Undergraduate Research Report

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Title	Rating Prediction by Considering Relations among Documents and Sentences and among Categories		

Sentiment classification of product reviews are important to analyze sentiment of them for marketing in companies. The present methods of sentiment classification on multiple categories of rating are not capable enough to classify sentiment of a review considering relations among its text, its sentences and categories. This research aims to propose a method of sentiment classification on multiples categories which considers them and improves classification accuracy better than the present methods.

The proposed method classifies reviews in 2 steps. First, it generates distributed expression of reviews and sentences in them using the Distributed Memory model of Paragraph Vectors (PV-DM), which shows good performance on sentiment classification. Second, it classifies reviews by them to classes of degrees of ratings on labels of multiple categories using the fully-connected neural network as sentence vectors in each review are compressed into an weighted average of them. At the second step, the relations of text and sentences in a review and categories are considered to classify it.

In the experiments, And, from the result that the proposed method indicated better accuracy than the comparative methods and the present method specialized for sentiment classification on multiple categories, it is found out that the order of sentences in a review is important for sentiment classification and PV-DM captures some sort of different features them applied to a whole document and sentences in a review.