

Technical Disclosure Commons

Defensive Publications Series

May 02, 2017

Crowd Opinion Mining And Scoring

Hassan Abolhassani

Follow this and additional works at: http://www.tdcommons.org/dpubs_series

Recommended Citation

Abolhassani, Hassan, "Crowd Opinion Mining And Scoring", Technical Disclosure Commons, (May 02, 2017)
http://www.tdcommons.org/dpubs_series/490



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

CROWD OPINION MINING AND SCORING

ABSTRACT

A system and method are disclosed for mining and rating one or more crowd opinions. The system uses a machine learning approach for crowd opinion mining and scoring. The machine learning algorithm creates and updates concepts of the target query in the server by simultaneously mining the web to update opinion scores. A search interface is provided to find concepts and opinions on the targets. Based on the search, the system retrieves the target-related opinions from the server. The system sends crowd-sourced opinions or answers to users. Crowd knowledge is utilized to find opinions and the scores are displayed in a central place. Biasing of community-based opinions is mitigated.

BACKGROUND

People generally require opinions and scores/ratings on a day-to-day basis on products or services. For example, opinions may provide insight into quality of services by a healthcare provider, or on usability of a product or feedback relating on a trip to a specific resort. Conventionally, people rely on their community for such opinions. Currently, they use reviews, web searches, forums and other available means to gather such opinions, as well as manual review-gathering sites functioning at a very low scale. It may be challenging to obtain trustworthy opinions on every possible concept, product or service. Also, community-based opinions may, at times, be biased.

DESCRIPTION

A system and method are disclosed that enable mining and rating of one or more crowd opinions. The system uses a machine-learning approach for crowd opinion mining and to process the information. The machine learning approach is considered with the following high level

steps. The machine learning algorithm creates and updates concepts that are targets for opinions. It simultaneously mines the web for the concepts and updates opinion scores. It then provides a search mechanism to find concepts and opinions on the targets. It provides a web service to query opinion scores from third party applications and services. The system sends crowd-sourced opinions or answers to users as shown in FIG. 1.

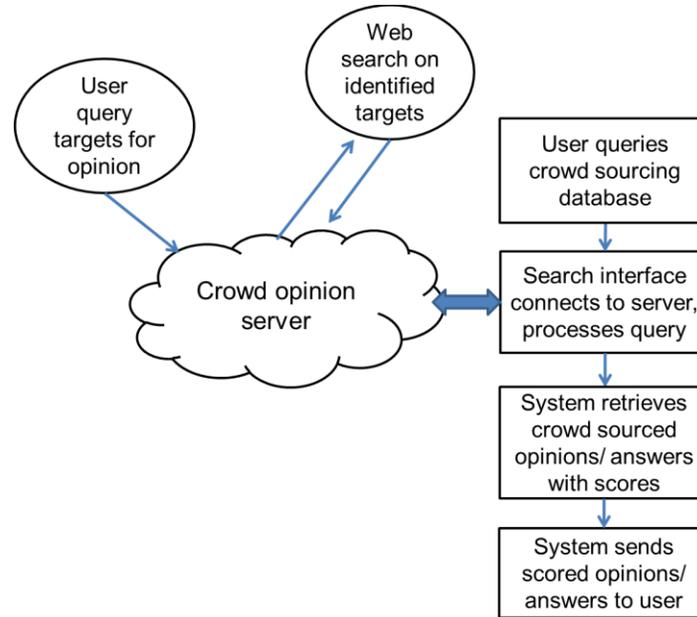


FIG. 1: Method to provide crowd-sourced opinion mining and scoring

The machine learning algorithm creates and updates concepts that are targets for opinions. Knowledge base resources are available that represent facets and relationships. For creating and updating a concept in the knowledge base, the following information may be stored: name, including alternate names (e.g. synonyms or names in other languages), category (e.g. product, resort or hotel) or facets (e.g. for a product it may be price, size, lifetime, etc.). A similar approach is followed to create and update the available knowledge-based resources for a vast majority of concepts.

The machine learning approach continuously mines the web for concepts and updates

opinion scores. A spectrum for opinions (i.e. classes) are considered. For instance, the opinions may include a spectrum that ranges from “horrible”, to “very bad”, to “bad”, to “neutral”, to “good”, to “very good”, to “excellent”. A semi-supervised learning approach is taken to mine opinions which may include training a set of opinions that are labeled with values from the aforementioned spectrum. A training example may include natural language statements describing opinions by humans about the concept that may be carefully labeled by an expert using one of the values from the above spectrum. A neural network may be trained based on the training set and it may be used to find important phrases and words separating one class from the others. The core set of words and phrases is expanded by an approach similar to query the expansion used by search engines. The words and phrases are further expanded by similar words and phrases from other human languages.

A set of words and phrases is created that is useful to categorize statements representing an opinion to one of the classes. This set is updated periodically. A larger neural network is created with this set and an opinion that is given (in natural language statements) is classified into one of the aforementioned categories.

This classifier crawls the web and gathers opinions and stores opinions in a data store keyed by concepts and their facets. For each opinion, the source authority is also computed and stored.

The machine-learning algorithm provides a search mechanism to find concepts and opinions on the target query. The data store enables the user to avail a free-form search facility, for example “Brand X price”. A result displays a summarized score such as “Bad” and optionally provides further details. For example, the user may further select to view opinions in a given category. For example, if they want to further read opinions within the "Good" category, results

ranked by any or multiple source's authorities are shown. The following formula is used to compute the summarized score:

SCORE = Round to a category (AVERAGE over all stored opinions (opinion category* source authority)).

The machine learning algorithm may provide a web service to query opinion scores from third party applications and services. The service may be called from any services that need to show opinions to users. For example, a hotel search service might use this service to show a total score for the hotel to the user.

The system and method to provide crowd opinion mining and scoring provides dynamic updates using web scale to find opinions. The query is not limited to a human language. It is a general framework for solving the problem. Crowd knowledge is utilized to find opinions and the scores are displayed in a central place. The system and method also prevents biasing caused by review-gathering sites.