AAU Video Browser: Non-Sequential Hierarchical Video Browsing Without Content Analysis

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Abstract. We participate in the Video Browser Showdown with our easy-to-use video browsing tool. It can be used for getting a quick overview of videos as well as for simple Known Item Search (KIS) tasks. It offers a parallel and a tree-like browsing interface for navigating through the content of single videos or even small video collections in a hierarchical, non-sequential manner. We want to validate whether simple KIS tasks can be completed without a time consuming content analysis in advance.

1 Introduction

We have already introduced our tool for instant video browsing that requires no content analysis at all [1]. This tool is well suited for scenarios where users just quickly want to get an overview of a video or to find specific, already known segments in it. The latter is the case at the Video Browser Showdown.

Usually, video browsing solutions are based on content analysis of the underlying video. Almost all presented solutions perform a shot segmentation first and provide browsing mechanisms based on the shot structure. While such tools typically perform better in retrieval tasks, the content analysis step requires a lot of processing time.

With our participation in the Video Browser Showdown we want to show that in Known Item Search (KIS) scenarios it is an overkill to perform a deep content analysis. For such scenarios it is better to provide quick, yet powerful, interactive navigation means.

2 The AAU Video Browser

At the moment our video browser offers two different views: a *parallel* and a *tree-based view*. In both views every video is divided into n parts of equal length. The number of parts (n) can be increased or reduced with a single click.

The parallel view is shown in Figure 1, where an example video is divided into twelve parts of equal length. The user can navigate one level down in the browsing hierarchy by clicking with the right mouse button on one of the video windows. The selected part of the video is divided into n parts of equal length

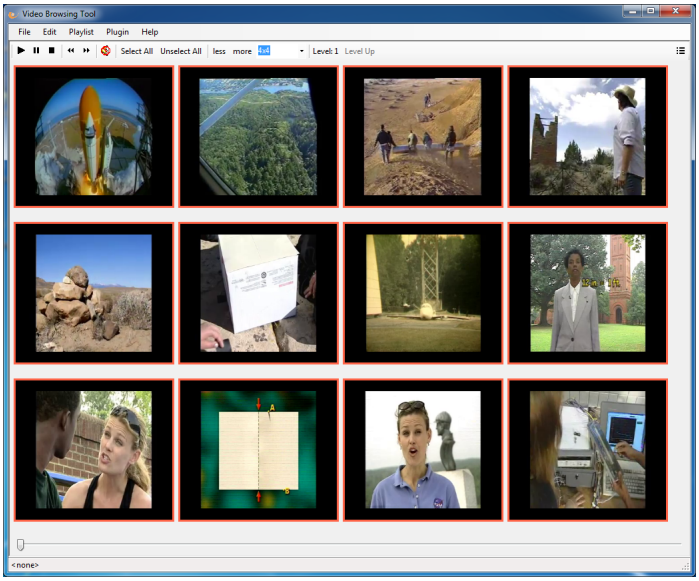

Fig. 1. Parallel View

again. To get a coarser view again, it is possible to go back to a higher level. The parallel view can only show one level of the browsing hierarchy at a glance.

In contrast the tree-based view presents all levels simultaneously in a tree-like structure. The context of the shown parts is better preserved. Figure 2 shows a screenshot of the tree-based view. Each row represents one level of the browsing hierarchy. The browsing history from the top to the bottom level is preserved by coloring the selected parts on each layer with a green border. Therefore, alternative browsing paths can be found quickly. If a part is selected with the right mouse button, a new row showing only that part is added to the view. Browsing through a video this way can be compared with navigating through a tree structure. In Figure 2 the first part of each level has been selected.

In both views it is possible to traverse the content of the video in a hierarchical way down, until the frame level is reached, and up again.

Beyond hierarchical browsing, our video browser can also be used for parallel playback of the content. All parts of a video or only selected ones can be watched in parallel. The playback speed can be adjusted, thus allowing a fast forward of all parts shown. The slider at the bottom of the video browser can be used to scroll through selected parts in parallel. Users can get an impression of the whole video in a fraction of the overall duration. The audio playback is only enabled for one selected video window (where the mouse points at). The ability to play only the audio stream of the part regarded to be interesting, helps the users in getting a better browsing experience.

Both introduced views are not only limited to single video files. They can be used to explore small video collections as well. Opening a folder that contains

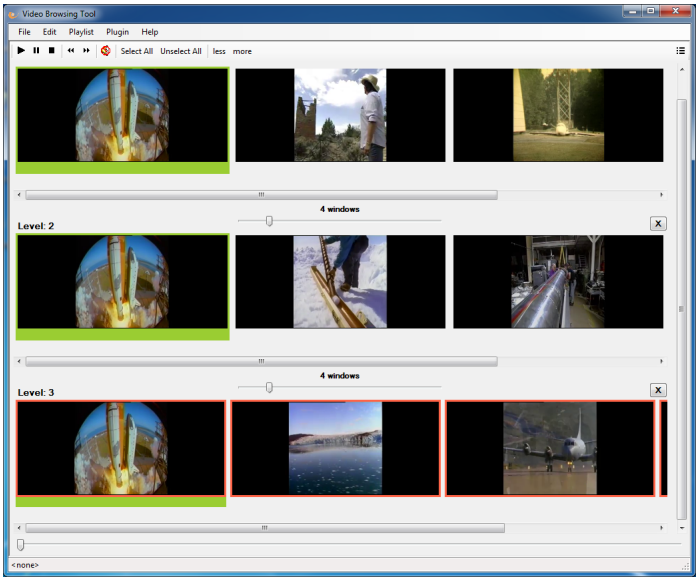

Fig. 2. Tree-Based View

several videos adds an additional level to the browsing hierarchy. On the top level all videos of the selected folder are shown, serving as starting point for a hierarchical exploration of the whole video archive.

3 Conclusion

Our tool provides easy-to-use interaction means for non-sequential hierarchical video browsing. The parallel view can be used to get an overview of the content of a video by using parallel playback or parallel scrolling. The tree view provides mechanisms for quickly exploring different search paths within a video and thus it is better suited for Known Item Search (KIS) tasks. Our video browser is suggested particularly for situations in which video analysis is not adequate (e.g. due to lack of rich semantics) or would take too much time. At the Video Browser Showdown we want to validate that. Nevertheless, as our video browser implements a plug-in architecture, it is possible to extend it in future with additional views or with video analysis plug-ins, e.g. for video segmentation.

References

1. M. del Fabro, K. Schoeffmann, and L. Böszörmenyi. Instant video browsing: A tool for fast non-sequential hierarchical video browsing. In G. Leitner, M. Hitz, and A. Holzinger, editors, *HCI in Work and Learning, Life and Leisure*, volume 6389 of *Lecture Notes in Computer Science*, pages 443–446. Springer Berlin / Heidelberg, 2010.