

# mediaWalker: Tracking and browsing news video along the topic thread structure \*

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## ABSTRACT

We introduce a news video tracking and browsing interface “mediaWalker” that allows users to explore throughout a news video archive by tracking news topics along a chronological semantic structure of news stories.

## Categories and Subject Descriptors

H.5.2 [Information Interfaces and Presentation (e.g., HCI)]: User Interfaces

## General Terms

Design

## Keywords

News video, video archive, topic tracking, interface

## 1. INTRODUCTION

In the last ten years, we have been creating a news video archive composed of more than 1,800 hours of video recorded from a daily news show. In order to efficiently retrieve information from such a large news video archive, analysis of the chronological semantic structure of its contents is necessary.

We have previously proposed a method that retrieves the chronological semantic structure; “topic thread structure”, that originates from a specified news story and chains stories on subsequent events on related news topics in the form of a directed graph. This was done by measuring the relation of news stories based on both text similarity and chronological order. Details of the method could be found in [1].

\*This paper is a summarized version of papers [1, 2, 3].

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In this paper, we will introduce an interface “mediaWalker” that allows users to browse throughout the archive by tracking news topics along the topic thread structure. We believe that such an interface facilitates the users to understand news topics along the timeline, while it saves time than browsing through a linear list of video clips on related topics as in a traditional video retrieval interface.

## 2. THE MEDIAWALKER INTERFACE

We will briefly introduce the functions of the interface, according to the search flow shown in Fig. 1.

### 2.1 Initial story listing

First, a user searches the initial story-in-focus, either from a list of manually arranged set of stories, or by issuing a query by combining keywords and dates (Fig. 1(a)).

### 2.2 Initial story selection

Next, a list of stories that match the criteria in the previous screen is listed. The list can be rotated, while video clips corresponding to stories could be played. The user then chooses one story, and selects to browse a topic thread structure either towards the past (left) or the future (right), originating from the story (Fig. 1(b)).

### 2.3 Topic tracking and browsing

Finally, video clips (stories) are placed as nodes on the topic thread structure that originates from the story specified in the previous screen (Fig. 1(c)). Figure 2 shows an example of topic tracking in the interface; The development of news topics could be tracked by playing clip by clip along the structure. The interface also shows the difference of keywords between stories, to provide the users with information for selecting the desired topic thread during the tracking.

In addition to the tracking function, the interface also provides the following functions:

- Automatic playing and exporting  
As shown in Fig. 3(a), when two stories are selected by

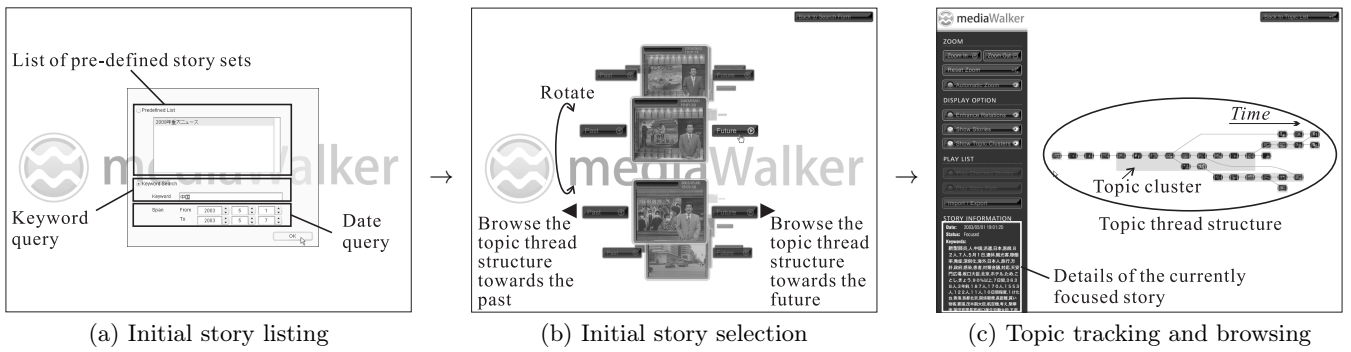


Figure 1: Search flow in the mediaWalker interface.

