Abstract

The tremendous growth of the World Wide Web has led to a considerable amount of information flooding in recent years. A huge volume of multimedia information that includes text, audio, video and image data, is being generated continuously, requiring the multimedia web databases to store them. This enormous data volume also necessitates efficient indexing mechanisms to facilitate faster retrieval. Multimedia systems and content-based image retrieval (CBIR) go hand in hand and they together have become one of the most challenging fields of research. CBIR addresses the problem of retrieval of relevant images from voluminous multimedia repositories using low-level image features. This work is aimed at retrieval of multimedia (specifically images) from the web. The CBIR approach is primarily an attribute-based representation of the images integrated with text-based retrieval. Web-pages containing the concept images are retrieved using the TF-IDF relationships. Concept ontology has been developed for augmenting
the retrieval process. The proposed a keyword-based approach to image retrieval that uses the concept ontology information for intelligent retrieval eliminates manual annotation of images (web pages) by using ontology vocabulary in automated text extraction. Ontology serves as a means for providing semantic information about the objects in the domain of interest. Initial experimentation with the prototype system has lead to more precise search with a better average retrieval time. Use of concept ontology involving a document centered approach to image search yielded promising results.

References


Index Terms

Computer Science
Computational Intelligence

Keywords
CBIR  concept ontology  semantic gap  Image Content  multimedia retrieval  TF-IDF
keyword-based image search