Appendix A

List of Publications

A. Journals


Communicated Paper

Appendix B

Scope of Future Work

The following developments can be made in future:

- **Relevance feedback**: Content Based Image Retrieval (CBIR) has become one of the most active research areas in the past few years. Many visual feature representations have been explored and many systems built. While these research efforts establish the basis of CBIR, the usefulness of the proposed approaches is limited. Specifically, these efforts have relatively ignored two distinct characteristics of CBIR systems. (1) The gap between high level concepts and low level features (2) Subjectivity of human perception of visual content. For further study, we propose a relevance feedback based interactive retrieval approach which effectively takes into account the above two characteristics of CBIR. With relevance feedback, it is possible to establish the link between high level concepts and low level features. During the retrieval process, the user’s high level query and perception subjectivity are captured by dynamically updated weights based on the user’s feedback.

**Segmentation**: Although attempts have been made to perform CBIR in an efficient way based on color, texture, shape and spatial relations, a major problem in this area is computer perception. There remains a big gap between low-level features like shape, color, texture and spatial relations, and high-level features like windows, roofs, flowers etc. Region-based approach has recently become a popular research trend. Region-based retrieval systems attempt to overcome the deficiencies of color histogram and color layout search by representing images at the object-level. A region-based retrieval system applies image segmentation to decompose an image into regions, which correspond to objects if the decomposition is ideal. The object-level representation is intended to be close to the perception of the human visual system. Many retrieval systems match images based on individual regions. Such systems include e.g., the Netra system and the Blobworld system. For further study, images may be segmented to form objects and to increase the retrieval speed during query, objects may be clustered again using efficient clustering algorithms.