Abstract

With the gradual maturation of multimedia technology and the rapid development of network technology, it becomes more convenient to access and disseminate digital information, such as digital images, audio and digital video. Currently, the rapid escalation of the Internet has made the issue of protecting copyrights of digital contents very much important. Therefore digital watermarking technology is the most commonly researched and applied method to protect intellectual property rights. The paper acquaints the comparative study of Spatial and Frequency domain watermarking scheme for copyright protection of digital images with the
purpose of defending against digital piracy. A novel scheme to embed and extract binary image
watermarking in gray image based on LSB and DCT domain with their comparative results are
also presented. The paper recommends frequency based techniques for achieving
imperceptibility and robustness in digital image watermarking. By the use of Matlab software,
the efficiency of the proposed watermarking scheme has been demonstrated via the
experimental results.

References

- Manker, V. H., Das T. S., Saha S. and sarkar S. K. 2008 Robust image watermarking
  under pixel wise masking framework. First International Conference on Emerging Trends in
  Engineering and Technology, ICETET
- Guo, H., and Georganas N. 2002 Multi-resolution Image Watermarking Scheme in the
  Engineering, pp. 873-878.
- Cox, I. J., Kilian, I., Leighton T., and Shamoon T. Secure Spread Spectrum watermarking
- Guo, H. and Georganas N. May 2002 Multi-resolution Image Watermarking Scheme in the
  Engineering, pp. 873-878.
  wavelet transform. IEEE Transactions on industrial electronics, vol. 48, No. 5, pp 875-882
- Pawlak, M. and Xin, Y. May 2002 Robust Image Watermarking: An Invariant Domain
  Engineering, pp. 885-888,
  Tree Structure. Tech. Rep., Polytechnic University of Catalonia, Spain,
- Xiaolong, Li, Yang Bin, and Daofang Cheng. 2009 A generalization of LSB matching,
- Kelkar Yashovardhan, Shaikh Heena Analysis of Robustness of Digital Watermarking
  Under Various Attacks, IP Multimedia Communications A Special Issue from IJCA
- Dongyang, Teng, Renghui Shi, Xiaojun Zhao 2010 DCT Image Watermarking
  Technique Based on the Mix of Time-domain. 978-1-4244-6943-7/10, IEEE, pp. 826-830
- Wiseto, I., Agung P. 2002 Watermarking and Content Protection for Digital Images and
  Video. thesis of PhD in University of Surrey
  Watermarking Technique using Lifting Wavelet Transform – Singular Value, Decomposition,
  Electro/Information Technology (EIT) 2011 IEEE International Conference.pp.1 - 6
- Jin, Cong 2008 Digital Watermark Theory & Technology. Beijing: Tsinghua University
  Press.

Index Terms
Computer Science

**Keywords**
- Spatial domain
- frequency domain
- LSB
- DCT
- PSNR
- normalized Correlation (NC)
- attacks