Subject: Re: Clsuter analysis wiht IDL
Posted by Craig Markwardt on Thu, 01 Mar 2001 17:43:06 GMT
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dw@isva.dtu.dk (Dorthe Wildenschild) writes:

> --====================_524776338==_.ALT
> Content-Type: text/plain; charset="us-ascii"; format=flowed
>
> <Perhaps you could achieve what you desire with this code, which simply
> <finds the non-zero pixels:
>
> wh = where(image GT 0, ct)
> if ct EQ 0 then message, 'ERROR: the image is blank!'
> x = wh MOD 658 ; form x pixel positions
> y = floor(wh / 658) ; form y pixel positions
>
> xy = transpose([[x],[y]]) ; compute the 2-d scatter positions
> weights = clust_wts(xy, n_clusters=3)
> etc.
>
> <I haven't tried this, so it may take some tweaking. Good luck,
> <Craig
>
> I'm such a beginner at this I don't know what the MOD function does? (no
> on-line help listing for it)
> When trying to transpose, IDL corrects me with
> Arrays are allowed 1 - 8 dimensions

MOD is documented as the "modulo" function. You may have to scroll to see the documentation entry in the index. Since WHERE "pretends" that your array is 1-d, you have to reconstruct the x and y positions by dividing by the number of columns, and taking the remainder (=x) and quotient (=y).

Here is an example with some simulated data. The TRANSPOSE command works as advertised. The GAUSS2 simply generates a 2-d gaussian function, and is available from my web page
http://cow.physics.wisc.edu/~craigm/idl/idl.html

This script finds all three clusters successfully, but it shows that the routine is not optimal since it doesn't find the cluster centers.

Would you consider conferring with Mr. Rojas on his question about clusters and kmeans?

Craig

```
;; Simulate some data.  Three clusters at (2,3), (-3,1), (1,-2)
x = findgen(100)*0.1 - 5. & y = x
xx = x # (y*0 + 1)
yy = (x*0 + 1) # y
z = 30 * gauss2(xx, yy, [2D, 3D, .2, 1]) + $
    10 * gauss2(xx, yy, [-3D, 1D, .2, 1]) + $
    20 * gauss2(xx, yy, [1D, -2D, .2D, 1])
zi = floor(z)   ;; Convert to integer

;; Find the positions of significant data points
wh = where(z GT 5, ct)
if ct EQ 0 then message, 'ERROR: no signif points!'
xi = x(wh MOD 100)
yi = y(floor(wh/100))
xy = transpose([[xi],[yi]])
weights = clust_wts(xy, n_clusters=3)

plot, xi, yi, psym=3
oplot, weights(0,*), weights(1,*), psym=1, symsize=3
```

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Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
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