Student Feedback Prediction Using Sentiment Analysis

Mr.V.Vidya Sagar[1],J.Tejaswi[2], B.Bhanu Sri[3], P.Neelima[4]

Assistant Professor, B.Tech Students
[*] Department of Information Technology
[**] ANDHRA LOYOLA INSTITUTE OF ENGINEERING & TECHNOLOGY

Abstract- Growth in the area of opinion mining and sentiment analysis has been rapid and aims to explore the opinions or text present on different platforms of social media through machine-learning or deep learning techniques with sentiment, subjectivity analysis or polarity calculations. Despite the use of various deep-learning techniques and tools for sentiment analysis during elections, there is a dire need for a state-of-the-art approach.

Keywords- LSTM, RNN, word embedding, Glove, sentiments, tokenization

I. INTRODUCTION

The Natural Language Processing (NLP) is a vast area of computer science that is concerned with the interaction between computers and human language. Language modeling is a fundamental task in artificial intelligence and NLP. A language model is formalized as a probability distribution over a sequence of words. Recently, deep learning models have achieved remarkable results in speech recognition and computer vision. Text classification plays an important role in many NLP applications, such as spam filtering, email categorization, information retrieval, web search, and ranking and document classification, in which one needs to assign predefined categories to a sequence of text. A popular and common method to represent texts is bag-of-words. However, the bag-of-words method loses the words order and ignores the semantics of words. Ngram models are popular for statistical language modeling and usually perform the best. However, an n-gram model suffers from data sparsity.

III. EXISTING SYSTEM & ITS LIMITATIONS

CONVOLUTIONAL NEURAL NETWORKS - Recently CNNs were applied to NLP systems and accomplished very interesting results   convolutional layers are similar to a sliding window over a matrix. CNNs are numerous layers of convolutions with nonlinear activation functions, such as ReLU or tanh, applied to the results. In a classical, feed-forward neural network, each input of a neuron is attached to each output in the next layer. This is called a fully connected or affine layer.

However, CNNs have different approaches where they use convolutions over the input layer to compute the output. Local connections compute the output over the input layer, and then each layer applies different kernels, usually hundreds or thousands of filters, to then combine their results.

We propose a new framework that exploits and combines convolutional and recurrent layers into one single model on top of pre-trained word vectors. We utilize long short-term memory (LSTM) as a substitute for pooling layers in order to reduce the loss of detailed, local information and capture long-term dependencies across the input sequence. Our contributions are summarized below:

1.Word embeddings are initialized using a neural language model, which is trained on a large, unsupervised collection of words.
2. We use a convolutional neural network to further refine the embeddings on a distance-supervised dataset. We take the word embedding as the input to our model in which windows of different length and various weight matrices are applied to generate a number of feature maps.
3. The word embeddings and other parameters of the network obtained at the previous stage are used to initialize the same framework.
4. The deep learning framework takes advantage of the encoded local features extracted from the CNN model and the long-term dependencies captured by the RNN model. Empirical results demonstrated that our framework achieves competitive results with fewer parameters.

II. AIM & OBJECTIVE

Our aim to create the multi class multi-layer recurrent neural network to predict & classify the social media data (i.e. sentiment analysis or opinion mining)

During pooling or subsampling layers and during the training stage, CNNs learn the values of their filter size based on the tasks. For instance, in image classification a CNN might learn to detect edges from raw pixels in the first layer, then use the edges to detect simple shapes in the second layer, and then use these shapes to detect higher-level features, such as facial shapes, in higher layers. The layer is then fed to a classifier that uses these high-level features.

PROPOSED SYSTEM & ITS ADVANTAGES

Since we wanted to capture the emotion of the user towards self-driving cars, our next aim was to have labelled training data. We typically wanted three classes:

Sentence level opinion mining is performed by a task subjective or Objective.

Objective: a Total Lockdown will be enforced.

Objective: student feedback case study.

• Positive - denoting a set of tweets from users who were rules and regulations framed by Govt. during this pandemic

• Negative - denoting a set of tweets from users who were suffered during this pandemic

• Neutral - denoting a set of tweets from users who had no opinion whatsoever. They either tweeted just some facts or some simple questions related to those facts.

ADVANTAGES

•Can identify failure and duplicate content.

•To avoid the duplicate content or false content spread.

•The products are identified by sentimental words from feedbacks and comments.

•The time taken for analyzing large amount of data will be reduced.

Deep Learning (Proposed):
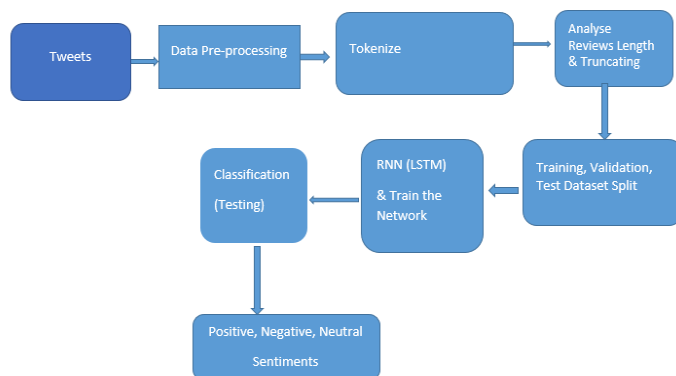
IV. STUDY OF THE SYSTEM

Sentiment Analysis and Subjectivity

Textual information in the world can be broadly categorized into two main types: facts and opinions. Facts are objective expressions about entities, events and their properties. Opinions are usually subjective expressions that describe people's sentiments, appraisals or feelings toward entities, events and their properties. The concept of opinion is very broad. In this chapter, we only focus on opinion expressions that convey people's positive or negative sentiments. Much of the existing research on textual information processing has been focused on mining and retrieval of factual information, e.g., information retrieval, Web search, text classification, text clustering and many other text mining and natural language processing tasks. Little work had been done on the processing of opinions until only recently.

