

A Multi-Dimensional Approach in Reader Emotion Modeling and Prediction (PI:

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The growing popularity of social media has propelled for the interest of emotion analysis as the web has changed from a simple platform for information search to a more social network based information exchange, sharing, and even online emotional support platform. Most current research works in emotion analysis treat the overall emotion in text as a classification problem based on emotions expressed explicitly through lexical forms. A written passage can trigger different emotional reactions to people playing different roles with respect to the text. It is more challenging to predict the emotional reactions of readers as their emotions are not contained in the text.

In this proposal, we suggest to include writers (or appraisers) and readers as agents in the emotion analysis models. In order to predict readers' emotional reactions, we first need to understand the different emotional effects of text to the agents who play different roles so that the classification of sentiment or emotion linked words can be based on the defined roles. As different words can express the same emotion with different intensities and a word can also express complex emotion, such as the word "devastated" which implies both fear and sadness, the emotion linked lexical knowledgebase should provide both qualitative and quantitative measures for complex emotions. Secondly, description of events can also trigger emotions in readers even if

the text does not contain any emotion linked words. This motivates us to investigate how to link different events to emotions so that emotional reactions to events can be included in reader emotion prediction models. Thirdly, emotion is a very personal thing. A story that makes one person sad can make another person happy. The difference often lies in the different value systems and the emotional links we have towards the different entities described in text. Based on this observation, we plan to build personal profiles of readers that can capture their preferences in people, organizations and social issues for which they have emotional attachment. Finally, a reader emotion prediction model will be built on the three types of knowledge. Our focus of this study is on Chinese text, but the general framework should be applicable to other languages.

This work will give us insights on the power of language to our emotional reactions and especially to actions which can have great social and political consequences. The result of this work will broaden the scope of current study on emotion analysis by providing a more comprehensive analytical model. This will empower computer applications where predictions of human emotions can have great social impact such as people's reactions to and the spread of social and political events.