

MediaMill: Guiding the User to Results using the ForkBrowser

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ABSTRACT

In this technical demonstration we showcase the MediaMill Semantic Video Search Engine. It allows usage of multiple query methods embedded into a single browsing environment while guiding the user to better results by using a novel active learning strategy. This allows for fast and effective search through large video collections.

Categories and Subject Descriptors: H.5.1 Information Interfaces and Presentation: Multimedia Information Systems

General Terms: Algorithms, Design, Performance

Keywords: Video retrieval, information visualization

1. INTRODUCTION

Users have become accustomed to fast and effective searching and navigating through textual information. With the ever increasing popularity of digital video, both online on sites like YouTube and off line in archives of broadcasters, users demand at least the same functionality from video search engines. This is problematic, however, as the dynamic visual content of video does not reveal its semantics as easily as textual content does. Therefore, several query methods and browsing methods have been proposed lately to provide users with semantic access in an interactive fashion. The *MediaMill* semantic video search engine embeds several query methods into one visualization: the ForkBrowser.

2. GUIDING THE USER TO RESULTS

To leverage the benefits of having multiple query methods without cluttering interface we elaborate on the notion of threads [1]. Threads are ranked lists of shots, based on some feature similarity space, which results from a specific video query method. Navigation using these threads is done as follows. The user specifies an initial query using for example both query-by-keyword and query-by-concept. This generates a thread of relevant shots for this query, with the most relevant shot selected as the starting point. The ForkBrowser then visualizes results by displaying the shots based on the shape of a fork, see Figure 1. The contents of the tines of the fork depend on the shot at the top of the stem. The center tine shows unseen results from the first query, the

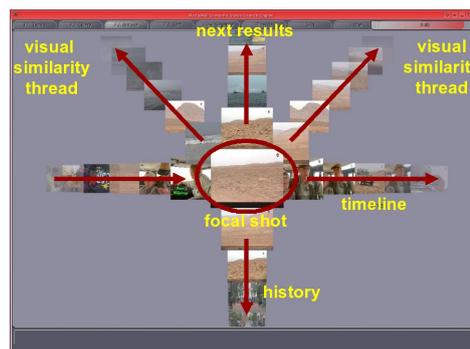


Figure 1: The ForkBrowser using the TRECVID 2008 video collection, shown with the names of the individual tines.

leftmost and rightmost tines show the timeline, and the two tines in between allow on demand querying by showing visual similarity threads. The stem of the fork displays browse history. All browse directions, each tine, and the stem, are accessible by keyboard and mouse for quick navigation.

This year we demonstrate two new aspects in our browser. In order to further guide the user to results, the ForkBrowser now employs both passive and active monitoring of browse behaviour in combination with a novel active learning strategy to help guide the user to unexplored but relevant parts in the collection. In addition, the user is able to zoom into any one of the visualized threads for closer inspection of results.

During the VideOlympics[2] session we will showcase the ForkBrowser within the *MediaMill* semantic video search engine. This allows for fast and effective search through video collections.

3. REFERENCES

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