Robust Digital Watermarking based on Key-Dependent Image Transform

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ABSTRACT

With rapid growth of multimedia, d igital information and digital images are broadly transferring via internet but some of them are illegal. We can use digital watermarking technique to embed watermark in digital images to announce the copyright of the owner. Watermark embedded in frequency domain can resist the Jpeg compression, if the basis transform is public, hackers can use the same basis to extract the watermark from the frequency domain. In this paper, we propose a key-dependent basis transform in our watermarking system in order to make the security high and make the watermark in the frequency domain can resist attack. We proposed a key-dependent and o rthonormal basis transform in our watermarking system. Since the basis functions or the key would be kept secrete, the watermark embedded in the transform domain is more robust and secure. To guarantee good robustness properties, the generated basis functions should have their energy concentrated mainly in low frequencies. Let the rows of the matrix H be arranged so that number of zero crossing increased with row number. After experiments, our watermarking system under Jpeg compression attack and smooth attack has a good resistance.

Keywords : image watermarking, orthonormal basis, public watermark detector, key-dependent basis transform,

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