

MedioVis - A Visual Interface for Searching and Exploring Digital Libraries

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Abstract

Users of digital libraries are nowadays confronted with information spaces that are rapidly growing in quantity, heterogeneity, relationality and dimensionality. Therefore, more effective tools are required to facilitate the exploration and search in these information spaces. MedioVis is a flexible application for the visual exploration of such data that is especially designed for users without prior professional experience in search, retrieval or visualization. To give them a satisfying search experience, different views on the data space are provided. MedioVis supports analytical and browsing oriented exploration strategies through the usage of multiple coordinated visualizations and a consistent and supportive interaction design. Further, we intentionally decided to use and combine visualizations that base on well-known and straightforward concepts (e.g. tables, browser or scatter plots). These visualizations provide visual filtering mechanisms (e.g. table filters or zooming into a region of a scatter plot) to support a natural way of query formulation and refinement. We called our table visualization HyperGrid, because it combines the functionality of a table, a browser and avoids information overload, by accessing detail information through a continuous semantic zoom into a table cell. Figure 1 shows the two coordinated views of MedioVis 1.0 called HyperGrid and the HyperScatter.

MedioVis 1.0 is funded science 2005 by the German Research Foundation (DFG) in the domain Scientific Library Services and Information Systems (LIS). The first system of MedioVis 1.0 was launched four years ago and still undergoes iterative development and evaluation cycles. To gain continuous end-user feedback and insights in real interaction behavior, we are running MedioVis 1.0 for over three years in the media library of the University of Konstanz.

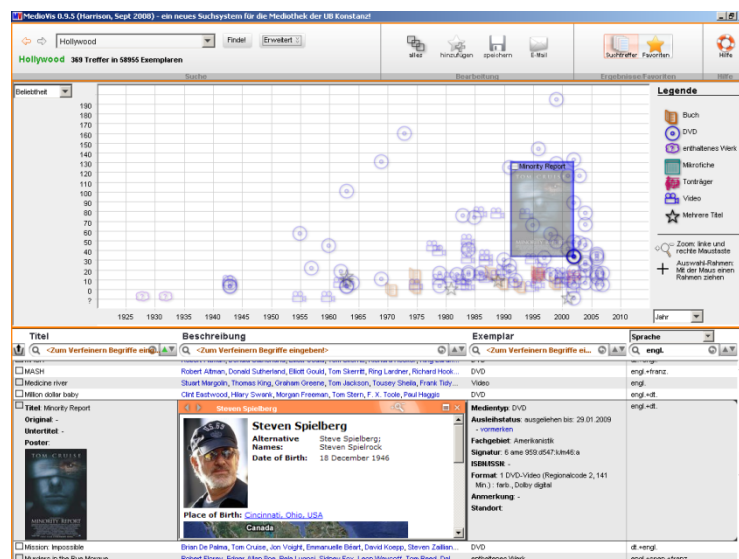


Fig. 1. MedioVis 1.0 – HyerGrid and HyperScatter

The latest version called *MedioVis 2.0* relies primarily on the paradigm of zoomable user interfaces and object-orientation. In consequence, no windows, icons, menus, files or dialogs are used. For the wide varied activities of knowledge workers, we further integrated different techniques to search and explore the information space

via different visualizations. To keep and manage information objects, *MedioVis 2.0* offers personalization functionalities.

