

Jordan University of Science and Technology

Deep Recurrent neural network vs. support vector machine for aspect-based sentiment analysis of Arabic hotels? reviews

Authors: Mohammad Al-Smadia, Omar Qawasmeh, Mahmoud Al-Ayyoub, Yaser Jararweh, Brij Gupta

Abstract: In this research, state-of-the-art approaches based on supervised machine learning are presented to address the challenges of aspect-based sentiment analysis (ABSA) of Arabic Hotels? reviews. Two approaches of deep recurrent neural network (RNN) and support vector machine (SVM) are implemented and trained along with lexical, word, syntactic, morphological, and semantic features. The proposed approaches are evaluated using a reference dataset of Arabic Hotels? reviews. Evaluation results show that the SVM approach outperforms the other deep RNN approach in the research investigated tasks (T1: aspect category identification, T2: aspect opinion target expression (OTE) extraction, and T3: aspect sentiment polarity identification). Whereas, when focusing on the execution time required for training and testing the models, the deep RNN execution time was faster, especially for the second task.