

A review of wave-net identical learning & filling-in in a decomposition space of (JPG-JPEG) sampled images

ABSTRACT

Continuous flow to send images via encrypted wireless channels may reduce the efficiency of transmission. This is due to the damage or loss of the numerous macro-blocks from these images. Therefore, it is difficult to rebuild these patches from the point of reception. Many algorithms have been proposed in the past decade, particularly error concealment (EC) algorithms. In this paper, we focus on the algorithms that have high efficiency to fill-in the corrupted patches. On the other hand, we also present a new way of detecting the horizontal and vertical gradients especially, in the un-smooth patches. This improves the edge detector filter. Ultimately, a novel scheme for vertical and horizontal interpolation between the corrupted pixels and the non-corrupted adjacent pixels is achieved by improving the efficiency of filling-in. We used a new technique known as the wave-net model. This model combines the wavelet with the neural network classifier (NNC). The neural network was trained in advance to reduce the error extent for the pixels that may occur in the error. The experimental results were convincing and close to the desired. The proposed method is able to enhance image quality in term of both visual perception and the blurriness effects (BE).

Keyword: Error concealment (EC); Blurry effects (BE); Sampled images (SI); Neural network classifier (NNC)