A Fuzzy Neural Networks based EZW Image Compression System

Abstract

The transport of images across communication paths is an expensive process. The limitation in allocated bandwidth leads to slower communication. To exchange the rate of transmission in the limited bandwidth the image data must be compressed before transmission. JPEG2000 image compression system follows huffman coding for image compression. Embedded zero tree wavelet (EZW) coding exploits the multi-resolution properties of the wavelet transform when compared to existing wavelet transforms. Artificial Neural Network has been applied to many problems in image processing and has demonstrated their superiority over classical methods when dealing with noisy or incomplete data for image compression applications. A fuzzy optimization design based on neural networks is presented as a new method of image processing. The combination system adopts a new fuzzy neuron network (FNN) which can appropriately adjust input and output values, and increase robustness, stability and working speed of the network by achieving high compression ratio.

Reference

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Index Terms
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Computer Science  

Signal Processing

Key words

Bandwidth

Compression

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JPEG2000

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