

Feature based opinion mining : an overview

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Abstract

Internet or world wide web(WWW) is a source of huge amount of information where people express their opinion on anything at products review sites, internet forums, different discussion groups, web blogs etc. Opinion play a very important role in decision making process.

It is very difficult for the customer to manually go through all the review about products. So it is better to automatically process various review of products and provide information in suitable format by using some technique .Sentiment classification and feature based approach

This paper gives the overview of various feature based technique of Opinion Mining used for customer review and its summarization. This paper covers the application of opinion mining in various domains.

Keywords :

opinion, opinion mining, sentiment, POS, machine learning, feature based

1 INTRODUCTION

Internet or world wide web(WWW) is a source of vast amount of information where people express their opinion on anything at product review sites, internet forum, different discussion group, web blogs etc.

Opinion play a very important role in decision making process.

For customer whether to buy the product or not, for organization to know about what customers think about their products.

Sentiment Analysis also called as Opinion Mining is about to understand the attitude of people with respect to some topics.

Opinion mining is about extracting people's opinion about particular product/topic from the web.

It is a type of natural language process.

Sentiment Analysis is about to determining the subjectivity ie popularity (positive or negative) of some topic.

Basic component of an opinion as given by Hu and Liu[1]

Which has three main components

- 1) Opinion holder : a person who gives opinion about a particular object.
- 2) Object : an entity on which the opinion is given.
- 3) Opinion : a view, sentiment on an object given by an opinion holder.

E.g "If a customer said a [laptop's](#) battery life was long, that would be a positive opinion.

If the customer said that the laptop's start-up time was long, however that would be is a negative opinion"

Here customer is opinion holder, Laptop is object and " battery life was long" or start-up time was too long " are opinions.

There are two types of evaluation methods ie

Direct Opinion and comparisons

In case of direct opinion the sentiment is on object is of subjective type and in case of comparisons it is of subjective as well as objective type.

There are three types of review format available on web[1]

Format 1 : only pros and cons

e.g Cnet.com

Format 2 : pros and cons along with short review

Eg. Eopinion.com (Fig. 1)

Format 3 : no separation between pros and cons

e.g Amazon.com



Fig. 1 : Product Review

2 TASK OF OPINION MINING

There are several methods to analyze customer reviews. Task of Opinion mining is at document (review level) level or at sentence level or at feature(attribute) level In case of document level opinion mining task

When the format of review is of pros and cons type

In feature based opinion mining

- 1) Extract features,
- 2) Extract word which describe features
- 3) Determine the given word is positive or negative or neutral
- 4) Summarize the result

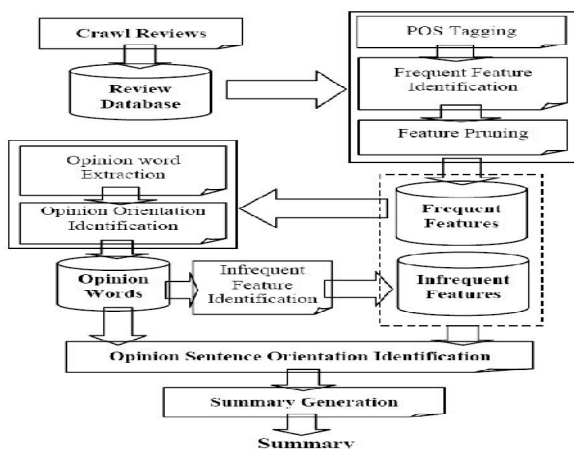


Fig. 2. Feature based opinion mining

2.1 FEATURE BASED OPINION MINING

Feature based opinion mining model is proposed by Hu and Liu [3] and Popescu and Etzioni, 2005

In this model, extract the review from website, store it in review database, extract the features form that review and combine features with nearest opinion word using part of speech (POS) and synset wordnet. summarize that result (Fig. 2)

The above technique is used to analyze customer review if review is in format 3

But this technique cannot be applied on format 2 because review are short and consist of incomplete sentences

P.S. HIREMATH, Siddu P. ALGUR, S. SHIVASHANKAR [5] proposed a effective novel feature selection technique to assess a customer review using k-mean and fuzzy c-mean methods.(Fig. 3)

Here author cluster the review by using k-mean clustering and compute the cluster weight

But author here consider only pros and cons of product review

This technique cannot be applicable in case of Format 3 where there is so such separation of pros and cons.

G.Somprasertsri and P. Lalitrojwong [6] proposed a dependency and semantic based approach for summarization of opinion by applying dependency relations and ontological knowledge with probabilistic based model. (Fig .5)

Li Zhuang, Feng Jing, Xiaoyan Zhu [7] proposed a multi-knowledge based approach for review and summarization in movie domain where grammatical rule and the keyword list is used. (Fig. 4)

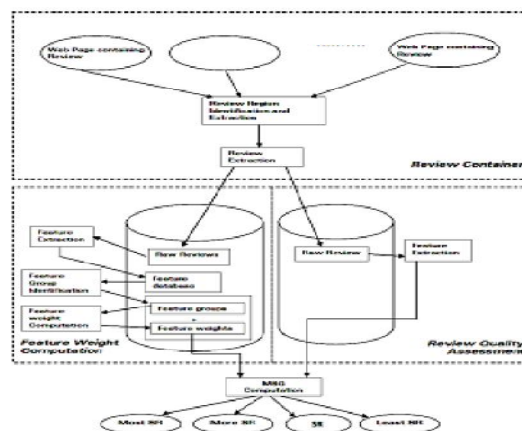


Fig. 3

2.2

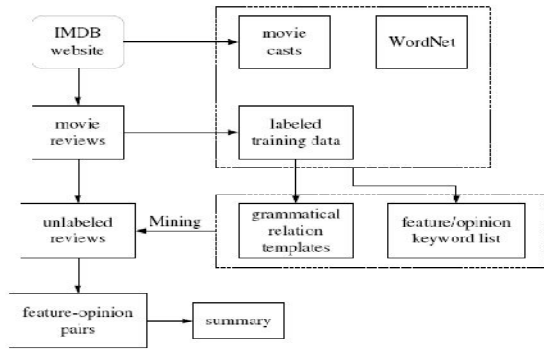


Fig. 4

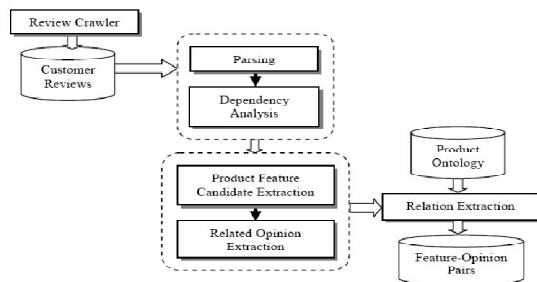


Fig. 5

3 APPLICATION

An application of opinion mining is in domain includes Shopping, Entertainment, Government, Research and Development, Education.

3.1 Shopping

Most of the online shopping web site allows user to express their opinion on product. Customer can view review of product, they can compare their features. If review is mined and result is available in graphics format so it will be easy for customer to compare features.

3.2 Entertainment

Internet Movie Database provides the review about the movie or television show

3.3 Government

Government can mine the opinion on their public policies

3.4 R & D

Customer review on product are useful for manufacturer and R & D. Department to improve the feature of product

3.5 Education

Students opinion on e-learning system are helpful to improve service.

4 CONCLUSIONS

In this paper the steps of opinion mining is discussed and the various approach of feature based summarization of opinion is discussed. The various application of Opinion Mining is also discussed. It also provides different application of opinion mining.

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