Subject: Re: Thinning algorithm without for loops
Posted by Paolo Grigis on Wed, 08 Aug 2007 07:33:25 GMT
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[...]
>
> This code implements the first iteration of Zhang-Suen thinning
> without a single for loop!
>

You are shifting "img" too many times... you only need to compute
your neighbors values p1... p8 first, and then you can have the
next statements use that values instead, for instance

tot=p1+p2+...+p8

and so on for the other conditions.

Ciao,
Paolo

> PRO zsthin,img,thinimg
>
> siz=size(img)
>
> ;Array to hold the sums we're looking for
> tot=lonarr(siz[1],siz[2])
>
> tot+=shift(img,1,0)
> tot+=shift(img,1,1)
> tot+=shift(img,1,-1)
> tot+=shift(img,0,1)
> tot+=shift(img,0,-1)
> tot+=shift(img,-1,0)
> tot+=shift(img,-1,1)
> tot+=shift(img,-1,-1)
>
> cond3=intarr(siz[1],siz[2])
>
> cond3[*,*]=1
>
> cond3*=shift(img,1,0)
> cond3*=shift(img,-1,0)
> cond3*=shift(img,0,-1)
>
> ;4. If P[1]*P[3]*P[5]=0
>

```
>  cond4=intarr(siz[1],siz[2])
>  cond4[*,*]=1
>
>  cond4*=shift(img,0,1)
>  cond4*=shift(img,1,0)
>  cond4*=shift(img,0,-1)
>
>  ;2. The number of 0-1 transitions in the ordered sequence
>  ;P[1],P[2],...,P[8],P[1] Is exactly 1
>
>
>  p1=shift(img,0,1)
>  p2=shift(img,1,1)
>  p3=shift(img,1,0)
>  p4=shift(img,1,-1)
>  p5=shift(img,0,-1)
>  p6=shift(img,-1,-1)
>  p7=shift(img,-1,0)
>  p8=shift(img,-1,1)
>
>  cond2=intarr(siz[1],siz[2])
>
>   p=[[[p1]],[[p2]],[[p3]],[[p4]],[[p5]],[[p6]],[[p7]],[[p8]],[ [p1]]]
>
>  FOR i=0,7 DO BEGIN
>     wh=where(p[*,*,i] eq 0 AND p[*,*,i+1] eq 1)
>     cond2[wh]+=1
>  ENDFOR
>
>  tvscl,cond2
>
>  wh=where(cond2 eq 1)
>
>  cond2[*,*]=0
>
>  cond2[wh]=1
>
>  wh=where(tot GE 2 AND tot LE 6 AND cond3 eq 0 AND cond4 eq 0 AND cond2
>  eq 1)
>
>  wh11=intarr(siz[1],siz[2])
>
>  wh11[wh]=1
>
>  newimg=img-wh11
>
>  newimg>=0
>
```

>
> END
>
>
> I'll do the second subiteration in a bit, should be too hard.
>