



Challenges and Opportunities in Natural Language Processing for African Languages in Mali 2004

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Abstract

Natural Language Processing (NLP) is a critical component of many software applications that aim to process human language for tasks such as machine translation and information retrieval. No empirical results were obtained; therefore, findings section will be used for discussion of identified issues. In , it was observed that less than 15% of NLP research publications in Mali addressed African languages, indicating a significant gap compared to the substantial body of work on European and North American languages. Additionally, there were limited technical resources available for developing language-specific models. Despite these challenges, there is potential for growth as local researchers are increasingly recognising the importance of NLP for their own linguistic communities. The development of a collaborative research network focused on African languages could facilitate sharing of resources and expertise. Additionally, support from international organizations or funding bodies to develop language-specific tools would be beneficial. Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \sum_{i=1}^n \ell(y_i, f_{\theta}(\xi_i)) + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: *African Geography, Computational Linguistics, Data Mining, Ethnolinguistics, Machine Learning, Morphology, Text Analytics*

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