



# Natural Language Processing Frontiers in African Languages of Côte d'Ivoire: Challenges and Opportunities

Amoussou Konan<sup>1,2</sup>, Diallo Nguessan<sup>1</sup>, Mamadou Traore<sup>1</sup>

<sup>1</sup> Côte d'Ivoire Centre for Environmental Management

<sup>2</sup> Department of Data Science, Côte d'Ivoire Environmental Research Centre

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**Correspondence:** [akonan@outlook.com](mailto:akonan@outlook.com)

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## Author notes

*Amoussou Konan is affiliated with Côte d'Ivoire Centre for Environmental Management and focuses on Computer Science research in Africa.*

*Diallo Nguessan is affiliated with Côte d'Ivoire Centre for Environmental Management and focuses on Computer Science research in Africa.*

*Mamadou Traore is affiliated with Côte d'Ivoire Centre for Environmental Management and focuses on Computer Science research in Africa.*

## Abstract

Natural Language Processing (NLP) has made significant progress in mainstream languages such as English and Chinese. However, its application to African languages remains underexplored. The research employs a mixed-method approach, combining quantitative data analysis with qualitative interviews. Specifically, we analyse  $N = 50$  annotated datasets from local language resources using state-of-the-art NLP tools. Our findings reveal that while the lexical richness of Côte d'Ivoire's languages presents unique challenges for tokenization and part-of-speech tagging, they also offer a high potential for linguistic innovation in NLP applications such as machine translation and sentiment analysis. Despite current limitations, our study highlights promising avenues for advancing NLP capabilities specifically within the African language context. Further research should focus on developing specialized NLP tools tailored to Côte d'Ivoire's languages, while also fostering collaborations between linguists and computer scientists.

**Keywords:** *Sub-Saharan, AfricanLinguistics, DigitalCorpora, LexicalResources, MorphologyAnalysis, ComputationalPhonetics, TextMiningTechniques*

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