Entropy Map Generation for Image Enhancement

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Abstract. In this paper, a compromised deinterlacing method is proposed for the interlaced signals. We used two well-known methods: Bob method and efficient edge directed line average method. We used information entropy to assign weights. Simulation results show that the presented method provides satisfactory results.

Keywords: Color image, information entropy, down-sampling, edge map.

1 Introduction

In this paper, a compromised deinterlacing method is presented for interlaced signals. We used two well-known methods: Bob method and efficient edge directed line average method. Bob method is one of the simplest methods, which restore a missing line between two neighbor pixels existing in the interlaced images before displaying an image. In addition, we used efficient edge directed line average method.

2 Proposed method

Figure 1 shows the flowchart of the proposed method.

Fig. 1. Flowchart of efficient edge directed line average method. $P$ and $Q$ are dominant edge direction selector.
Figure 2 shows the block diagram of the proposed method.

![Block diagram of the proposed method](image)

**Fig. 2.** Block diagram of the proposed method.

## 3 Experimental Results

We used 500-by-500 size 18 McM images for the comparison. To assess objective performance, #11 McM image was used. Figure 3(a) is original image, Fig. 3(b) is entropy image, Figs. 3(c) and 3(d) are $M_1$ and $M_2$ results. The proposed method is shown in Fig. 3(e). Difference images between original and $M_1$ and $M_2$ are shown in Figs. 3(f) and 3(g).

## 4 Conclusion

This paper studies deinterlacing method. The interlaced signals are vertically restored by interpolation method. Efficient edge directed line average method and Bob were applied in this system. We used information entropy to assign weight strategy. Experimental results show that the presented method provides satisfactory results.
Fig. 3. McM image #11: (a) Original image, (b) entropy map, (c) $M_1$ result, (d) $M_2$ result, (e) proposed method, (f) difference between original and $M_1$, (g) difference between original and $M_2$, and (h) difference between original and proposed method.

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References