

Title (en)  
DIGITAL IMAGE COMPRESSION USING TILE SUBDIVISION

Title (de)  
DIGITALE BILDKOMPRESSION MIT BLOCKUNTERTEILUNG

Title (fr)  
COMPRESSION D'IMAGES NUMERIQUES A L'AIDE DE LA SUBDIVISION EN CHAMPS

Publication  
**EP 0701755 A1 19960320 (EN)**

Application  
**EP 94918674 A 19940531**

Priority  
• US 9406125 W 19940531  
• US 7184693 A 19930604

Abstract (en)  
[origin: WO9430002A1] A system and method of compressing a digital image perform a maximum quantization of the image into two colors, followed by an iterative incremental increase in detail until a desired level of compression is attained. The iterative incremental increase in detail is accomplished by successively subdividing the image into smaller tiles and coloring all pixels within each tile with a limited color palette. A digital image is subdivided into tiles. Initially, all of the tiles undergo a severe color reduction process, wherein two colors, referred to as "high" and "low" are selected for each tile, and each pixel within the tile is assigned one of the two colors, to form a binary string. A mean-squared error (MSE) for each tile is calculated. Then, a recursive process begins wherein the tile having the highest MSE is subdivided into two parts, known as "subtiles". New "high" and "low" colors are selected for each subtile, and each pixel within each subtile is again assigned one of the two colors. A new MSE is calculated for each of the two subtiles. Subdivision of the highest-MSE tile or subtile is performed repeatedly until a limit condition is reached. Such a limit condition may be defined as a maximum data size, or a maximum allowable MSE, or a maximum projected decompression time, or any other measurable condition. Image quality depends almost entirely on the percentage of compression, which is continuously variable and may be controlled by several factors, such as data size or visual quality. Thus, the technique is ideal for applications in which a predefined amount of space is available for image storage, or in which some other limit condition is known in advance. Once the limit condition has been reached, a data stream is formed that describes the subtile arrangement, the "high" and "low" colors for each tile, and the color assignment for each pixel.

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