African Supply Chain Management

AI Diagnostics in Resource-Limited Settings: A Review of Applications in Malawi's Healthcare Context

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Published: 12 March 2012 | **Received:** 04 November 2011 | **Accepted:** 14 January 2012

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DOI: 10.5281/zenodo.18973959

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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 structured review of relevant literature was conducted, with thematic synthesis of key findings. 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, systematic review This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Model estimation used $\hat{\{\theta\}}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *African geography, AI diagnostics, machine learning, data mining, resource scarcity, healthcare informatics, predictive analytics*

ABSTRACT-ONLY PUBLICATION

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