



# African Languages in NLP: Challenges and Opportunities in Ghana 2008

Yawa Boateng<sup>1,2</sup>, Kofi Acheampong<sup>3,4</sup>

<sup>1</sup> Department of Data Science, University of Ghana, Legon

<sup>2</sup> University of Cape Coast

<sup>3</sup> University of Ghana, Legon

<sup>4</sup> Department of Software Engineering, University of Cape Coast

**Published:** 28 May 2008 | **Received:** 18 March 2008 | **Accepted:** 23 April 2008

**Correspondence:** [yboateng@gmail.com](mailto:yboateng@gmail.com)

**DOI:** [10.5281/zenodo.18874855](https://doi.org/10.5281/zenodo.18874855)

## Author notes

*Yawa Boateng is affiliated with Department of Data Science, University of Ghana, Legon and focuses on Computer Science research in Africa.*

*Kofi Acheampong is affiliated with University of Ghana, Legon and focuses on Computer Science research in Africa.*

## Abstract

Natural Language Processing (NLP) has seen significant advancements in recent years, but it remains underutilized for African languages due to linguistic and cultural diversity. The research employs a comparative analysis approach, examining existing NLP frameworks for African languages from academic literature and industry applications. A key finding is that lack of standardised corpora and specialized linguistic knowledge significantly hinders the development of NLP models tailored for African languages in Ghana. This deficit affects both model accuracy and user engagement. Despite these challenges, there are opportunities to leverage existing resources and develop innovative solutions, such as hybrid models combining traditional methods with machine learning techniques. Investment should be prioritised in the development of large-scale annotated datasets for African languages. Collaborative efforts between academia and industry can accelerate progress. Model estimation used  $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \sum_{i=1}^n \ell(y_i, f_{\theta}(\xi_i)) + \lambda \|\theta\|_2^2$ , with performance evaluated using out-of-sample error.

**Keywords:** *African, Ghanaian, Multilingualism, Computational Linguistics, Annotation, Morphology, Corpus*

## ABSTRACT-ONLY PUBLICATION

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

✉ **REQUEST FULL PAPER**

**Email:** [info@parj.africa](mailto:info@parj.africa)

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** [app.parj.africa](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge