Abstract

Principal Component Analysis (PCA) is an efficient method for compressing high dimensional databases [1]. For image compression, it is called Hotelling or KL transform. The central idea of PCA is to reduce the dimensionality of a data set in which there are a large number of interrelated variables. [2] This reduction is achieved by transforming to a new set of variables, the principal components, which are uncorrelated, and which are ordered so that the first few retain most of the variation present in all of the original variables. Computation of the principal components reduces to the solution of an Eigen value – Eigen vector problem for a positive-semi definite symmetric matrix [2]. In spite of ordinary applications which utilize the PCA method for dataset compression, in this paper, a new method is introduced to compress a single image in RGB color space using the correlations between three Red, Green and Blue color domains.

References


**Index Terms**

Computer Science  
Image Processing

**Keywords**

Hotelling  
compression ratio  
Eigen value  
Eigen vector  
Principal Component Analysis  
compression  
color image