
Subject: Re: Finding the Top Two Most Common Coordinates in a Multi-Dimensional Array

Posted by [Juggernaut](#) on Wed, 30 Jul 2008 11:54:00 GMT

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On Jul 29, 11:50 am, Jeremy Bailin <astroco...@gmail.com> wrote:

> On Jul 29, 2:32 am, Brian Larsen <balars...@gmail.com> wrote:

>
>> We do need some more information but this is just screaming for
>> histogram. Have a read through http://www.dfanning.com/tips/histogram_tutorial.html
>> . Using histogram to see which x's are common you can step through
>> the reverse_indices and see which y's are then common. There is
>> probably a more graceful way however.

>
>> Cheers,

>
>> Brian

>
>> -----
>> Brian Larsen
>> Boston University
>> Center for Space Physics <http://people.bu.edu/balarsen/Home/IDL>

>
> In particular, if you're dealing with integers that don't span too big
> a range, use HIST_2D and find the maximum element. If you've got
> floats or a wide range, use UNIQ to turn each into an integer on a
> small range first.

>
> -Jeremy.

I think if I were to be working with small datasets....ie not in the millions of points I would use something like this

```
coords = [[10,1],[20,32],[5,7],[6,8],[20,32],[2,14],[20,32],[10,10],  
[3,1],[21,14]]
```

```
counter = intarr(9)
```

```
FOR i = 0, 8 DO BEGIN  
  FOR j = 0, 8 DO BEGIN
```

```
    IF array_equal(coords[*],i),coords[*],j) THEN counter[i]++
```

```
  ENDFOR  
ENDFOR
```

```
;- Histogram to find the max bins (no need to measure anything below 2  
;- because that would just be a single hit and if all of your pairs
```

```
;- only occur once then who cares, right?  
hist = histogram(counter, min=2, reverse_indices=ri)  
maxHist = max(hist, mxpos)  
IF maxHist EQ 1 THEN print, 'Each pair occurs no more than once'
```

```
;- Use the reverse indices given by histogram to find out exactly  
;- where in your counter these maxes are occurring  
array_index = (counter[ri[ri[1]:ri[2]-1]])[0]
```

```
;- Find where counter is equal to the array index determined by  
;- reverse indices  
max_index = where(counter EQ array_index)
```

```
;- Voila with your max pair  
print, coords[*,max_index[0]]
```

Which spits out....
20 32

This could be tweaked to find the top two or three or whatever as well.
Hope this helps.
