Advanced Information Sources for User Modelling

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Abstract. User modelling in open information spaces relies on various sources of information to process for user model acquisition. In this paper we present results of our research covering user modelling by utilizing advanced information sources typical for the social Web.

1. Motivation

User modeling in open information spaces tends to rely on lightweight descriptions of subject domain [6, 7] by employing the overlay principle. User model typically represent user interests reflecting web resources the user interacts with, e. g., visiting a page [5], or creating a post of various kinds [4].

User-interest models often do not content with term-based representation of user interests [5], they also incorporate different aspects of the reality where user operates, e. g., trending topics, which affect a user in her/his daily routine [8]. The challenge is to incorporate additional available information sources to enrich user model or make it more precise.

2. Advanced information sources for user modelling

In our work we incorporate trend-awareness and personalization similarly to Gao et al. [8]. On top of that we use location-awareness to improve the results, thus the user model is more precise. We proposed a location-aware user model for web content recommendation by extending trend-aware model of Gao et al. with locations. The idea is based on the assumption that employing location of trends improves the quality of user model. By employing trends with locations we enabled to distinguish influence of trend to user. The evaluation performed with the model showed that location-aware model indeed improves the quality of traditional global (non-location aware) models.

In our next work we researched how various sources of information (to acquire a user model from) impact on the quality of the model and how aggregation of different methods

affects the accuracy [1]. We performed several experiments in the domain of microblogs, which showed that aggregation of methods (based on different information source processing) can improve accuracy in some aggregation configuration setups.

An interesting aspect when considering user model acquisition from user-created content is differentiation between relevant and irrelevant sources. Different criteria can be applied depending on the particular user model type to be acquired. An important task within this process is sentiment mining. We proposed a novel method for sentiment analysis of a text that allows recognition of opinions in microblogs which are connected to a particular target or an entity [3]. The results of the experiments we performed show that our method improves sentiment classification and is feasible even for a specific content such as that presented on microblogs.

References

to other papers publishing the results that are summarized here

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