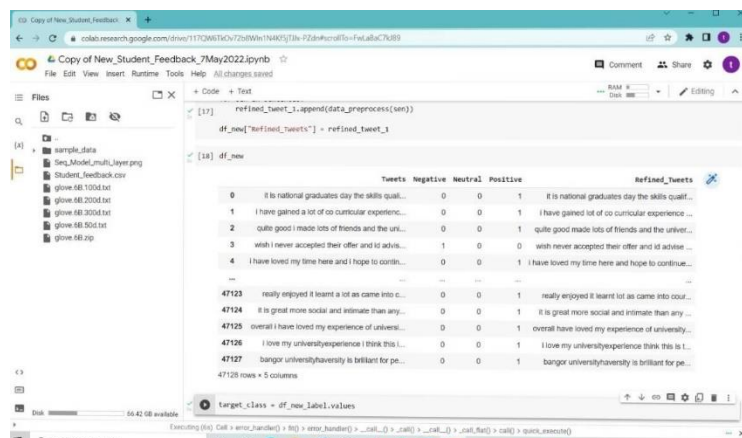### Survey on the Role of Negation in Sentiment Analysis

Text summarization is the process of creating a short, accurate, and fluent summary of a longer text document. Automatic text summarization methods are greatly needed to address the ever-growing amount of text data available online to both better help discover relevant information and to consume relevant information faster. The data is unstructured and the best that we can do to navigate it is to use search and skim the results.

In order to fully master this task, other aspects, such as a more reliable identification of genuine polar expressions in specific contexts, are at least as important as negation modelling.

Opinion Mining and Sentiment Classification: A Survey

Opinion Mining or Sentiment analysis involves building a system to explore user's opinions made in blog posts, comments, reviews or tweets, about the product, policy or a topic. It aims to determine the attitude of a user about some topic. In recent years, the exponential increase in the Internet usage and exchange of user's opinion is the motivation for Opinion Mining. The Web is a huge repository of structured and unstructured data. The analysis of this data to extract underlying user's opinion and sentiment is a challenging task. An opinion can be described as a quadruple consisting of a Topic, Holder, Claim and Sentiment. Here the Holder believes a Claim about the Topic and expresses it through an associated Sentiment.

V. FINAL OUTPUT

CONCLUSION

Our results demonstrated that it is possible to use a much smaller architecture to achieve the good classification (multi class multi-layer) performance. It will be interesting to see future research on applying the proposed method to other applications such as information retrieval or machine translation.

REFERENCES

[1]. I. H. Witten, E. Frank, M. A. Hall, and C. J. Pal, Data Mining: Practical machine learning tools and techniques. Morgan Kaufmann, 2016.

[2]. F. Pedregosa et al., "Scikit-learn: Machine learning in Python," J. Mach. Learn. Res., vol. 12, no. Oct, pp. 2825–2830, 2011.

[3]. B. Liu. Sentiment Analysis and Subjectivity. Handbook of Natural Language Processing, Second Edition, (editors: N. Indurkhya and F. J. Damerau), 2010.

[4]. B. Pang and L. Lee, "Opinion Mining and Sentiment Analysis." Foundations and Trends in Information Retrieval 2(1-2), pp. 1–135, 2008.

[5]. J. Wiebe, T. Wilson, R. Bruce, M. Bell, and M. Martin, "Learning Subjective Language," Computational Linguistics, vol. 30, pp. 277–308, September 2004.

[6]. M. Hu and B. Liu, "Mining and Summarizing Customer Reviews," Proceedings of the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), pp. 168–177, 2004.

[7]. N. Jindal, and B. Liu. "Opinion Spam and Analysis." Proceedings of the ACM Conference on Web Search and Data Mining (WSDM), 2008. Bing Liu is a professor of computer science at University of California.

[8.] X. Chen, M. Vorvoreanu, and K. Madhavan, "Mining social media data for understanding students' learning experiences," IEEE Trans. Learn. Technol., vol. 7, no. 3, pp. 246–259, 2014.

[9] Kim, Y., Convolutional neural networks for sentence classification. arXiv preprint arXiv:1408.5882, 2014.

[10] LeCun, Y., et al., Gradient-based learning applied to document recognition. Proceedings of the IEEE, 1998. 86(11): p. 2278-2324.

AUTHORS

Mr.V.Vidya Sagar [1] M.Tech, Assistant Professor, Department of IT, Andhra Loyola Institute of Engineering & Technology

J.Tejaswi[2] B.Tech, Andhra Loyola Institute of Engineering & Technology

B.Bhanu Sri[3] B.Tech, Andhra Loyola Institute of Engineering & Technology.

P.Neelima [4] B.Tech, Andhra Loyola Institute of Engineering & Technology.