Abstract

Text and image data are important elements for information processing almost in all the computer applications. Uncompressed image or text data require high transmission bandwidth and significant storage capacity. Designing an efficient compression scheme is more critical with the recent growth of computer applications. Modern applications, in addition to high compression ratio, also demand for efficient encoding and decoding processes, so that computational constraint of many real-time applications is satisfied. Two generally utilized spatial area pressure strategies are block truncation coding (BTC) and vector quantization (VQ). BTC strategy brings about great quality picture with high piece rate, while the VQ is notable for low piece rate yet creates low quality pictures. In further work of this paper is multi-level BTC includes BTC algorithm as well as vector quantization method for purpose of multi-level technique for gray and color image.
1. Sunwoong Kim and Hyuk-Jae Lee, “RGBW Image Compression by Low-Complexity Adaptive Multi-Level Block Truncation Coding”, IEEE Transactions on Consumer Electronics, Vol. 62, No. 4, November 2016.

2. C. Senthilkumar, “Color and Multispectral Image Compression using Enhanced Block Truncation Coding [E-BTC] Scheme”, accepted to be presented at the IEEEWiSPNET, PP. 01-06, 2016 IEEE.

3. Jing-Ming Guo, Senior Member, IEEE, and Yun-Fu Liu, Member, IEEE, “Improved Block Truncation Coding Using Optimized Dot Diffusion”, IEEE Transactions on Image Processing, Vol. 23, No. 3, March 2014.

4. Jayamol Mathews, Madhu S. Nair, “Modified BTC Algorithm for Gray Scale Images using max-min Quantizer”, 978-1-4673-5090-7/13/$31.00 ©2013 IEEE.

5. M. Brunig and W. Niehsen. Fast full search block matching. IEEE Transactions on Circuits and Systems for Video Technology, 11:241 – 247, 2001.

6. K. W. Chan and K. L. Chan. Optimisation of multi-level block truncation coding. Signal Processing: Image Communication, 16:445 – 459, 2001.

7. Ki-Won Oh and Kang-Sun Choi, “Parallel Implementation of Hybrid Vector Quantizer-based Block Truncation Coding for Mobile Display Stream Compression”, IEEE ISCE 2014 1569954165.

8. Seddeq E. Ghrare and Ahmed R. Khobaiz, “Digital Image Compression using Block Truncation Coding and Walsh Hadamard Transform Hybrid Technique”, 2014 IEEE 2014 International Conference on Computer, Communication, and Control Technology (I4CT 2014), September 2 - 4, 2014 - Langkawi, Kedah, Malaysia.

9. C. C. Chang and T. S. Chen. New tree-structured vector quantization with closed-coupled multipath searching method. Optical Engineering, 36:1713 –1720, 1997.

10. C. C. Chang, H. C. Hsia, and T. S. Chen. A progressive image transmission scheme based on block truncation coding. In LNCS Vol 2105, pages 383–397, 2001.

Index Terms

Computer Science | Image Processing

Keywords

Block Truncation Code (BTC), PSNR, Block Size, Compression Ratio