Improved Image Compression System Using Block Transforms and Tree-Type Coefficient Truncation

INVENTORS • Truong Nguyen, Trac Tran, Yu Hen Hu

WARF: P97054US
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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an image compression system that combines block transforms and tree-type coefficient truncation to improve speed and reduce buffer memory usage.

OVERVIEW

Color images displayed on a computer may have the equivalent of one hundred pages of text information. Higher quality images strain the capacity of common data storage media and take many minutes to transmit over telephone communication channels. Because of the growing use of digital cameras and the graphics-intensive Internet, methods for image and data compression have become increasingly important.

A block transform process can be used to reduce the amount of buffer memory required for the transformation process and also to reduce the time required for compressing and decompressing the image data; however, one disadvantage of this technique is that at high compression ratios, block artifacts show up in the reconstructed image. An improved data compression technique is needed.

THE INVENTION

UW–Madison researchers have developed an apparatus and a method for compressing the size of a digitized signal. The method combines the benefits of block-wise processing with tree-type compression. The apparatus comprises a block selector, frequency analyzer, tree sequencer and coefficient truncator and may further include a quantizer and an entropy encoder. The researchers also include an apparatus for decompressing a compressed digitized signal.

APPLICATIONS

• Data compression systems
**KEY BENEFITS**

- Reduced buffer memory usage
- Improved speed through parallel techniques
- Provides a further stage of compression of frequency coefficients of block transformed data
- Provides the benefits of block transformation of digital signals without the need to conform to a rigid octave filter structure
- Eliminates the block artifacts normally associated with block transform type compression systems

**ADDITIONAL INFORMATION**

**Tech Fields**
Information Technology - Image processing

**CONTACT INFORMATION**

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846.