
Subject: Re: Thinning algorithm without for loops
Posted by [nathan12343](#) on Wed, 08 Aug 2007 17:41:24 GMT
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On Aug 8, 1:33 am, Paolo_Grigis <pgri...@astro.phys.ethz.ch> wrote:

```
> [...]
>
>
>
>> 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.

You are correct, thanks for pointing that out!

-Nathan
