

Advanced Hope Speech Detection for Business Impact in Low-Resource Languages

Vedika Gupta

Jindal Global Business School, OP Jindal Global University, Sonipat, Haryana-131001, India

Abstract

The rise of social media has led to a surge in user-generated content, expressing a wide range of emotions. While significant efforts have been made to address hate speech, positive expressions, or "hope speech," have received less attention. This study fills this gap by developing an ensemble model to detect hope speech in low-resource languages, utilizing advanced deep learning and transformer techniques. The research investigates two main questions: (1) Which computational architectures are most effective for detecting hope speech in low-resource languages from social media data? (2) Can an ensemble approach of high-performing models enhance detection accuracy? Using a diverse dataset from Language Technology for Equality, Diversity, and Inclusion (LT-EDI-ACL 2022), comments are classified as either hope speech or non-hope speech. Models such as CNN, LSTM with GloVe embeddings, and transformer models like mBERT and XLM-RoBERTa are employed. An ensemble model that integrates these individual models is proposed to harness their combined strengths and improve performance. The results demonstrate that this ensemble model significantly outperforms individual and previously proposed models in detecting hope speech, owing to the diverse training data and synergistic model strengths. The advancement of hope speech detection through ensemble models holds significant implications for various industries. Businesses can leverage this technology to enhance online engagement by fostering a more positive and supportive brand presence. For managers, implementing such models can improve customer interaction and satisfaction by identifying and amplifying supportive content, thus enhancing overall brand reputation. Industries focusing on customer relations and online community management can utilize these insights to develop strategies that promote positive user experiences and build stronger connections with their audience. This approach not only supports a more encouraging online atmosphere but also contributes to improved brand perception and customer loyalty.

Keywords: social media; text analytics; sentiment analysis; deep learning, EDI