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New Trends in Opinion Mining Technologies in the Industry

J.UCS Special Issue

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The Internet has become a global vehicle to express opinions and share information. In this sense, the Web 2.0 phenomenon made the social Web, initiating an explosion in the number of Web users and the amount of available information. In this new scenario, collaboration with customers has emerged through ordinary use of Web 2.0 from both companies and clients alike. As a consequence of the endless opportunities of the social use of the Web, customers today have powerful tools to express their opinions and influence on business systems. Armed with new tools and dissatisfied with available choices, consumers want to interact with firms.

With the social Web, the number of online reviews in which people freely express their opinions on a whole variety of topics is constantly increasing. Opinion mining refers to a new subarea of information retrieval and computational linguistics that identifies and extracts the opinion and sentiments that a text expresses. It determines critics' opinions about a given product, book review, etc., which are expressed on online forums, blogs, or comments. Since opinions are very important when someone wants to consider other viewpoints before making a decision, opinion mining has recently been applied to a wide variety of applications in politics, government, and marketing.

The aim of this special issue is to explore the recent advances in the application of opinion mining technologies in the industry by asking for original scientific contributions in the form of theoretical foundations, case studies, techniques, tools, and applications of sentiment analysis technologies.

The call for papers of this Special Issue was published on major international email lists, on the home page of this journal, as well as on the official Web pages of several universities. Editors received a large amount of submissions that were later peer-reviewed by top experts in the field. Based on the reviews and our reading of the papers, 6 high-quality articles were selected for their publication. Contributions of these papers are summarized as follows:

In the first paper, entitled "Opinion Retrieval for Twitter Using Extrinsic Information," Yoon-Sung Kim, Young-In Song, and Hae-Chang Rim describe a method to identify tweets subjectivity by using extrinsic information about how a tweet is presented. The method was validated and results show that all of the proposed features are useful in the opinion retrieval system.

The second contribution entitled "An Aspect-Based Sentiment Analysis Approach to Evaluating Arabic News Affect on Readers," by Mohammad AL-Smadi, Mahmoud Al-Ayyoub, Huda Al-Sarhan, and Yaser Jararweh, presents the use of an aspect-based sentiment analysis to evaluate how Arabic news affect readers. The method is divided into two tasks: aspect term extraction and aspect term polarity. This method was validated using four different classifiers: CRF, J48, Naïve Bayes, and IBk.

In the third paper, entitled "Feature-Based Sentiment Analysis for Service Reviews," Ariyur M. Abirami and Abdulkhader Askarunisa propose a sentiment classifier model using the improved Term Frequency Inverse Document Frequency (TF-IDF) method and a linear regression model to classify online reviews, tweets, or customer feedback for various features. The sentiment analysis on tweets/reviews is done for various features using Natural Language Processing (NLP) and Information Retrieval (IR) techniques. The statistical results show that improved TF-IDF is more accurate, if compared with TF and TF-IDF methods used for representing the text.

The fourth paper entitled "Web Service SWePT: A Hybrid Opinion Mining Approach," by Yolanda Raquel Baca-Gomez, Alicia Martinez, Paolo Rosso, Hugo Estrada and Delia Irazu Hernandez Farias, presents a Web service for polarity detection in Mexican Spanish. The service is based on a hybrid approach that combines the Sequential Minimal Optimization (SMO) machine learning algorithm with the use of features obtained by an affective lexicon in Mexican Spanish and a corpus. Results show that the method can be considerably improved by using a specific-domain corpus instead of a general corpus.

In the fifth contribution entitled "Sentiment Classification of Spanish Reviews: An Approach Based on Feature Selection and Machine Learning Methods", María del Pilar Salas-Zárate, Mario Andrés Paredes-Valverde, Jorge Limon-Romero, Diego Tlapa and Yolanda Baez-Lopez introduce a method for sentiment classification of Spanish reviews. The approach uses a hybrid feature extraction method based on POS pattern and dependency parsing. Then, the features obtained are semantically enriched through common-sense knowledge bases. Finally, a feature selection method is applied to remove the noisy and irrelevant features. The set of experiments performed in this work involved the use of two datasets of movie reviews and technological products domains.

The last paper entitled "Applying Brand Equity Theory to Understand The Opinion of Consumers in Social Media," by Evangelos Kalampokisa, Areti Karamanoua, Efthimios Tambourisa, and Konstantinos Tarabanisa, describes an algorithm that aims at categorizing opinions based on three marketing metrics: brand satisfaction, brand image, and purchase intention. In particular, authors used a supervised machine learning text classifier for each of the decision nodes of the algorithm. For this purpose, authors collected a corpus of tweets which was manually annotated with marketing metrics and social media metrics such as volume and sentiment.

Finally, we, as editors, would like to express our gratitude to the reviewers who kindly contributed to the evaluation of papers at all stages of the editing process. We equally and especially thank Professor Christian Gütl (Managing Editor) and Ms. Dana Kaiser (Assistant Editor) of the Journal of Universal Computer Science (J.UCS) for their invaluable help and for providing the opportunity to edit this special issue.

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