Abstract

In this paper we present an effective clustering algorithm to generate codebook for vector quantization (VQ). Constant error is added every time to split the clusters in LBG, resulting in formation of cluster in one direction which is 1350 in 2-dimensional case. Because of this reason clustering is inefficient resulting in high MSE in LBG. To overcome this drawback of LBG proportionate error is added to change the cluster orientation in KPE. Though the cluster orientation in KPE is changed, its variation is limited to ± 450 over 1350. KEVR introduces new orientation every time to split the clusters. But in KEVR the error vector sequence is the binary representation of numbers, so the cluster orientation change slowly in every iteration. To overcome this drawback we propose the technique which uses Walsh sequence to rotate the error vector. The proposed technique (Kekre’s error vector rotation using Walsh – KEVRW) is based on KEVR algorithm. The proposed methodology is tested on different training images for code books of sizes 128, 256, 512, 1024. Our result shows that KEVRW gives less MSE and high PSNR compared to LBG, KPE and KEVR.
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New Clustering Algorithm for Vector Quantization using Walsh Sequence


Index Terms

Computer Science

Image Processing

Keywords

Codebook  Code vector  Encoding  Walsh Function  Codebook Generation Algorithm

Image Compression.