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Integrating Indigenous Knowledge Systems into AI Development in West Africa

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Abstract

The integration of Indigenous Knowledge Systems (IKS) into Artificial Intelligence (AI) development in West Africa is a nascent but crucial area of research with significant potential for socio-economic impact. A comprehensive search strategy was employed using academic databases such as Scopus, Web of Science, and Google Scholar. The review included studies published between and that examined AI development practices in conjunction with IKS. The findings indicate a growing interest but limited empirical evidence on the integration of IKS into AI models, particularly regarding the effectiveness of such integrations in enhancing model accuracy and cultural relevance. A notable theme is the need for culturally adapted machine learning algorithms to ensure ethical compliance and acceptance among local communities. While there is nascent research indicating potential benefits from integrating IKS into AI development, more empirical studies are needed to substantiate these claims with robust methodologies that account for contextual factors such as cultural nuances and societal impact. Further research should prioritise culturally informed machine learning algorithms and incorporate stakeholder perspectives in the development process. Policy makers should also consider frameworks for promoting IKS integration into AI systems, ensuring they are aligned with ethical standards and public acceptance. 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, ethnography, ontology, epistemology, cultural analytics, indigenous informatics*

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