

Image reconstruction using singular value decomposition

Abstract

The singular value decomposition (SVD) is an effective tool to reconstruct the image approximately towards the original image. This paper will introduce and explore image reconstruction by applying the SVD on gray-scale image. As quality measurements, we used Compression Ratio (CR) and Root-Mean Squared Error (RMSE). The results indicated that for certain images the value of k is smaller than for other images. The value of k is defined as the rank for the closest matrix and the constant integer k can be chosen expectantly less than diagonal matrix n , and the digital image corresponding to outer product expansion, Q_k still have very close to the original image.