**Xiang, Z. & Huang, T. (2002). Unifying keywords and visual contents in image retrieval. *IEEE Multimedia*, 9(2), 23-33.**

Keyword: Information retrieval, content based image retrieval

Xiang and Huang (2002) explained that image retrieval systems allow individuals to browse, search and retrieve images from a large database of digital pictures. However, while there are a number of image retrieval methods available, the authors focused on Content Based Image Retrieval (CBIR). They postulated that this involves analyzing the

contents (such as colors, shapes, textures and so on) of the image itself in order to aid the retrieval process.

The authors contended that CBIR systems provide unsatisfactory retrieval results as they are restricted by low-level features that are not able to easily interpret users’ high-level concepts. They put forward that textual annotations would improve the retrieval performance, and used their paper to explore the possibility of unifying keywords and feature contents.

In order to achieve this feat, the authors proposed a seamless joint querying and relevance feedback scheme. They explained that this scheme is based on the incorporation of keyword similarities in both keywords and low-level visual contents. Additionally, the authors developed an algorithm for a learned word similarity matrix and carried out experiments to validate their theory.