Subject: Re: WHERE Function
Posted by rivers on Fri, 12 May 1995 07:00:00 GMT
View Forum Message <> Reply to Message

In article <1995May10.175428.15046@ultb.isc.rit.edu>, bjp8350@osfmail.isc.rit.edu (PRYHODA) writes:
> I am using the WHERE function to return the pixel locations of a single object
> in a binary image. The WHERE function returns a LONGWORD VECTOR that can be
> used to subscript the image array. I need to calculate the distance between
> each combination of border pixels to find the object's major axis.
>
> How can I seperate the LONGWORD VECTOR into its X and Y components? so I can
> use the distance formula. Or is there an easier way to find the distance
> between each pixel?
>

Here is a function I wrote to do just that.

Mark Rivers (312) 702-2279 (office)
CARS (312) 702-9951 (secretary)
Univ. of Chicago (312) 702-5454 (FAX)
5640 S. Ellis Ave. (708) 922-0499 (home)
Chicago, IL 60637 rivers@cars3.uchicago.edu (Internet)


```
function convert_index, index, array

;+
; NAME:
;       CONVERT_INDEX
; PURPOSE:
;       Converts a one dimensional array index into a vector of indices, whose
;       length is equal to the number of dimensions of the array. This is
;       useful when wanting to know, for instance, what row and column element
;       10034 corresponds to in a 200x150 2-D array. The routine is general and
;       can handle arrays with any number of array dimensions, up to the IDL
;       maximum of 7.
; CALLING SEQUENCE:
;       new_index = CONVERT_INDEX(index, array)
; INPUTS:
;   INDEX
;       A 1 dimensional array index to be converted. IDL can reference
;       multidimensional arrays using a simple 1 dimensional index.
;       Such an index is obtained, for instance from functions such as
;       MAX, MIN and WHERE.
;   ARRAY
```

```
;       The array to which this index applies. This routine only uses this
;       parameter to determine the array dimensions, it does not actually use
;       the data stored in the array.
; OUTPUTS:
;   NEW_INDEX
;       The function returns an array of indices, in increasing array index
;       order. NEW_INDEX has a maximum lenght of 7, since IDL arrays are limited
;       to 7 dimensions.
; EXAMPLE:
;       If ARRAY is a 4x3 array and INDEX=7 then this function will return
;       [3,1], since array element 7 (when ARRAY is viewed as a
;       one-dimensional array) is actually column 3, row 1 when ARRAY is viewed
;       as a 2-dimensional array.
; MODIFICATION HISTORY:
;       Created October 1990 by Mark Rivers
;-


nd = size(array)
ndims = nd(0)

denom = 1
for i=1, ndims do denom = denom * nd(i)
result = lonarr(7)

for i=ndims, 0, -1 do begin
  result(i) = index / denom
  index = index MOD denom
  denom = denom / nd(i)
endfor

return, result(0:ndims-1)
end
```