

應用調色盤與最小擴展樹之全彩影像資料隱藏

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摘要

Steganography是資料隱藏的一項應用，主要是將一個機密訊息藏入數位媒體裡加以隱藏後傳送給對方，以提高安全性和偽裝性。在steganography的研究中，有一些方法是將原始數位影像經過量化及分群後產生一組顏色（調色盤），再利用此調色盤中的顏色來表示原始全彩影像中的每一個像素，然後嵌入機密訊息後即可得到stego image。當接收端得到stego image之後，只要透過與發送者相同的調色盤及一定的程序處理後即可獲得機密訊息。但是以上的做法會讓stego image的影像品質受到調色盤顏色數目的限制，而且透過不同的量化及分群方法所得到的調色盤之性質與精確性也會有所差異，影響stego image的影像品質。本論文針對以上問題提出一個新方法，減少調色盤對stego image影像品質的影響。我們的研究是直接針對全彩影像作處理及資訊隱藏，避免過去的方法中，stego image因為顏色集合的限制而導致影像品質不佳。研究結果顯示本論文所提出的方法所產生的stego image沒有調色盤顏色數量的限制的問題，它仍然和原始影像一樣全彩影像。和先前的文獻方法比較，本論文所提出的方法除了可以維持資訊隱藏的容量之外，stego image的影像品質有相當程度的改善增加偽裝及安全性，避免入侵者的注意導致其對影像的破壞。

關鍵詞：調色盤；資料隱藏；量化及分群

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