Towards Group Recommendations at Work

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Abstract. Group recommender systems provide innovative concepts for suggesting products or services to groups of users or for suggesting individual users to each other. We have developed concepts and a prototype for group recommendations for hedonic products in leisure contexts. In this workshop we would like to discuss innovative ways of applying experiences and results to work settings.

1 Social Media at Work

Social media as a term summarises concepts and systems that allow users and companies to interact with each other, exchange information, and present themselves [Kaplan & Haenleina 2010]. Important characteristics are the use of Web 2.0 technologies as underlying platform (i.e., HTML and asynchronous Java Script) as well as active participation of the users (i.e., User Generated Content).

Typically Social Media in workplace settings are used either for company-internal systems to exchange information only accessible for employees, or for publicly accessible support and marketing systems to foster contact to customers.

Group recommender systems are an example of social media in leisure settings, where a group of users wants to come to a compromise. They provide specific suggestions of items or activities to support groups of users in the decision making process (e.g., restaurant recommendations [Park *et al*. 2008] or movies).

In this position paper we introduce our approach and concepts for the AGReMo (Ad-hoc Group Recommendations Mobile) group recommender system and motivate a discussion of synergies between social media at work and group recommendations for leisure.

2 Group Recommendations for Leisure

We have developed the AGReMo (Ad-hoc Group Recommendations Mobile) [Beckmann & Gross 2010] process model concept and implemented it on a mobile client. The AGReMo concept and implementation allow users to receive shared movie recommendations and actively participate in the process of decision-making. As key for Social Media systems, AGReMo relies on User Generated Content (i.e., ratings of already watched movies).

In order to receive a shared movie recommendation a group traverses a defined process in three phases: Preparation, Decision, and Action. Figure 1 shows the process model with its three phases and tasks, which are dedicated to the group, the individual users, and the recommender system in the background.
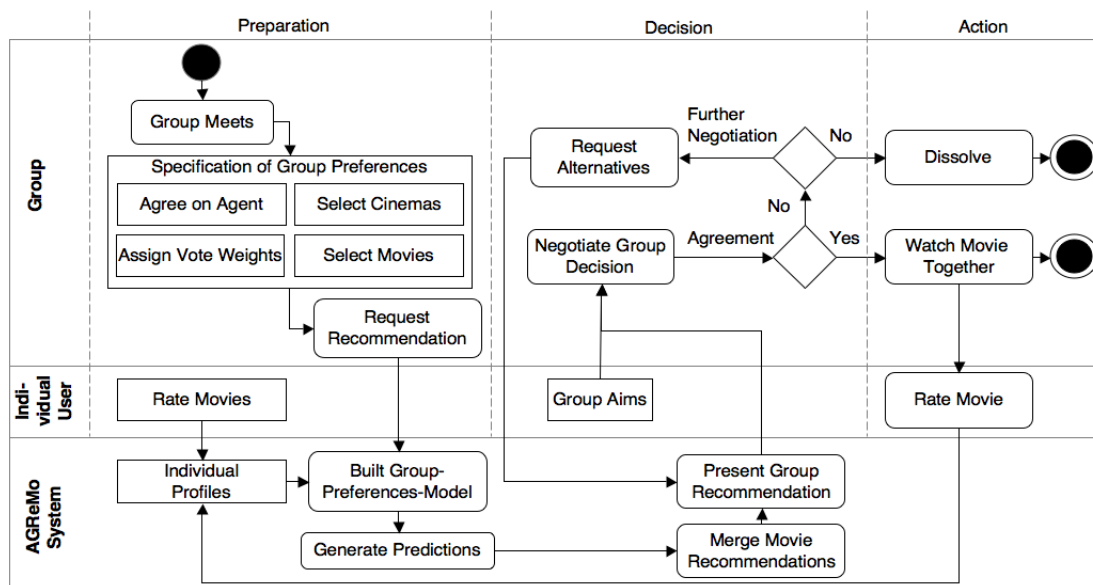

Figure 1. The AGReMo process model.

