Self-describing schemes for interoperable image and video content descriptions

With the use and maturation of the Internet, as well as the employment of regional and local networks, it has become increasingly easy to access digital multimedia information. Congruently, the ability to adequately and easily browse, filter, and process all of the raw multimedia content currently available through these databases is important. To this end, standardization efforts, such as those of the Motion Picture Expert Group (MPEG), have emerged to aid in the organization of multimedia information, but are still in need of improvement. This technology includes a number of techniques for describing multimedia content in a standardized, interoperable manner. Through development of description schemes that utilize eXtensible Markup Language (XML), these techniques maximize the flexibility of these schemes, for application among heterogeneous databases.

Interoperable multimedia content descriptions to improve organization of image and video content for application across heterogeneous databases and search engines

This technology describes a proposal to the MPEG-7 standardization efforts, through generation of a means of standardizing the use of descriptors for the organization of multimedia content stored among heterogeneous databases. Specifically, this technology provides content description schemes for describing generic multimedia information in both images and videos, and also provides techniques for implementing these schemes. In order to do so, the technology decomposes images and videos and then extracts visual features from each of these components and assigns keywords to describe them. These description schemes are self-describing in that images are represented as a set of objects organized into a hierarchical structure, all within the same format. This allows for the development of descriptions that are flexible, easily validated, and efficient. Consequently, it is possible for these descriptions to be used in an interoperable way across heterogeneous databases, as well as to enhance metasearch systems that mediate multiple search engines for audio-visual information.

The feasibility and efficiency of these self-describing schemes has been shown in an MPEG-7 testbed, which includes testing of these schemes on both an intelligent search engine with associated expressive query interface and a metasearch system.
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Applications:

• Technique for describing multimedia information
• Technique for implementing standardized multimedia content description schemes for use across heterogeneous databases
• Tool to facilitate multimedia searching, filtering, browsing, and summarization on search engines and metasearch engines
• Apparatus for performance of general Internet and regional or local network searches for multimedia content

Advantages:

• Standardized technique for generating description schemes for application among multiple databases and search engines
• Utilizes XML to ensure maximum interoperability and flexibility
• Can organize content either based on generic characteristics or semantic relationships
• Allows for the exchange of multimedia content among heterogeneous audio-visual databases

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Related Publications:


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