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# Exploiting Log Files in Video Retrieval

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## ABSTRACT

While research into user-centered text retrieval is based on mature evaluation methodologies, user evaluation in multimedia retrieval is still in its infancy. User evaluations can be expensive and are also often non-repeatable. An alternative way of evaluating such systems is the use of simulations. In this poster, we present an evaluation methodology which is based on exploiting log files recorded from a user-study we conducted.

## Categories and Subject Descriptors

H.5.1 [Multimedia Information Systems]: Evaluation/methodology

## General Terms

Experimentation, Human Factors

## 1. INTRODUCTION

Most interactive video retrieval systems are benchmarked in laboratory based user experiments. However, to make a robust measurement, the evaluation must be based on a large user population, which is very expensive. An alternative way of evaluating such systems is the use of simulations. Hopfgartner and Jose [1] employed a simulated evaluation methodology which can be seen as a pre-implementation method which will give further opportunity to develop appropriate systems and subsequent user-centred evaluations. In this paper, we adapt their simulation approaches in simulating users interacting with a facet-based video retrieval interface by exploiting log files from a user-study.

## 2. EXPLOITING USER EXPERIMENTS

As a basis for our simulation, we used the logged data collection from a user-study on an innovative facet based video browsing and retrieval interface. Participants were asked to search for two given topics for up to 20 minutes and to select

relevant results. The retrieval model was simple: users enter textual search queries in each facet and the system returns a list of shots which are represented by a keyframe in the result list of the facet. After performing the initial user-study, we analysed the resulting log files and extracted user behaviour patterns, such as: when did users start a search query and when did they mark results as relevant.

Subsequently, we used this log data to try and develop an approach which is more effective than the baseline. In the scope of this poster, we investigated if the content of other facets can help improve the retrieval results of each facet. Therefore, we incorporated the content of other facets in a simulation run  $S$ . In the simulation, we took advantage of the explicit relevance feedback given by each user in marking shots as relevant for a facet. We used these shots as a query expansion source and determined query candidate terms for each facet. If a term appeared in more than one facet, we removed it from the facet which contained the most candidate terms and used these terms as a new search query. This results in a more focused retrieval for the facets, as double entries are avoided. Afterwards, we compared the retrieval results of the original queries used in  $B$  with the result list coming from  $S$ .

## 3. RESULTS

In the poster, we will show that for both search tasks, the simulation run  $S$  outperformed the baseline run  $B$ . These results may indicate the effectiveness of facet based browsing in comparison to our baseline system. We conclude that even though we did not perform a second user-study, the simulation of users in exploiting log files of previous user sessions is a valid approach to achieve further results in the field of video retrieval.

## 4. ACKNOWLEDGMENTS

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## 5. REFERENCES

- [1] F. Hopfgartner and J. Jose. Evaluating the Implicit Feedback Models for Adaptive Video Retrieval. In *ACM MIR '07 - Proceedings of the 9th ACM SIGMM International Workshop on Multimedia Information Retrieval, Augsburg, Germany*, pages 323–332, 09 2007.