Fluid interaction for the document in context

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ABSTRACT

We explore in this paper the interface requirements for user's navigation within a mixed collection of 3D digitalized objects and textual documents. A specific application is history of technology where 3D and 2D documents are most of the time inter-related.

Categories and Subject Descriptors

H.5.2 [**Information Interfaces and Presentation**] : User Interfaces - *Interaction styles, prototyping*.

General Terms

Design, Experimentation

Keywords

Digital library, Virtual museum, 3D interaction.

The use of 3D representations for digital document management is slowly gaining acceptance. The 3 major desktop interfaces (Unix, Windows Vista, Apple Macos) now offer such tools for basic windows manipulations. Using a similar approach for the in-depth reading of digital books has been investigated in [1, 2, 3]. Another field where the 3D visualisation technologies appear naturally is digitization for the museums. This last type of application makes particularly necessary the use of textual metadata, but their presentation remains completely isolated from the interfaces of navigation within the collection of 3D objects. It therefore seems interesting to study the coexistence of textual documents and 3D objects within one single environment of visualization. Our potential field of application is digital libraries for the history of technology, where one would like to be able to associate machines or scientific devices, for example, and the works which describe them. We are interested in particular in the situations where this type of contextual association is not conceived *a priori*, by the author of a hypermédia, but *a posteriori* by a reader who has access to several sources of information that he/she compares.

The Figure opposes real (top left) and virtual working sessions (top right). For the first, original documents and objects are organized on a desk according to the user's abilities and preferences. The reading space requires an organization, an ergonomics, even an esthetics adapted to support an effective work. The digital counterpart relies usually on the desktop metaphor of WIMP interfaces in which various windows can be organized or resized at will. However, the size of such desktops is very reduced and does not allow to reach a productivity comparable with a traditional desk [4].
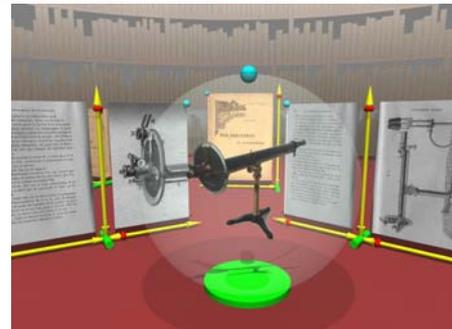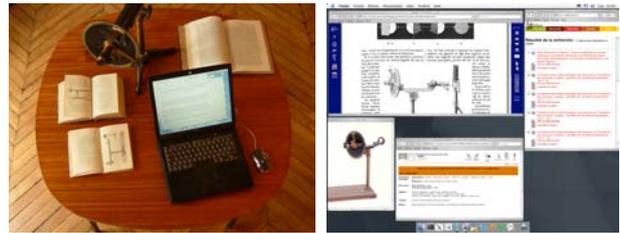
We have described in [1] how digital books can be displayed in a 3D scene with contrained movements. With 3D objects two functionalities are important : move/organize them freely and allow their study. The adopted solution (figure at the bottom) consists in a simple bounding sphere nonsensitive to rotations, associated with a positionning handle (a cylinder at its base). Rotations are computed from mouse movements on the bounding sphere. In its micro-environment limited to its bounding sphere, the 3D object does not undergo gravity. Thus, one can let it rest in the desired position that meets our needs for studying. The sphere and positioning artefacts undergo the gravity and the laws of the environment like the lecterns.

References

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