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Leveraging Language Reresentation Learning and Semaabntic Features For Improving Hashtag recommendation on Microblogging Platforms

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LEVERAGING LANGUAGE REPRESENTATION LEARNING AND SEMANTIC FEATURES FOR IMPROVING HASHTAG RECOMMENDATION IN MICROBLOGGING PLATFORMS

Abstract:

Communication and information technology have become gradually over the past years with a crucial development being the appearance of social networks. These networks are extremely accountable for this movement as users now daily share their information in knowledge bases, participate in many virtual communities and become involved to micro-blogging platforms. Therefrom, a huge number of information are posted online each day and become available for public. This information is considered vitally important and could be a source of enhancement of multiple application if they are entirely exploited.\par

Micro-blogging platforms are an amalgamation of blogging and instant messaging that allow bloggers to share their ideas, moods, and events with other people in the same platform in real time. These platforms have become immensely popular; Twitter as example; has more than 313 million active users and monthly 1 billion unique visits to sites with embedded tweets. In fact, Twitter, let users to create freely hashtags and put them anywhere in their tweets, as long as they fit within the 280-character limit. Hash-tagging has become the greatest famous way to categorize micro-blogs on social media. Attaching the sign (\#) in front of any word or phrase without any spaces or punctuation is enough to turn it into a clickable link. Whoever who views the hashtag can click on it and be brought to a page featuring the feed of all the most recent tweets that contain that special hashtag. Twitter users put hashtags in their tweets to: a) categorize tweets in a sort that makes it effortless for other bloggers to find and follow tweets about a specific topic or theme, b) follow and track trending topics. Hence, the task of recommending hashtag has been experienced to be pertinent for many data mining applications. Although, Existing hashtag recommender systems are regularly based on only syntactic criteria or classical tags recommendation techniques.\par

This provides the overall issue of this thesis; enhancing natural language understanding for text data, especially micro-blogs. To this end, we present different effective approaches to generate text representation ranging from simple statistical techniques to more complicated methods that are based on the use of multiple semantic knowledge bases and Neural Network Architectures. The contribution made in this thesis demonstrate the effectiveness of semantic knowledge bases as background knowledge in natural language processing. Moreover, it reveals the capacity of word embedding techniques in text representation. We evaluate the performance of our proposed approaches through hashtag recommendation systems. Our Experiments show that these approaches beat many state-of-the-art methods and achieve good and suitable results.

Key Words:
Text Representation, Neural Networks, Hashtag Recommendation, Clustering, Social Networks, Twitter, Big Data