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Multimedia contents and management

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IJDL special issue on multimedia contents and management

This special issue presents eight very interesting papers related with different perspectives of multimedia and digital libraries. Each paper addresses a specific issue, reporting from experimental work to fresh new ideas. All together they present a glimpse of the state of the art in fundamental areas in multimedia, where the digital libraries perspective is always present.

Indexing, classification and search and retrieval

Four papers present four different perspectives on the subjects of Indexing, Classification and Search and Retrieval.

“A digital library framework for biodiversity information systems”, by Claudia Medeiros and Marcos André Gonçalves, proposes a novel system, combining traditional text retrieval and image retrieval functionalities, which can help biodiversity researchers improve their productivity. The metadata exchange architecture is OAI-PMH compliant, and its effectiveness is demonstrated by experimental results.

Still dealing with images, “Machine annotation and retrieval for digital imagery of historical materials”, by James Wang, Kurt Grieb and Ching-chih Chen, presents solutions for machine annotation and retrieval of digital

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images of historical materials. The paper investigates the application of new algorithms in a typical digital libraries collection of images.

After still images, we have video. “Automatic content based retrieval and semantic classification of video content”, by Ankush Mittal and Sumit Gupta, addresses the problem of building a framework to handle a space rich enough to characterize semantically a significant number of video classes.

Finally, and because the world is not all flat, “An experimental effectiveness comparison of methods for 3D similarity search”, by Tobias Schreck, Daniel Keim and Dietmar Saupe, presents a survey and classification of current state-of-the-art methods for 3D similarity search, with interesting experimental evaluations of these methods.

Structured contents

Structured content is a fundamental issue in multimedia. An example is given to us by the paper “Multihierarchical XML markup of image-based electronic editions: Issues, data structures, and algorithms”, by Alexander Dekhtyar, Ionut Iacob and Jerzy W. Jaromczyk. It describes data structures and algorithms to deal with image-based electronic editions, whose main challenge is their multi-hierarchical nature. It is interesting to see not only the new challenges but also the new opportunities for the old media in the digital library.

In the video arena, but focusing on its audio, “Audio-based visualizing and structuring of videos”, by Hadi Harb and Liming Chen, presents the concept of audio chapters, which are homogeneous acoustic environments like dialogue segments, calm speech, low music etc. The paper presents also extensive experiments with a proposed segmentation algorithm, an interesting example of the kind of thoughtful experimentation needed to drive the field of multimedia analysis forward.

Finally, “*The design and implementation of a digital music library*”, by Jianzhong Li and Shengfei Shi, presents a proposal for a data model and a query language that enables resource discovery in a music digital library implemented in a relational database, so that it can take advantage of the strengths of traditional database technology. This framework allows the user to perform content-based and fine-grained queries. These are very important issues in multimedia digital libraries, where there is a special need to allow specific feature-based access to reach a full potential of value to the end user.

Future infrastructure

Finally, we have one paper addressing a problem related with infrastructure. “BroadScale: Efficient Scaling of Heterogeneous Storage Systems”, by Shu-Yuen Yao, Cyrus Shahabi and Roger Zimmermann, presents a set of techniques for distributing data across a variable set of heterogeneous disks. It seems like a very practical engineering solution for a fundamental digital library issue. The perfect case to close this very interesting special issue!