

Among table 1, Method 1 refers to pixel weighted average fusion method; Method 2 refers to The pixel value selected large method; Method 3 refers to the wavelet coefficients weighted average fusion method; Method 4 refers to wavelet coefficient absolute selected large fusion method; Method 5 represents the hybrid algorithm fusion method based on wavelet transform; Method 6 represents that the improved wavelet second fusion method .

TABLE I Objective evaluation index of image fusion experiment

Index NO.	Objective evaluation index			
	Information entropy	standard deviation	average error	average gradient
Method 1	6.4753	0.1079	0.3467	0.0197
Method 2	6.0381	0.0773	0.2910	0.0158
Method 3	6.1503	0.0844	0.3394	0.0171
Method 4	6.6564	0.1121	0.4186	0.0304
Method 5	6.2020	0.0860	0.3394	0.0251
Method 6	6.5761	0.1199	0.3509	0.0271

From the evaluation index 1, four methods based on wavelet coefficient absolute and fusion method for large image information entropy, indicate that the image contains the original information is most, but the details of the image display is not clear; the improved wavelet transform two fusion methods of information entropy method is to select only to the absolute, but the details of the image are clearly visible, and the contrast of the image clear, distinct, conducive to the observers watch. After the analysis of the experimental results, the wavelet transform fusion strategy is improved by two times after fusion than the classic strategy can more effectively improve the fusion effect.

Image fusion evaluation in addition to quantitative analysis of the objective evaluation and subjective evaluation, qualitative analysis, the following table is the image fusion subjective evaluation [11] :

TABLE II Subjective evaluation index of image fusion experiment

Index No	score	quality index	Prevent index
1	5 points	very good	Can not see the image quality deterioration at all
2	4 points	good	Can see that the image quality is bad, but without prejudice to watch
3	3 points	general	See a deterioration of picture quality obviously, obstructing the viewing
4	2 points	bad	obstructing the viewing
5	1 points	worst	obstructing the viewing seriously

From table 2 of the subjective evaluation index, we can see the improved wavelet second fusion method image clearly in the portrait and landscape details, scores is between 4~5, near to 5,and image quality is much better than other fusion methods.

V. Conclusion

Aiming at the infrared and visible light images, this paper proposes an image fusion algorithm based on wavelet transform. The decomposed wavelet in image proceed on the high frequency and low frequency respectively by the respective fusion rules. The experimental results show that the fusion image obtained by using the fusion algorithm is beneficial to the whole scene understanding, experimental data and visual effects have demonstrated the effectiveness of the algorithm. After image fusion the image contains important information to be integrated and complementary information , and it is more suitable for human and machine vision, more conducive to further analysis and understanding of image.

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