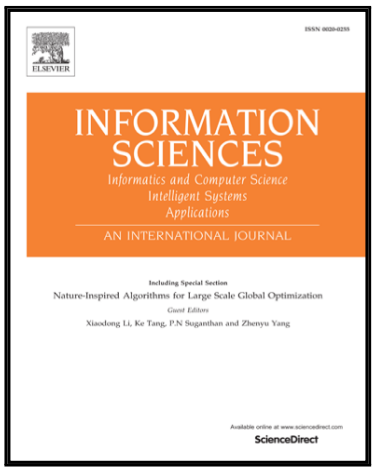

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A Sentiment Information Collector-Extractor Architecture Based Neural Network for Sentiment Analysis

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Abstract

Sentiment analysis, also known as opinion mining is a key natural language processing (NLP) task that receives much attention these years, where deep learning based neural network models have achieved great success. However, the existing deep learning models cannot effectively make use of the sentiment information in the sentence for sentiment analysis. In this paper, we propose a Sentiment Information Collector-Extractor architecture based Neural Network (SICENN) for sentiment analysis consisting of a Sentiment Information Collector (SIC) and a Sentiment Information Extractor (SIE). The SIC based on the Bi-directional Long Short Term Memory structure aims at collecting the sentiment information in the sentence and generating the information matrix. The SIE takes the information matrix as input and extracts the sentiment information precisely via three different sub-extractors. A new ensemble strategy is applied to combine the results of different sub-extractors, making the SIE more universal and outperform any single sub-extractor. Experiments results show that the proposed architecture outperforms the state-of-the-art methods on three datasets of different language.

Keywords: sentiment analysis, sentiment information, Collector-Extractor architecture, Bi-directional Long Short Term Memory, ensemble model

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