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COMPARATIVE STUDY OF IMAGE COMPRESSION ALGORITHMS FOR TRANSMISSION OVER WIRELESS NETWORKS

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Abstract

Typical wireless channels are of narrow bandwidth and noisy. So to improve performances of image transmission over wireless channels, higher compression with error resiliency is required. This paper reviews image compression algorithms for transmission over wireless networks. The performance is evaluated based on parameters: PSNR, bit-rate, scalability, Region of Interest (ROI) and computational complexity, etc. Scalability and ROI are useful for progressive transmission of compressed images over narrow bandwidth channels. With JPEG 2000 progressive transmission of images is possible due to Wavelet transform, and EBCOT algorithms. It is observed that compression efficiencies are reasonably comparable for the JPEG 2000 and AIC, which outperforms the conventional JPEG. Baseline JPEG 2000 is more error resilient to AWGN but its extension JPWL provides additional mechanism for error protection and correction. AVC/H.264 and HD Photo/JPEG XR algorithms are also studied for their suitability to image compression for Transmission over Wireless Networks.

Keywords : JPEG, JPEG 2000, AVC/H.264, AIC, Photo/JPEG XR and JPWL.