
Subject: Re: Local Maxima of 2D array
Posted by [rogass](#) on Fri, 22 Jan 2010 09:56:33 GMT
[View Forum Message](#) <> [Reply to Message](#)

On 21 Jan., 18:39, Robin Wilson <r.t.wil...@rmpic.co.uk> wrote:
>> Dear Robin,
>> did you tried to reform that array to 3D and to find the MAXima and
>> their indices together with the keyword DIMENSION=3? Don't forget that
>> REFORM 'forms' rowwise.
>
>> Cheers
>
>> CR
>
> Hi Chris,
>
> Thank you very much for your suggestion. I have looked at the
> documentation for the REFORM function, but I'm not sure how to reform
> the array to a suitable 3D form so that MAX will work with the
> dimension=3 keyword. Could you provide some more details?
>
> Best regards,
>
> Robin Wilson
> University of Southampton

Dear Robin,

basically the code without a loop could be:

```
function cr_get_windowed_extrema,b,sx_k,sy_k

sk = long(sx_k)*long(sy_k)
sz = size(b,/dimensions)
sm = long(sz[0])*long(sz[1])
ind= (reform((transpose(lindgen(sz[0],sz[1])))*],sx_k,sm/sx_k))
[0:sy_k-1,*]
mins= min(b[(reform((transpose((transpose(rebin(ind,sx_k,sm/sy_k,s y_k)
+$
      rebin(lindgen(1,1,sy_k),sx_k,sm/sx_k,sy_k),[0,2,1])),
[1,0,2])),sk,sm/sx_k))],$
      minind,max=maxs,subscript_max=maxind,dimension=1)
ind2=(lindgen(sx_k,sm/sk))*[,0*:sy_k]
return, {mins:mins[ind2],minind:minind[ind2],maxs:maxs
[ind2],maxind:maxind[ind2]}
end
```

As potential output I got:

```

IDL> b=randomn(seed,9,9)
IDL> c=cr_get_windowed_extrema(b,3,3)
IDL> print,b
-0.232820  -1.81190  -1.79086  -0.0838641  -1.42229
-0.569596 -0.000931759  0.197937  0.203128
-0.742161  -1.04460  0.286660  1.59126  -1.18528
1.11088  -1.17374  -1.51570  0.156324
0.265435  -1.02502  -0.232129  0.259060  -0.825678
-0.386492  0.275219  -0.886818  -0.210116
1.20696  0.0987463  -1.22906  -0.155326  1.27177
-1.25504  0.650159  -0.864291  -0.915809
0.207192  -0.544278  -1.79930  0.0309544  -0.609460
-0.348675  -0.199986  0.518268  -1.03154
1.35320  1.08140  -0.00415816  -0.822823  -0.570877
-1.01163  -1.01084  1.87093  -1.31978
-0.486999  0.565098  0.140825  0.0224620  0.851600
0.922738  -0.779988  0.251917  0.834798
-1.06734  1.14913  -0.539062  -0.584468  -0.426683
0.869110  0.384573  1.50669  0.350647
0.478418  0.458704  1.72066  1.48684  -0.250672
0.920115  -0.324874  -1.49407  -0.0624892
IDL> print,c.mins
-1.81190  -1.79930  -1.06734
-1.42229  -1.25504  -0.584468
-1.51570  -1.31978  -1.49407
IDL> print,c.maxs
0.286660  1.35320  1.72066
1.59126  1.27177  1.48684
0.275219  1.87093  1.50669
IDL> print,c.minind
1 14 21
82 92 102
166 179 187
IDL> print,c.maxind
5 15 26
84 91 105
168 178 184

```

Hope, it works for you :) Maybe there are some unnecessary computations, so you might optimize the code...

Cheers

CR