A Fast Encoding Algorithm for Vector Quantization Using Difference Pyramid Structure

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Abstract

This paper proposed a fast VQ encoding algorithm, called difference pyramid search (DPS).
According to the formation of the difference pyramid and partial distortion elimination (PDE), a
rejection test inequality is derived to progressively reject a lot of non-closest codewords as early as
possible. Experimental results show that the proposed DPS algorithm outperforms other pyramid
based fast search algorithms, including mean pyramid search (MPS), L2-norm pyramid search
(L2NPS), and mean-variance pyramid search (MVPS)

Keyword：Difference pyramid, mean pyramid, partial distortion elimination, vector quantization