A VQ-Based Image Compression for Grey-Level Image Sequences

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ABSTRACT

A number of methods have been proposed for the compression of continuous image sequences. However, they only deal with binary images, which greatly limit their popularity in applications. In this thesis, we proposed a VQ-based method for compressing continuous grey-level images which have great similarity between two adjacent images. Four sets of continuous image sequences, each consists of 9 images with image size of 256x256 pixels, were used for testing the performance of the proposed method. Each image was first segmented into a number of 3x3 or 4x4 blocks, and then LBG algorithm was used for training a set of codebook consisting of 512 codewords capable of delineating features of the continuous image sequence. For further increasing the compression performance, JPEG-LS algorithm was applied to compress the codebook and index images of the sequential images. The results show that the compression ratio achieved by using the proposed method is significantly higher than AVI, while the image quality of the reconstructed images has been hold at a satisfied level. Future works will expand the method to application of lossless compression in medical image sequences. Keywords - Vector quantization, continuous image, image compression, AVI.

Keywords : Vector quantization ; continuous image ; image compression ; AVI

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