

論文名稱：以視覺式秘密分享與小波轉為基礎之  
數位浮水印機制 總頁數：61

校(院)所組別：中國文化大學商學院資訊管理研究所

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研究生：劉怡伶

指導教授：杜淑芬

論文提要內容：

智慧財產權的保護在數位資料普及的近代是一項不容忽視的問題，而數位浮水印便是一種保護智慧財產權的方法。本文利用視覺密碼設計一套數位浮水印機制，將浮水印影像分解成兩份，其中一份分解影像藏入原始影像的小波係數中，而另一份分解影像則做為原始影像的所有者驗證所有權之用。在嵌入分解影像的位元時，本研究應用模數運算去修改小波係數的值，因此只需一個小波係數便能藏入一個分解影像的位元。

在驗證所有權時，只要將疑似盜版影像中的分解影像取出，與所有者手中的分解影像做重疊，即可驗證浮水印是否存在。本研究方法在驗證浮水印時不需要原始影像的輔助，同時本研究方法的安全性可藉由視覺密碼獲得確保。經實驗結果證明，本研究方法對於一般的影像攻擊具有不錯的強韌性。

關鍵字：智慧財產權保護，視覺密碼，浮水印，小波轉換

Digital watermarking based on visual secret sharing scheme  
and wavelet transform

Student: Yi-Lin Liu

Advisor: Prof. Shu-Fen Tu

Chinese Culture University

A B S T R A C T

The intellectual property rights protection is an important issue for digital data, and watermarking is a possible solution to resolving the dispute about the ownership. In this paper, we design a digital watermarking scheme based on visual cryptography. Applying visual cryptography, we split the digital watermark into two shares. One of the share is embedded into the wavelet coefficients of the original image by means of modular operations, and the other one is held by the author to verify the ownership of the original image. When proving the ownership, we extract the embedded share and combine with the author's share. If the watermark is appeared, then the ownership is proved. The merit of our scheme is that we can verify the ownership without the original image and watermark. Moreover, the security of our scheme is assured by visual cryptography. Finally, the experimental results show that our scheme is robust enough to resist some common attacks.

Key Words: intellectual property rights protection, visual cryptography, watermarking,  
wavelet transform