

# Using a concept map as a visual interface: Intuitive information access and presentation in music

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**Abstract.** Based on our previously developed digital dossier for the contemporary art [1], we explored the extension and application of the digital dossier in different domains. In this paper, we describe the implementation of the digital dossier with a guided tour in the domain of music. The content consists of a small selected subset of musical artists during the period from 1960 till now. Using concept maps as a visual interface to navigate through a 3D environment, contributes to intuitively accessing and interpreting highly inter-related information.

## INTRODUCTION

When dealing with highly inter-related information structures in information systems, the use of concept maps as a simple and intuitive visual form of knowledge representation have potential as user interface paradigm: interactively displaying structural relationships and context.

This application was based on our previous project, digital dossier for performance artist Marina Abramovic. Using a visual concept graph for navigation, this paper explores the implementation to present different information (text, picture, video and 3D models) in the domain of music in 3D space. And it supports guided tours as an extension to the digital dossier to facilitate a new way of user interaction.

## BACKGROUND

Currently, concept map based user interfaces for decision making; planning, navigation, etc. are extensively available. Research indicates that certain visual languages like concept maps act as a working memory extension and enhances direct interpretation of information through pattern detection [2]. Many different visual user interfaces for navigation have already been realized. For example, an application named Visual Thesaurus<sup>1</sup> uses a concept map to visualize a lexicon. Interactively, users can search for words by keyboard input or using mouse input on the concept map to browse through the information.

## DIGITAL DOSSIER for MARINA ABRAMOVIC

This application<sup>2</sup> was an exploration based on our previous case study, digital dossier for the Serbian-Dutch performance artist Marina Abramovic. It was a project of a multimedia casus done by 9 students at Vrije Universiteit Amsterdam in cooperation with the Netherlands Institute for Cultural Heritage (ICN) in the domain of contemporary art.

The digital dossier was created with Virtual Reality Modeling Language (VRML). It presents itself as a digital archive in 3D space, containing information about the artworks of Marina Abramovic by presenting media content and relational structures. It serves as an information source for the museum's curators to conserve and install the artworks.

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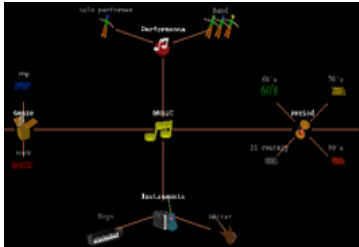
<sup>1</sup> <http://www.visualthesaurus.com>

<sup>2</sup> <http://www.few.vu.nl/~dossier05>

## DIGITAL DOSSIER for MUSIC

Recently, we applied the digital dossier technology in the domain of music<sup>3</sup>. The content of this music dossier is based on a small selection of musical artists during the period from 1960 till now.

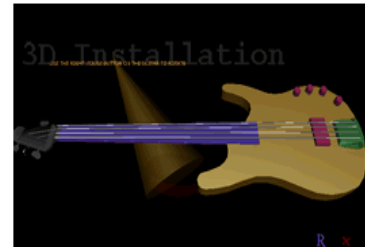
For navigation, we used a concept map that links multimedia elements in a structured hierarchy. The hierarchical structure is dynamic i.e. the selected information determines the presented hierarchy and visualizes parent-child relationships between information nodes. (*See figure 1*).



**Fig. 1.** Visualizing hierarchy



**Fig. 2.** Three windows gadget



**Fig. 3.** 3D model: electric guitar

For presentation of media content, we used a content gadget consisting of three windows positioned in a way that allows users to deal with multiple media simultaneously. (*See figure 2*).

Due to the use of 3D technology, the incorporation of 3D models representing real-life objects is relatively easily realized. These representations enhance the information richness of the dossier by providing interactive 3D exploration of real-life objects (*See figure 3*).

## EXTENSION with GUIDED TOURS

As an extension to the digital dossier, guided tours are created to facilitate a new way of interaction by controlling user's focus of attention. The guided tours are implemented as sequence of events that are time-based executed to emulate user interaction. We defined several frequently used scenarios to run automatically in the guided tour. The different selection criteria to present information by guided tours are based on: user profile filtering and menu based object selection. Our aim is to increase usability by presenting information in a narrative way based on user-centered selection criteria.

## CONCLUSION

In this paper, we elaborated the implementation of our digital dossier with an extension of guided tour in the domain of music. It explored the applicability of concept maps as a user interface for navigation in 3D presentation environment. Concept maps benefit intuitive and effective interpretation of information.

However, we are still facing the issue how to personalize the visuals, like whether users could set different presentation properties, number of nodes or type of concepts, etc. Furthermore, deploying the digital dossier in different domains in real world applications may reveal new issues for its further development.

## REFERENCES

1. Riel C., Wang Y., Zon O., Verweij T., Eliëns A., Presentation and Navigation of Contemporary art in 3D digital dossiers, <http://www.few.vu.nl/~dossier05>, 2005.
2. Scaife M. and Rogers Y., External cognition: how do graphical representations work?, International Journal of Human-Computer Studies, Volume 45 Issue 2, august 1996.

<sup>3</sup> <http://www.few.vu.nl/~cvriel/casus05/minidossier/index.html>