
Subject: Re: TRIANGULATE. Finding contiguous cells efficiently?

Posted by [Wox](#) on Mon, 26 Feb 2007 12:27:49 GMT

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On 25 Feb 2007 19:37:54 -0800, "Libertan" <tbethell@umich.edu> wrote:

> In case it has gone into the abyss

It has :-)

> thoughts:

> 1) The connectivity list might be fruitful after all.

I don't think this could make things faster.

> 2) Also I think that in these looped codes, the accumulated info in

> the loop can be used to increasingly reduce the remaining workload.

Well ... one could think of things like: "deleting triangles which are already used 3 times". Example below gives an 18% improvement on my PC, when using the shrinking-triangles.

pro test

x=RANDOMU(seed,10000,/normal)*10

y=RANDOMU(seed,10000,/normal)*10

nnodes=n_elements(x)

TRIANGULATE, X, Y, triangles

s=size(triangles,/dimensions)

; 1. With loop

Tm=systime(1)

ctriangles=fltarr(s[0],s[1],3)

for i=0,s[1]-1 do begin

t=total((triangles eq triangles[0,i])+\$

(triangles eq triangles[1,i])+\$

(triangles eq triangles[2,i]),1)

ind=where(t eq 2,ct)

if ct ne 0 then ctriangles[* ,i,0:ct-1]=triangles[* ,ind]

endfor

; Third dimension gives the three contiguous neighbours

print,systime(1)-Tm

Tm=systime(1)

; 2. With loop + shrinking triangles

Tm=systime(1)

```

ctriangles=fltarr(s[0],s[1],3)
trshrink=triangles
nused=bytarr(s[1])
indtr=lindgen(s[1])
for i=0,s[1]-1 do begin
  t=total((trshrink eq triangles[0,i])+$
(trshrink eq triangles[1,i])+$
(trshrink eq triangles[2,i]),1)

  ind=where(t eq 2,ct)
  if ct ne 0 then begin
    ctriangles[* ,i,0:ct-1]=trshrink[* ,ind]
    nused[ind]++

    tmp=where(nused eq
3,ct,COMPLEMENT=ind,NCOMPLEMENT=ct2)
    if ct ne 0 then begin
      if ct2 ne 0 then begin
        nused=nused[ind]
        trshrink=trshrink[* ,ind]
      endif
    endif
  endif
endifor
; Third dimension gives the three contiguous neighbours
print,systime(1)-Tm
Tm=systime(1)
end

```
