



KARATINA UNIVERSITY
SCHOOL OF PURE AND APPLIED SCIENCES
DEPARTMENT OF COMPUTER SCIENCE AND INFORMATICS

PROJECT TITLE: FAKE NEWS DETECTION AI SYSTEM

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This project is submitted in partial fulfilment of requirement for the Karatina University award of BACHELOR OF SCIENCE IN COMPUTER SCIENCE.

Introduction: Fake news erodes trust and impacts society. Our LSTM-based AI classifies news as real or fake for Kenya's digital media.

Problem: Manual fact-checking is slow; automated tools lack accuracy (Shu et al., 2017).

Objectives: Build a 25,000-article dataset, develop LSTM, create a React + Flask web app.

Methodology: Used 25,000 articles (Kaggle, Snopes), TF-IDF preprocessing, LSTM with SMOTE, achieving 98.95% accuracy.

System Design: React frontend, Flask backend with /predict API, MySQL database.

Implementation: ContentAuthentication.tsx supports text/file/URL inputs; Flask integrates LSTM; tested with Selenium.

Results: LSTM achieved 98.95% accuracy, outperforming Random Forest (92.5%). UI is real-time and user-friendly.

Limitations: Dataset bias and time constraints limited scope.

Conclusion: Effective solution supporting Kenya's media literacy.

Recommendations: Enhance datasets, add multilingual support.

References:

- Allcott, H., & Gentzkow, M. (2017). *Journal of Economic Perspectives*, 31(2), 211-236.
- Shu, K., et al. (2017). *ACM SIGKDD Explorations Newsletter*, 19(1), 22-36.

