FAST SEARCH METHOD FOR IMAGE VECTOR QUANTIZATION BASED ON EQUAL–AVERAGE EQUAL–VARIANCE AND PARTIAL SUM CONCEPT (WedPmPO1)

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Abstract :
The encoding process of image vector quantization (VQ) is very heavy due to it performing a lot of k–dimensional Euclidean distance computations. In order to speed up VQ encoding, it is most important to avoid unnecessary exact Euclidean distance computations as many as possible by using features of a vector to estimate how large it is first so as to reject most of unlikely codewords. The mean, the variance, L2 norm and partial sum of a vector have been proposed as effective features in previous works for fast VQ encoding. Recently, in the previous work [6], three features of the mean, the variance and L2 norm are used together to derive an EEENNS search method, which is very search efficient but still has obvious computational redundancy. This paper aims at modifying the results of EEENNS method further by introducing another feature of partial sum to replace L2 norm feature so as to reduce more search space. Mathematical analysis and experimental results confirmed that the proposed method is more search efficient compared to [6].