
Subject: Re: fast search

Posted by m.goullant@gmail.com on Thu, 19 Oct 2006 10:46:07 GMT

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Hi Greg,
thank you very much, for your time!

I even dont understood the second algorithm and you already have the 3!! :-(. In this weekend i'll take a better look in your explendid work!

I'm a newbie in IDL, so I have to understand some functions that you use! I

If is not ask to much, can you coment all the lines of your code?

What I want is a point to points search, so I am trying to understand in your "quadtree" technique where I can adapt to my needs. I only need to compare (x,y) - 2D and get the Z values to compare

This is more and less What I want to do:

have this geographic data (could be 100000, 2 million, 4 million depends):

PRO example

```
points = myData()
```

```
;data structure of an irregular point cloud
```

```
x = points.x ;X coord
```

```
y = points.y ;Y coord
```

```
z = points.z ; Elevation
```

```
n = 5 ; number of iterations
```

```
mask = 4.0 ; diameter. in meters. Like your dist
```

```
maskType = 0 ; 0 a circle, 1 square
```

```
FOR i=0L,n-1 DO BEGIN
```

```
    newZ = erosion(x,y,z,dist,MaskType)
```

```
    ;(...)
```

```
    dist = dist + 2
```

```
ENDFOR
```

```
END
```

FUNCTION erosion,x,y,z,mask,maskType ; Apply erosion to the data

```
newZ=z
radio = mask /2
FOR i=0L,N_ELEMENTS(z)-1 DO BEGIN
    kernel = applyKernel(x,y,z,i,radio,maskType)
;center the kernel in the data(i) and get neighbours there are inside
of the mask
    newZ[i]=MAX(z[kernel])
ENDFOR
RETURN,newZ
```

END

FUNCTION applyKernel,x,y,z,i,dist,maskType

```
square = WHERE(x LE x[i] + dist AND x GE x[i] - dist AND y LE y[i]
+ dist AND y GE y[i] - dist)
```

```
IF (maskType EQ 0) THEN BEGIN
    sqDistance = sqrt((x[square] - x[i])^2 + (y[square] -
y[i])^2)
    neighbors = WHERE(sqDistance LE dist)
    circle = square[neighbors]
    RETURN,circle
ENDIF
```

```
RETURN,square
END
```

Because this is an iterative process with a "dist" variable, it's possible to implement your code?

Thank's in advance,
Marie
