# 植基於S-tree 技術的影像壓縮研究


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**摘 要**

使用空間資料架構描述二進位影像有一段悠久的歷史。S-Tree是一種描述二值化影像的空間資料架構，近年來，應用S-tree結構在影像壓縮的研究有無失真醫學影像壓縮及自然影像的廣先搜尋S-tree壓縮。 本論文提出一個修改植基於S-tree壓縮的描述灰階影像表示法。原始影像首先被分成N×N像素大小的次影像，利用Sobel遮罩計算影像的梯度及檢測方向性，建立邊緣梯度方向表。次影像根據二元樹分解規則劃分成同質性區塊的集合。在每個分解步驟，次影像交替在y 和x軸分割成為兩個相等的部份，接著計算同質性區塊的平均值，根據深先搜尋(DFS)，將次影像轉換成二元樹。隨著S-tree結構的建立，由一個邊緣梯度方向表，一個線性表及顏色表所組成的S-tree表示法用來描述相當於原始影像的劃分影像，以此達到壓縮影像的目的。 根據實驗的結果顯示，本論文提出的方法在相同的壓縮倍率下比廣先搜尋S-tree壓縮方法有較好的重建品質。



關鍵詞 : 影像壓縮 ; S-樹 ; 邊緣檢測


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