

Context-Aware Recommender Systems Using User's Emotional State

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Abstract : The product recommendation is a field of research that has received much attention in the recent information overload phenomenon. The proliferation of the mobile environment and social media cannot help but affect the results of the recommendation depending on how the factors of the user's situation are reflected in the recommendation process. Recently, research has been spreading attention to the context-aware recommender system which is to reflect user's contextual information in the recommendation process. However, until now, most of the context-aware recommender system researches have been limited in that they reflect the passive context of users. It is expected that the user will be able to express his/her contextual information through his/her active behavior and the importance of the context-aware recommender system reflecting this information can be increased. The purpose of this study is to propose a context-aware recommender system that can reflect the user's emotional state as an active context information to recommendation process. The context-aware recommender system is a recommender system that can make more sophisticated recommendations by utilizing the user's contextual information and has an advantage that the user's emotional factor can be considered as compared with the existing recommender systems. In this study, we propose a method to infer the user's emotional state, which is one of the user's context information, by using the user's facial expression data and to reflect it on the recommendation process. This study collects the facial expression data of a user who is looking at a specific product and the user's product preference score. Then, we classify the facial expression data into several categories according to the previous research and construct a model that can predict them. Next, the predicted results are applied to existing collaborative filtering with contextual information. As a result of the study, it was shown that the recommended results of the context-aware recommender system including facial expression information show improved results in terms of recommendation performance. Based on the results of this study, it is expected that future research will be conducted on recommender system reflecting various contextual information.

Keywords : context-aware, emotional state, recommender systems, business analytics

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