

Quick Sequential Search Algorithm Used to Decode High-Frequency Matrices

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Abstract : This research proposes a data encoding and decoding method based on the Matrix Minimization algorithm. This algorithm is applied to high-frequency coefficients for compression/encoding. The algorithm starts by converting every three coefficients to a single value; this is accomplished based on three different keys. The decoding/decompression uses a search method called QSS (Quick Sequential Search) Decoding Algorithm presented in this research based on the sequential search to recover the exact coefficients. In the next step, the decoded data are saved in an auxiliary array. The basic idea behind the auxiliary array is to save all possible decoded coefficients; this is because another algorithm, such as conventional sequential search, could retrieve encoded/compressed data independently from the proposed algorithm. The experimental results showed that our proposed decoding algorithm retrieves original data faster than conventional sequential search algorithms.

Keywords : matrix minimization algorithm, decoding sequential search algorithm, image compression, DCT, DWT

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