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Sentiment analysis using deep learning architectures: a review

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Abstract

Social media is a powerful source of communication among people to share their sentiments in the form of opinions and views about any topic or article, which results in an enormous amount of unstructured information. Business organizations need to process and study these sentiments to investigate data and to gain business insights. Hence, to analyze these sentiments, various machine learning, and natural language processing-based approaches have been used in the past. However, deep learning-based methods are becoming very popular due to their high performance in recent times. This paper provides a detailed survey of popular deep learning models that are increasingly applied in sentiment analysis. We present a taxonomy of sentiment analysis and discuss the implications of popular deep learning architectures. The key contributions of various researchers are highlighted with the prime focus on deep learning approaches. The crucial sentiment analysis tasks are presented, and multiple languages are identified on which sentiment analysis is done. The survey also summarizes the popular datasets, key features of the datasets, deep learning model applied on them, accuracy obtained from them, and the comparison of various deep learning models. The primary purpose of this survey is to highlight the power of deep learning architectures for solving sentiment analysis problems.

Fig. 1

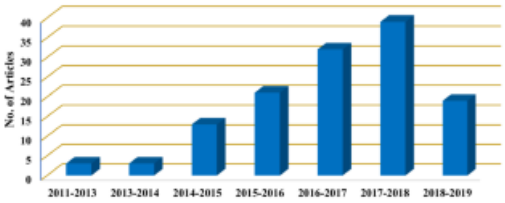


Fig. 2

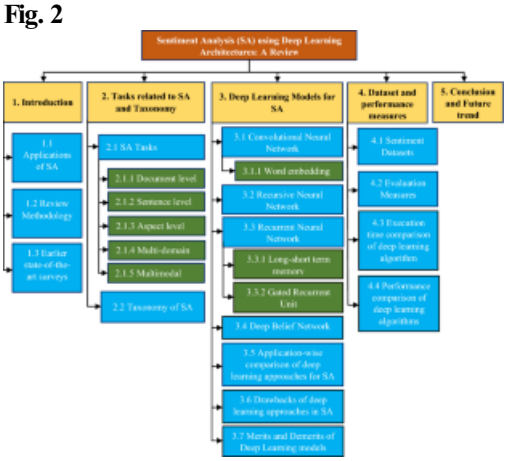


Fig. 3

Fig. 4

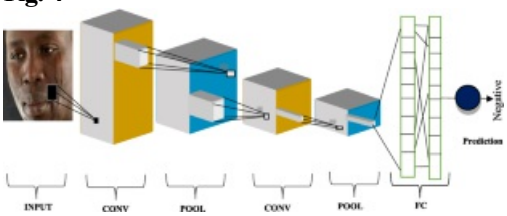


Fig. 5

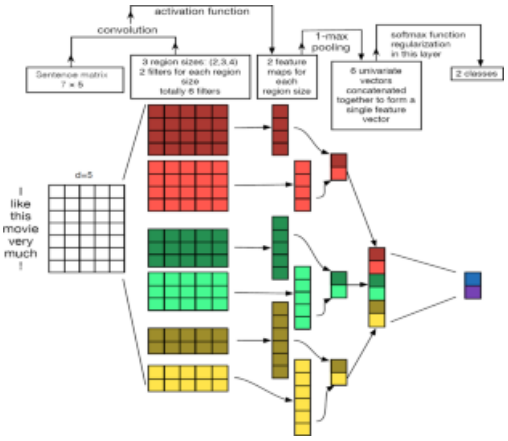


Fig. 6

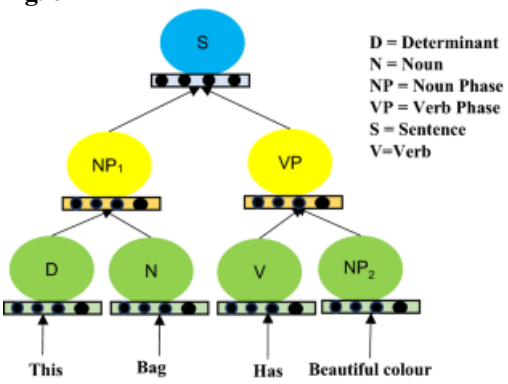


Fig. 7

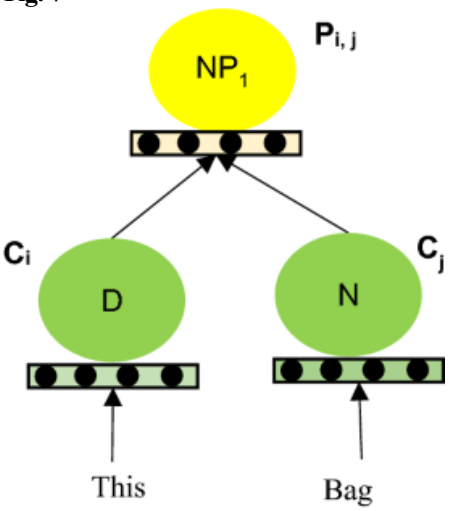


Fig. 8

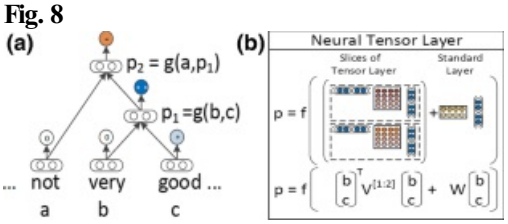


Fig. 9

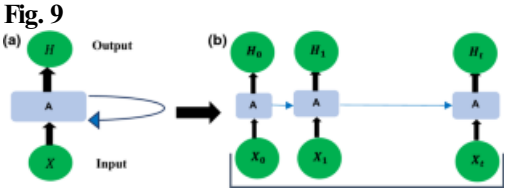


Fig. 10

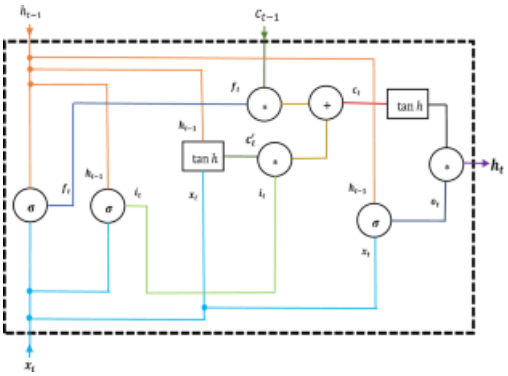


Fig. 11

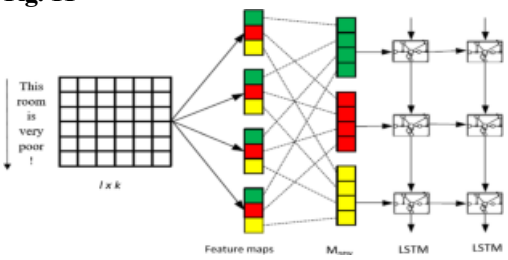


Fig. 12

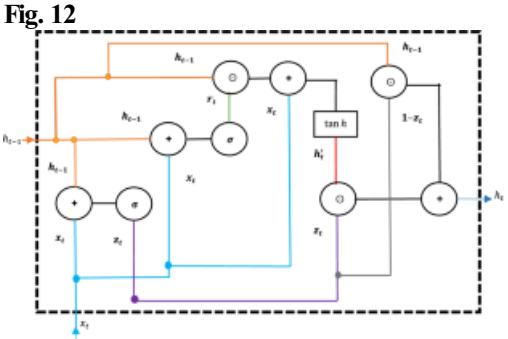


Fig. 13

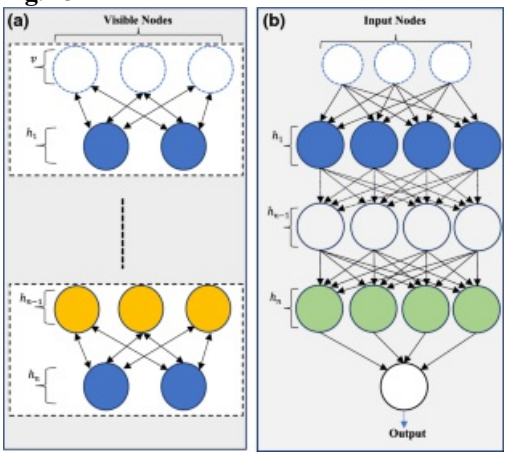
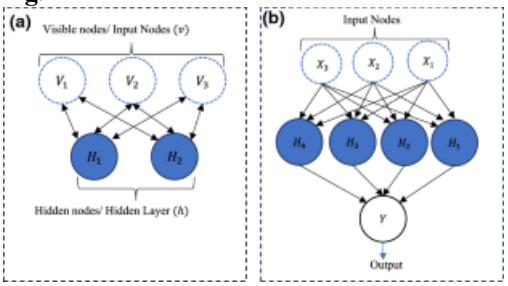


Fig. 14



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