In the Preparation phase the group meets and agrees on an agent. The agent enters the group preferences. During the specification of the group preferences, the group defines date and time when they want to watch a movie together, a selection on cinemas they prefer as well as vote weights for the individual members.

The vote weights can be used to lay a special emphasis on certain group members. The vote weights can range from altruistic perspectives to equally distributed weights. The group also can define a selection of movies they want to exclude. The Preparation phase concludes with the request of recommendations. In the mobile client a structured interface allows the specification of the preferences and provides a request button.

In the Decision phase the system generates and presents recommendations to the group. For generating the recommendation it uses list-merging strategies [O'Connor *et al*. 2001], which incorporate the assigned vote weights in order to obtain a recommendation. Therefore, individual recommendations for the list movies of the group members are obtained using collaborative filtering algorithms (i.e., predicting unseen movies relying on ratings of similar users). The list of movies to merge into a recommendation is given through the selection of cinemas as well as the date and time

preferences. Figure 2 shows the presentation of a given top-recommendation in the AGReMo mobile client. Besides the movie's poster, its title, and the computed prediction value an explanation also presented. The explanation includes crucial influences of the group members to the recommendation. The group can obtain details to each recommended movie, such as the plot and show times in the selected cinemas. The group can request alternative recommendation and finally it can make a decision which movie to take.

In the final Action phase the group either watches the movie together or dissolves. After watching the movie, each group member can rate the given recommendation. These ratings are used to enhance the individual profiles in future recommendations.
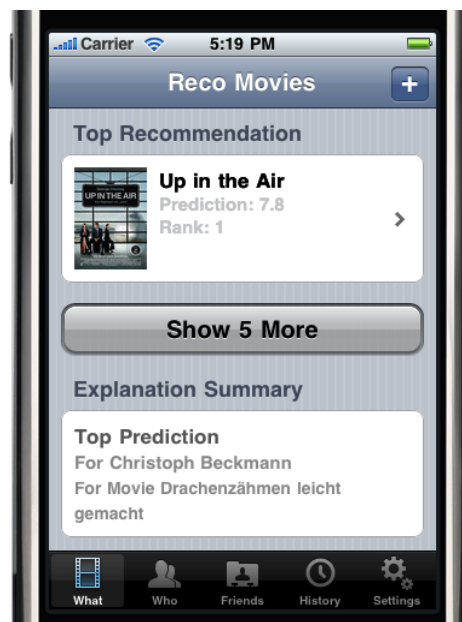

Figure 2. A screenshot of the AGReMo mobile application presenting a top-recommendation to the group.

3 Bridging the Gap

During the process of developing and implementing the AGReMo concepts and prototype we learned several lessons. For instance, in the low-fidelity phase we explored user needs for a structured process of finding a compromise that fits the whole group; in the evaluation phase we gained insight into users' needs for distinct roles during the group decision process (e.g., a moderator role organised the process along the standardised procedures, or a weight-balancing role discussing and assessing individual users' weights on the impact of their opinion on the overall outcome); both may also be important for group recommender systems in work settings.

In this workshop we would like to discuss ways of applying our experience and results of to Social Media in work settings.

4 Biographical Information

Christoph Beckmann, M.Sc. is research and teaching assistant as part of the HCI-Group at the University of Bamberg, Germany. His research interests are Human-Computer Interaction and Ubiquitous Computing, particularly Recommender Systems for supporting groups in the decision making process and Media Spaces for connecting groups while working and living together.

Dr. Tom Gross is full professor and chair of Human-Computer Interaction at the University of Bamberg, Germany. His research interests are particularly in Human-Computer Interaction, Computer-Supported Cooperative Work, and Ubiquitous Computing. He is the official representative of Germany in the IFIP TC.13 on Human-Computer Interaction.

Acknowledgments

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