

# Emotion-Aware Movie Recommender Based on Genre Impact Analysis

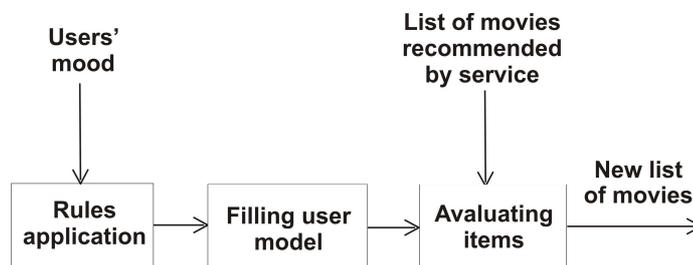
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Recently users' mood has shown up as an important context feature, relevant to creating recommendations and it has become an object of interest for many researchers. A work of Shi et.al [2] or an interactive web radio, called Musicoverly<sup>1</sup> represent some of many works, where authors take users' mood into account.

Our context-aware knowledge-based movie recommendation method is based on assumption that there is a relationship between users' current mood and movie genre suitable for her at the specific moment. With the knowledge of how exactly specific genre influences emotions and provided that we have the information about users' current mood, we are able to determine which genres are the most suitable and make the decision which movie to watch much easier for user.

The method uses postfiltering of data from a metadata-based recommendation service, developed by engineering students on our faculty as a team project. It recommends user a list of movies that might be interesting for her in general. However we try to identify what user might find interesting at the moment, to make the recommendation even more personalized and this is where the emotions help us. A schema of our recommendation method can be seen in the *figure 1* below.



*Figure 1: A schema of recommendation method functionality*

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After getting the resulting list of recommended movies from the service, we take information about users' current mood, gained explicitly. Then based on defined binding rules between genre and mood, the method transforms the list of movies into a new list that we recommend to user.

To acquire the rules for recommendation we used several approaches. We started with some simple rules based on our opinions, consulted the movie-mood relationship with a psychologist and interviewed 10 randomly selected web users, various age and interests. As the second step we tried to mine some association rules from the LDOS-CoMoDa [1], a dataset of users, movies and many contextual information (including users' feelings before during and after watching a movie). The result of rules extraction process was a table of percentual occurrence of each genre in each mood (positive, negative, neutral). It showed up, there are some genres basically independent on users' emotions (e.g. Crime), but in many cases there were observable differences between frequency of choices in different mood. For example Drama appeared to be more wanted by negatively tuned people, on the other hand Comedy is more preferred by people in positive mood. Final created binding rules are represented by a binding matrix, where  $value[i; j]$  means desirability of  $genre[i]$  in  $mood[j]$ .

Our user model contains a relevancy of each genre in the context of current mood represented by a value computed according to binding values. It is filled every time we get new information from a user about his emotions. Then, we evaluate each movie from the list recommended by the service, by calculating an average value from desirabilities of genres specified for the movie. In the end, the movies are sorted descending into a new list and the items with value greater than -0.8 are shown to user as the most proper recommendations.

Our recommendation method is currently being implemented and we already made some experiments with explicitly acquired context, using the LDOS-CoMoDa dataset that proved our hypothesis. In addition we are about to make some qualitative experiments with real users. A comparison between items recommended without our method and the resulting list after postfiltering applied and also a following feedback from users can fully confirm the relevancy of our method.

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## References

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