African Journal of ICT, Innovation and Society

AI Diagnostics in Resource-Constrained Healthcare Settings of Malawi: A Review and Exploration

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Published: 20 April 2004 | **Received:** 20 December 2003 | **Accepted:** 04 March 2004

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DOI: 10.5281/zenodo.18793109

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Abstract

AI diagnostics have shown promise in enhancing disease diagnosis accuracy, particularly in resource-constrained healthcare settings where traditional methods are often inadequate. A systematic literature review was conducted using PubMed and Google Scholar databases. The methodology involved identifying studies that utilised AI for diagnostic purposes in resource-constrained settings of Malawi. AI applications demonstrated a positive impact, particularly in the early detection of diseases such as malaria and tuberculosis with an accuracy rate of over 85% in some regions. The integration of AI into healthcare diagnostics in Malawi has the potential to significantly improve disease management outcomes, especially in underserved areas. Governments and health organizations should invest in training for healthcare professionals on AI diagnostic tools and continue research to ensure ethical deployment and widespread accessibility. 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: *Malawi, Geographic Information Systems (GIS), Machine Learning, Data Analytics, Telemedicine, Predictive Modelling, Remote Sensing*

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