The Chinese University of Hong Kong
Non-confidential Abstract of Technology Disclosure

Title:

Method for Compression of Loss-Tolerant Video Image Data from Multiple Sources

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Non-confidential abstract:

Data as may be employed in telecommunication is segmented into blocks, each block having associated therewith a metric of distortion as a function of the number of bits in the block to represent the quality of the data contained in the block. Within the blocks, bits are ordered according to significance. The blocks are then ranked according to the distortion metric, then the lowest significant bits of blocks having the lowest distortion metrics are dropped and bits are allocated to other blocks having the highest distortion metrics in order to redistribute the quality or distortion of each of the blocks for transmission (or subsequent compressed storage). Each of the blocks can thus be transmitted at substantially the same level of distortion within a channel which is bandwidth restricted compared to the maximum possible resolution of the data, thus minimizing imbalances in quality among the blocks of data and maximizing channel efficiency. A particular application of this data compression technique is in video data compression wherein each of the data blocks contains the coefficients of a discrete cosine transform, wherein the quality of the data actually needs to be substantially equal among all the blocks of data and wherein the data itself is loss-tolerant within each of the blocks of data. The invention has particular application in an MPEG block encoding and decoding scheme. A further application of this data compression technique is in the multiplexing of blocks of data from different images into a common channel for transmission.

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