

新型數位影像內容保護與修復技術之研究

A Study on New Techniques for Image Authentication and Repairing

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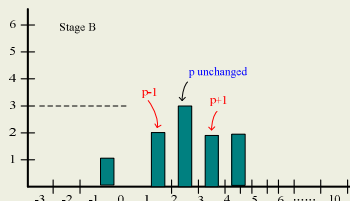
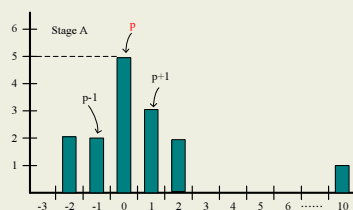
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Abstract

With the popularization of cloud service, a large amount of images which contain significant or private content now are stored at the far-end server. Users are hard to be aware of the tampering. The project develops an advanced digital image authentication method. When a protected image is tampered, the proposed image authentication method is capable of detecting, localizing, and recovering tampered regions. In addition, the project also develops a new reversible data hiding method based on the bicubic interpolation and histogram shifting technique. The reversible data hiding method will be utilized cooperatively in the proposed image authentication method mentioned previously to achieve the goal of losslessness.

Core Ideas

- Designing authentication signals with double functions, i.e. functions of authentication and Repairing
- Reversible data hiding --- Two stage histogram-shifting-based reversible data hiding & bicubic interpolation



Experimental results

Range of pixel value	No. of compressed codes	Compressed codes	Representative pixels
[0, 31]	0	000	16
[32, 63]	1	001	48
[64, 95]	2	010	80
[96, 127]	3	011	112
[128, 159]	4	100	144
[160, 191]	5	101	176
[192, 223]	6	110	208
[224, 255]	7	111	240



Experimental results

