

Chapter 5

Intangible Heritage Management and Multimodal Navigation

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ABSTRACT

This chapter presents tools and methods which have been developed in order to manage and consult multimedia ethnographic archives for texts, images, audios (both music and speech), and videos. The system offers the user several retrieval strategies for querying the multimedia archive database by exploiting alphanumeric relational query, audio similarity query, clustering, and image and video similarity. Once a subset of information meeting the user's needs has been identified, this can be displayed in a 3D virtual exhibition which can be visited interactively. The system presented is actually exploited to manage and multimodally navigate the Archive of Ethnography and Social History of the Italian Lombardy Region with some 18,000 oral documents, 3,000 textual transcriptions, 2,000 musical transcriptions, 5,000 MP3 audio files, 10,000 photos, and 500 videos.

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INTRODUCTION

According to the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage of Unesco (Unesco, 2003), the intangible cultural heritage (ICH) – or living heritage – is defined as the practices, representations, expressions, as well as the knowledge and skills, that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. The Convention states that the ICH is manifested, among others, in the following domains:

1. Oral traditions and expressions including language as a vehicle of the intangible cultural heritage;
2. Performing arts (such as traditional music, dance and theatre);
3. Social practices, rituals and festive events;
4. Knowledge and practices concerning nature and the universe;
5. Traditional craftsmanship.

The Archive of Ethnography and Social History of the Italian Lombardy Region (AESS) (AESS, 2009) (Renata Meazza, 2008) was founded to preserve, study, and enhance the value of documents and images of the life, social transformations, literature, oral history, material culture, and anthropic landscapes of the Lombard territory.

The archive is composed of 18,000 oral documents, 3,000 textual transcriptions, 2,000 musical transcriptions, 5,000 audio files in MP3 format, and 10,000 photographic documents, that are related to photographs, and 500 videos. It is managed through a database which integrates the catalogue cards with multimedia objects of different types: audio files, images, digital videos, textual transcriptions, musical scores, etc.

On-line museums and archives call for tools and methods to navigate their contents and to provide the facilities of the search, browsing, clustering and visualization of multimedia data.

To support the search of information, digital archives generally employ three different retrieval modes, considered alternative, the alphanumeric relational query; the content-based query, exploiting automatically computed low-level image features (such as colour and texture); and the textual similarity query, exploiting any textual notations attached to database items (such as captions or textual cards...).

The text-based approach, although effective for the expression of high-level features of the documents, may imply a considerable manual task in indexing and is clearly not suitable for the description of purely visual contents, such as texture, or contour or of audio content. On the other hand, the low-level features may not precisely model the user's perception: for example the system's inference of texture may be quite different from the user's. Consequently all these indexes must be integrated to provide a complete and accurate description of the documents, and, since the objective of the user's queries can not be defined in advance, it is evident that user feedback must be considered in the retrieval.

In designing a system able to manage multimedia data, as in the case of the AESS database, these main problems have therefore to be addressed:

- what navigation paradigms should be offered to the users?
- what information should be used for the retrieval purposes?
- how does the system evaluate the match between the query and the database items ?
- how can non-expert users interact with the system in an intuitive way ?

In this chapter we shall address all these issues together with the solution we propose and the tools and methods which have been developed and integrated into a single system, in order to manage and consult multimedia ethnographic archives.

Our system is able to manage all the three types of retrieval modes to navigate the AESS ethno-

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