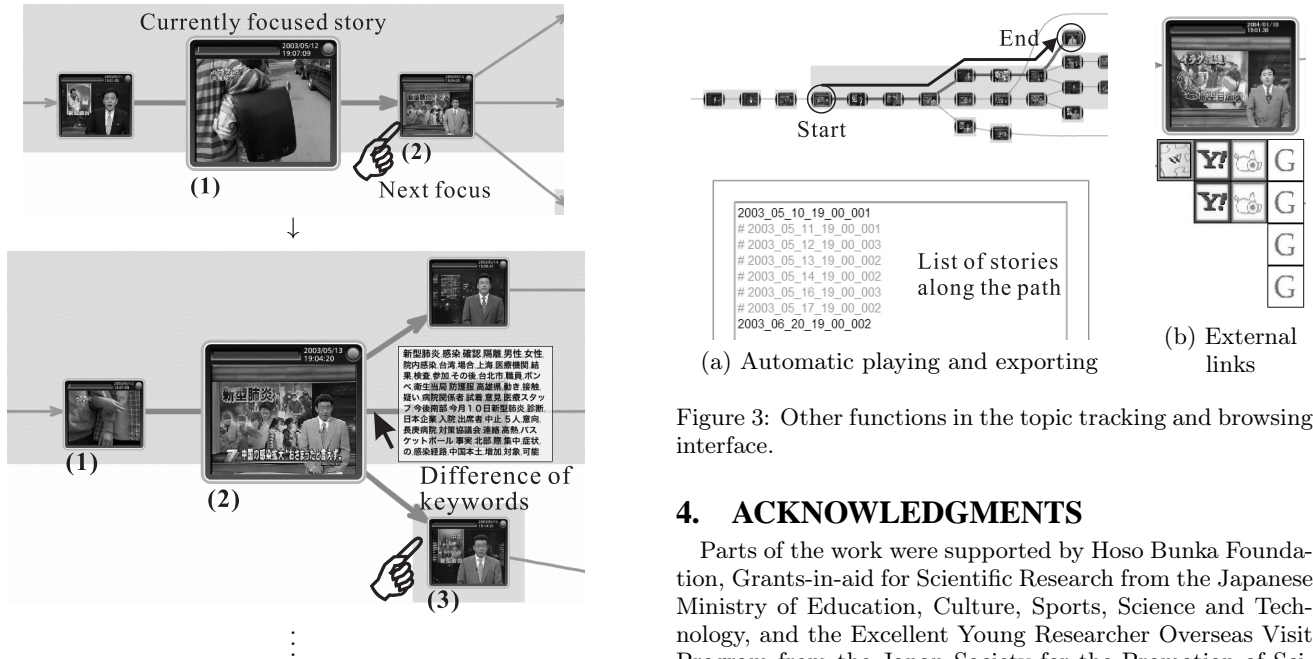


Figure 2: An example of topic tracking in the topic tracking and browsing screen; Tracking stories (1), (2), (3), ...

checking a button at the corner of the video players, the interface finds a path that connects them. The user can then, let the interface automatically play along the path, or export the list of stories along the path for external use or post-processing.

- External link  
As shown in Fig. 3(b), each story is linked to external Web pages related to its contents. It is linked first to Wikipedia articles, and then to other contents by issuing queries based on the title of the articles. Details on the linking method could be found in [3, 4].

### 3. CONCLUSIONS

We briefly introduced an interface that allows users to track the development of news topics along the topic thread structure. Future work includes story telling along the structure.

Figure 3: Other functions in the topic tracking and browsing interface.

## 4. ACKNOWLEDGMENTS

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