Evaluation of Personalized Fashion Design Recommendation Agent System based on Server-Client

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Introduction

A Web-based fabric information system has been developed. Recently the numbers of textile companies that have their own homepage to advertise their product fabrics for apparel through the Web-based E-commerce rapidly increase. We have implemented FDRAS-pro: Fashion Design Recommender Agent System of textile design applying 2-way combined filtering technologies as one of methods in the material development centered on customer's representative sensibility and preference.

System Overview

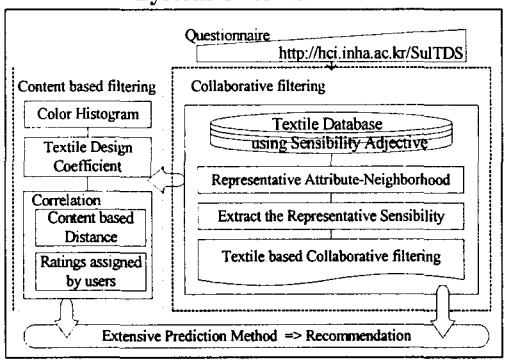

Fig.1 System overview for FDRAS-pro

Figure 1 shows system overview for FDRAS-pro using the extraction of representative sensibility and the 2-way combined filtering on textiles. This system consists of server and client module. We use 2-way filtering technique to create a user-adapting design recommender system, in which the hypertext structure is created for each specific user, based on prediction of what this user would prefer. The basic idea is that user is asked to provide rating for the textiles that he views during his login. The system then selects textiles similar to textiles with high ratings. Collaborative filtering is also used to make prediction based on the rating that other users have provided during previous visits. These predictions are then used to present textiles to the user accordingly, so that more relevant textiles are seen first.

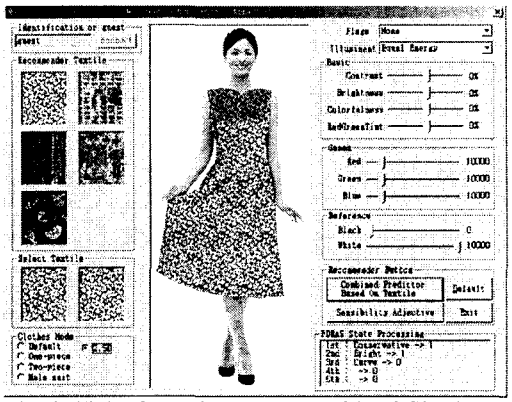

Fig. 2 FDRAS-pro by 2-way combined filtering

Figure 2 shows FDRAS-pro simulation using the extraction of representative sensibility and the 2-way combined filtering on textile.

FDRAS-pro runs its engine to recommend the five textiles as fitting the preferred sensibility to the user. If there in no proper textiles in database, the combined predictor will recommend 5 textiles according to the sensibility adjectives of others based on collaborative predictor on the user's attributes, through the content-based predictor.

We used the MAE & DEV methods to evaluate the FDRAS-pro performance. Table 1 lists the measured precision for the previously discussed predictors.

Table 1. Prediction precision

Prediction method	MAE	DEV
Collaborative filtering	0.704	1.397
Content-based filtering	0.735	1.405
Representative Sensibility	0.709	1.301
2-way combined filtering	0.681	1.159

Conclusions

We identify collaborative filtering and content-based filtering as independent technologies for information filtering. We combine these independent filtering approaches to achieve better filtering results and therefore better FDRAS-pro proving better performance.