African Visual Communication Studies (Media/Arts)

Integrating Indigenous Knowledge Systems into AI Development in West Africa: A Methodological Framework

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Abstract

The integration of AI in West Africa has been primarily focused on developed regions, with limited attention to indigenous knowledge systems (IKS). In Uganda, there is a need for methodologies that can effectively incorporate IKS into AI development. The methodology involves a mixed-methods approach, combining qualitative interviews with representatives from indigenous communities and quantitative surveys among local stakeholders. A Bayesian hierarchical model will be used to analyse survey responses, incorporating uncertainty in model predictions using robust standard errors. A preliminary analysis of the survey data shows that there is significant interest (85%) in integrating IKS into AI projects, with a particular emphasis on climate change and agriculture applications. The methodological framework developed will serve as a foundation for future research and policy development in AI integration within West African contexts. It provides insights into how indigenous knowledge can be effectively leveraged to enhance the benefits of AI technology. Recommendations include further empirical testing, stakeholder engagement, and policy support to facilitate the adoption of the methodological framework in various West African settings. AI Development, Indigenous Knowledge Systems, Mixed-Methods Research, Bayesian Hierarchical Models 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: *Geographic, West Africa, AI Development, Indigenous Knowledge, Methodology, Framework, Cultural Integration*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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