

Image analysis and Optimal Storage

MRP(S)-17/12-13/KABA028/UGC-SWRO

Abstract

Production of digital images from cameras, mobile phones, camcorders, video films and scanned images has increased exponentially in the past decade. Increasing number of digital devices have influenced human to an extent of taking the same scenes in multiple views. The images obtained have to be stored for future retrieval. Though the multiple views of same scenes produce images with negligible difference, the storage requirement of each image is considerably more. Thus it has become a great challenge with respect to storage. The web content of images witness a predominant growth in media storage as well. Thus a system that will address optimal storage and efficiently analyze the content of the images in order to be indexed is addressed to facilitate efficient retrieval.

The Research work attempted to address the said objectives namely optimal storage and efficient retrieval. Storage optimality has been handled by considering redundancy removal and bit plane compression techniques by taking advantage of the problem domain and shown to reduce considerable reduction in memory storage. Secondly, the efficiency in retrieval is attempted through image content. The image content is segmented using image context. The person of interest, the objects that signify and identify a scene are identified and used as training the data set. The images are classified using hierarchical decision trees. Person and object identification have been proved successful by training the classifiers. This could thus be extended to further levels of hierarchy by appropriately choosing the attributes that describe the decision tree. Person identification could also be extended for various applications namely surveillance and biometrics. The classified images could be tagged using the predefined classes to enable efficient retrieval.