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Abstract
In the recent years, the rapid development of network and multimedia technology makes it easier to access digital information, and circulation of digital image becomes very easy nowadays. Since the problems of harm to the author's rights become more serious than before, therefore, image authentication is an important and urgent issue to protect the intellectual property rights of digital image carried on Internet. Traditional watermarking schemes are mainly designed for either copyright protection or content authentication. Most existing watermarking schemes focus on one purpose, only a few multi-purpose image authentication schemes have been presented. Moreover, these methods focus on achieving the goals of both content authentication and copyright protection. Due to the semi-fragile watermarking methods become more and more important, we consider to propose a multi-purpose image authentication method with both semi-fragile image authentication and copyright protection. This method can be tolerated to JPEG and JPEG2000 compression, but sensitive to malicious attacks. At the same time, this method can verify ownership and identify the original owner.
This method is based on discrete wavelet transform (DWT) and we embed authentication information and watermark into original image. The authentication information is calculated from low frequency, and the watermark is generated from copyright information and standard deviation of coefficients in meddle frequency. Finally, we embedded these parts of information into the meddle-frequency of DWT domain. The experimental results show that our approach can locate the modified positions while authenticate the image. Simultaneously, it can verify ownership and identify original owner.
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