resource-Limited Healthcare Settings in Malawi, Malawi, Africa, Computer Science, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Model estimation used $\hat{\{\theta\}}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, AI, machine learning, healthcare informatics, resource allocation, telemedicine, precision medicine*

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