

Title: NewsNet: A Comprehensive Neural Network Hybrid Model for Efficient Bangla News Categorization

Author: Divya Dhawal Bhandari, Prabhjot Kaur, Monika Maan, Mohammad Amjad Kamal, Ruchika Garg

Abstract: Through the internet, Bangla news has grown enormously within the modern era of digital information. Every news outlet came up with its own categorizing system in order to handle such a huge quantity of content. The organization and categorization of online Bangla news articles, however, might not always correspond with the particular requirements of different users because of the heterogeneous nature of these platforms. Also, multiclass Bangla text classification has become increasingly important for Bangla newspaper platforms to enhance their recommendation system and reduce the manual labor required to classify their various article categories. To address the above limitation, we introduced NewsNet a text classification approach by combining the embedding layer, convolutional neural network(cnn), and recurrent neural network. In recurrent neural networks(rnn), we have employed two models including gated recurrent unit and bidirectional-LSTM (biLSTM) respectively. We have also used several preprocessing techniques such as Label encoder and tokenization correspondingly. We have experimented with our model on a Kaggle dataset called “Bangla Newspaper Dataset”.NewsNet achieved a good accuracy of 94.57%, 94.51% precision, 94.32% recall, and 94.43% f1 score respectively. NewsNet has demonstrated superior performance compared to other approaches on this Kaggle dataset.

Keywords: Text classification, Recurrent neural network, Convolutional neural network, Bangla News category, Label encoding

DOI: <https://doi.org/10.1109/ICCCNT61001.2024.10725173>

<https://ieeexplore.ieee.org/document/10725173>