

Ensemble Neural Approach for Hate Speech Detection in Text and Audiomodalities

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Abstract: *This paper presents the implementation of a hate speech detection system employing Long Short-Term Memory (LSTM) and Bidirectional LSTM (BiLSTM) neural networks. The system is designed to analyse both textual and audio inputs (converted to text) for the identification of hate speech content. By integrating the outputs of both models, the system delivers an ensemble prediction, enhancing detection accuracy and robustness. The implementation utilises TensorFlow and Keras for constructing the neural network models, while Flask serves as the framework for developing the web application interface. Additional libraries are employed for text preprocessing and speech recognition tasks. The proposed system demonstrates high efficacy in detecting hate speech, while offering a user-friendly interface that accommodates both text and audio inputs. This paper outlines the system's background, architecture, detailed implementation procedure, and performance evaluation. The findings illustrate how natural language processing (NLP) techniques and deep learning methodologies can be effectively leveraged to identify and mitigate harmful online content.*

Keywords: Hate Speech Detection, Text Classification, Audio-to-Text, Long Short-Term Memory (LSTM), Bidirectional LSTM (BiLSTM), Ensemble Prediction, Deep Learning, Natural Language Processing (NLP)

