Hight capacity reversible data hiding by prediction algorithm for image

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ABSTRACT

In the image data hiding, reversible data hiding can extraction of information in the image and can restore the original image, which can guarantee integrality and exactness of the embed data. In reference, researcher proposed data hiding based on Histogram Modification, which embed the information on same absolute difference pixel value, hiding capacity to have relations with the number of same absolute difference pixel value, when the same difference pixel value presents the number of times to be more hiding capacity is bigger. In this paper, we proposed a hiding scheme with prediction method to improve the accuracy of the predicted values, which makes the difference highly centralized in ' 0' or ' 1' , that can raise the number of same absolute difference pixel value, then raise the higher capacity. Input cover image's pixel value x minus the predicted value generate the difference value, and statistical histogram. In the histogram identify the highest wave peak is p. Stego image gray values is y, data could be embedded in the pixel point with p. if the difference value greater than the pixel point with p, then y to be equal to x modified a constant. if the difference value to be smaller than the pixel point with p, then y to be equal to x. if the pixel after change greater than or equal 255 or the pixel after change smaller than or equal 0, make the gray value is 255 or 0,and additional record the gray change vaule . When using the JPEG-LS predictor ,the average capacity is 562224 bits and the average PSNR of the cover image is 43.31dB. In the same average capacity,the proposed method have higher image quality than other reversible data hiding scheme.

Keywords : Reversible data hiding　JPEG-LS　Histogram　Difference value　CALIC

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