
Subject: Re: Technique to find maximum in 100x100 element moving box

Posted by [Lajos Foldy](#) on Thu, 13 Oct 2016 18:56:46 GMT

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On Thursday, October 13, 2016 at 7:58:50 PM UTC+2, fawltyl...@gmail.com wrote:

> On Thursday, October 13, 2016 at 7:01:56 PM UTC+2, fawltyl...@gmail.com wrote:

>

>> Try this:

>

> Revised version, faster and without ifs:

>

> pro test

> nx=3200

> ny=3248

> m=100

>

> m2=m/2

> seed=123

> data=randomu(seed,nx,ny)

>

> tic

> tmp1=transpose(data)

> tmp2=fltarr(ny,nx,/nozero)

> FOR i = 0, nx-1 DO BEGIN

> FOR j = 0, m2 DO tmp2[j,i] = max(tmp1[0 :j+m2, i])

> FOR j = m2+1, ny-m2-1 DO tmp2[j,i] = max(tmp1[j-m2:j+m2, i])

> FOR j = ny-m2, ny-1 DO tmp2[j,i] = max(tmp1[j-m2:ny-1, i])

> ENDFOR

> tmp2=transpose(tmp2)

> data_max=fltarr(nx,ny,/nozero)

> FOR j = 0, ny-1 DO BEGIN

> FOR i = 0, m2 DO data_max[i,j] = max(tmp2[0 :i+m2, j])

> FOR i = m2+1, nx-m2-1 DO data_max[i,j] = max(tmp2[i-m2:i+m2, j])

> FOR i = nx-m2, nx-1 DO data_max[i,j] = max(tmp2[i-m2:nx-1, j])

> ENDFOR

> toc

>

> end

>

>

> regards,

> Lajos

>

> ps: the i-50:i+50 subscript range has 101 elements, not 100.

Last version, with a real sliding window. This one is about 30x faster than the original code for random data.

```

pro test
nx=3200
ny=3248
m=100
m2=m/2
seed=123
data=randomu(seed,nx,ny)

tic
tmp1=transpose(data)
tmp2=fltarr(ny,nx,/nozero)
FOR i = 0, nx-1 DO BEGIN
    FOR j = 0, m2 DO tmp2[j,i] = max(tmp1[0 :j+m2, i])
    maxi=tmp2[m2,i]
    FOR j = m2+1, ny-m2-1 DO begin
        if maxi eq tmp1[j-m2-1, i] then begin
            maxi=max(tmp1[j-m2:j+m2, i])
        endif else maxi=maxi>tmp1[j+m2, i]
        tmp2[j,i]=maxi
    endfor
    FOR j = ny-m2, ny-1 DO tmp2[j,i] = max(tmp1[j-m2 :ny-1, i])
ENDFOR
tmp2=transpose(tmp2)
data_max=fltarr(nx,ny,/nozero)
FOR j = 0, ny-1 DO BEGIN
    FOR i = 0, m2 DO data_max[i,j] = max(tmp2[0 :i+m2, j])
    maxi=data_max[m2,j]
    FOR i = m2+1, nx-m2-1 DO begin
        if maxi eq tmp2[i-m2-1, j] then begin
            maxi=max(tmp2[i-m2:i+m2, j])
        endif else maxi=maxi>tmp2[i+m2, j]
        data_max[i,j]=maxi
    endfor
    FOR i = nx-m2, nx-1 DO data_max[i,j] = max(tmp2[i-m2 :nx-1, j])
ENDFOR
toc
end

```

regards,
Lajos
