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Personality-based Refinement for Sentiment Classification in Microblog

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Abstract Microblog has become one of the most widely used social media for people to share information and express opinions. As information propagates fast in social network, understanding and analyzing public sentiment implied in user-generated content is beneficial for many fields and has been applied to applications such as social management, business and public security. Most previous work on sentiment analysis makes no distinctions of the tweets by different users and ignores the diverse word use of people. As some sentiment expressions are used by specific groups of people, the corresponding textual sentiment features are often neglected in the analysis process. On the other hand, previous psychological findings have shown that personality influences the ways people write and talk, suggesting that people with same personality traits tend to choose similar sentiment expressions. Inspired by this, in this paper we propose a method to facilitate sentiment classification in microblog based on personality traits. To this end, we first develop a rule-based method to predict users' personality traits based on the most well-studied personality model, the Big Five model. In order to leverage more effective but not widely used sentiment features, we then extract those features grouped by different personality traits and construct personality-based sentiment classifiers. Moreover, we adopt an ensemble learning strategy to integrate traditional textual feature based and our personality-based sentiment classification. Experimental studies on Chinese microblog dataset show the effectiveness of our method in refining the performance of both the traditional and state-of-the-art sentiment classifiers. Our work is among the first to explicitly explore the role of user's personality in social media analytics and its application in sentiment classification.

Keywords Sentiment classification, Social media analytics, Personality prediction, Big Five model

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