MedioVis 2.0 is based on a new user interface paradigm called Zoomable Object Oriented Information Landscape (ZOIL). Thereby, an information landscape of infinite size serves as basic visualization and starting point (see fig. 2a). *MedioVis 2.0* arranges each media object, corresponding to their primary genre on the landscape. Users are able to navigate in this landscape by zooming and panning. This navigation technique takes advantage of the human abilities of visual-spatial orientation and remembering visual “landmarks”. By means of this concept, users are able to utilize zooming and panning operations as search strategy in the media collection (see fig. 2a-c). Analytical search methods are supported by *MedioVis 2.0* as another way to formulate information needs. Users are able to enter text queries into a search field on the upper right of the screen (see fig. 2d). With each key press the visual representation of matching objects expands. We use the concept of Dynamic Queries and Sensitivity that declare a direct highlighting of objects, which still match the current query instead of removing all non-matching objects. Portals provide a supplementary way of exploration. By selecting an arbitrary region of the information landscape via a bounding box, the user creates a portal, providing a special view on the underlying media objects. Through this concept, *MedioVis 2.0* offers multiple visualization techniques – for understanding, filtering and querying – ranging from a Rapid Serial Visual Presentation over the HyperScatter to the HyperGrid.

MedioVis 2.0 provides a unified user experience, not only on a desktop PC, but also on different devices such as shown for multitouch tabletops. To check the capability of the concept, we will transfer *MedioVis 2.0* to complementary devices like large high-resolution displays (e.g. public walls, digital “advertising pillars”) or mobile gadgets (e.g. smart phones, netbooks).

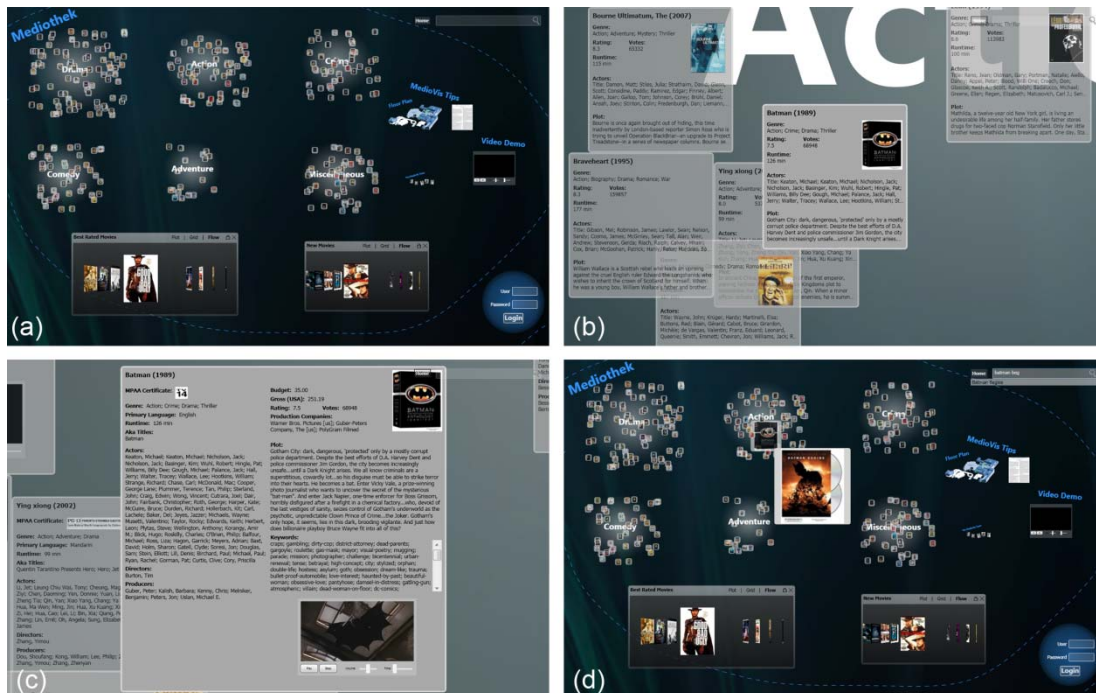


Fig. 2. (a) Initial screen of *MedioVis 2.0* (b) Zoomed into the action region (c) Most detailed semantic zoom level of a movie object (d) Query “batman begins” entered into the search field on the upper right.

URL(s) Associated With Your Project:

- <http://hci.uni-konstanz.de/MedioVis>
- <http://sourceforge.net/projects/mediovis/>
- <http://hci.uni-konstanz.de/permaedia>