

An Intelligent Image Retrieval System using XML

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Abstract

With the rapid development of internet technology, the number of internet users and the amount of multimedia information on the internet is ever increasing. Recently, the web sites, such as e-business sites and shopping mall sites, deal with lots of image information. As a result, it is required to support content-based image retrieval efficiently on such image data.

This paper proposes an intelligent image retrieval system, which adopts XML technology. To support object-based content retrieval on product catalog images containing multiple objects, we describe a multi-level metadata structures representing the local features, global features, and semantics of image data. To enable semantic-based and content-based retrieval on such image data, we design a XML-Schema for the proposed metadata. We also describe how to automatically transform the retrieval results into the forms suitable for the various user environments, such as web browser or mobile browser, using XSLT. The proposed scheme can be utilized to enable efficient image metadata sharing between systems, and it will contribute in improving the retrieval correctness and the user's satisfaction on content-based e-catalog image retrieval.

1. Introduction

Recently, the usage of multimedia information is ever increasing with the rapid development of multimedia technology[1].

This paper is an effort to make e-catalog images better utilized by adopting XML technology. To support object-based content retrieval on product catalog images containing multiple objects, we describe a multi-level metadata structures representing the local features, global features, and semantics of image data. To enable semantic-based and content-based retrieval on such image data, we design a XML-Schema for the proposed

metadata and show how to represent such metadata using XML documents.

2. System Architecture

This paper proposes a system, called IIRS(Intelligent Image Retrieval System), that can support intelligent image retrieval by utilizing dynamic XML documents. We utilize commercial database systems as storage systems to make our system stable and cost-effective. The system architecture is shown in figure 1.

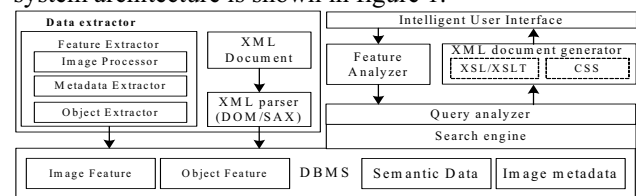


Figure 1. System architecture of the IIRS

3. Image Metadata Modeling using XML

we propose multilevel metadata structures for intelligent image retrieval. Image metadata is data for image data. Figure 2 shows the section, which defines image metadata information in an XML-Schema document.

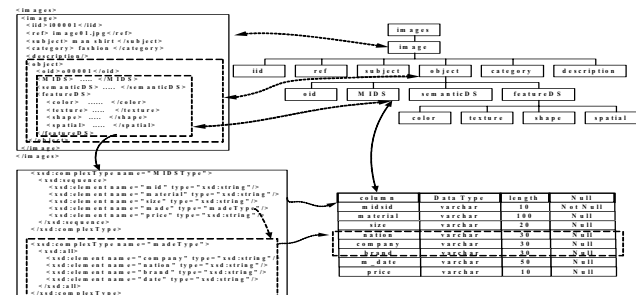


Figure 2. Mapping XML schema to relational tables

4. References

- [1] Hong, S., Lee, C., and Nah, Y., "An Intelligent Web Image Retrieval System," Proceeding of SPIE: Internet Multimedia Management System II, Vol.4519, August 2001, pp.106-115.

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