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Robust Tweets Classification Using Arithmetic Optimization with Deep Learning for Sustainable Urban Living
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Abstract

Natural Language Processing (NLP) with Deep Learning (DL) for Tweets Classification includes use of advanced neural network designs to analyse and classify Twitter messages. DL techniques like recurrent neural network (RNN) or transformer-based frameworks like BERT are used to mechanically learn difficult linguistic patterns and contextual info from tweet data. These techniques able to capture subtleties of language with sarcasm, sentiment, and context-specific meanings and making them suitable for tasks like sentiment analysis or topic classification in realm of social media. Leveraging deep symbols learned from great amounts of textual data, these NLP techniques permit precise and nuanced classification of tweets, donating to enhanced information retrieval, sentiment tracking, and trend analysis in dynamic and fast-paced world of social media communication. In this view, this research develops an arithmetic optimization algorithm with deep learning based tweets classification (AOADL-TC) approach for sustainable living. The goal of the AOADL-TC technique is to identify and discriminate different kinds of sentiments that exist in the tweet data. At the initial stage, the AOADL-TC model pre-processes tweet data to convert uniform data into a useful format. For sentiment detection, the AOADL-TC technique applies a parallel bidirectional gated recurrent unit (BiGRU) model. At last, tuning of parameters related to parallel BiGRU model performed by AOA. An wide set of tests carried out to illustrate better performance of AOADL-TC model. The experimental outcomes portrayed that AOADL-TC technique demonstrates the supremacy of the AOADL-TC technique in terms of different evaluation metrics. © The Author(s), under exclusive licence to Springer Nature Singapore Pte Ltd. 2024.

Author Keywords

Deep learning; Machine learning; Natural language processing; Sentiment analysis; Social media

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