Subject: Re: Adding x,y events to a 2d array (quickly)
Posted by Phillip Bitzer on Thu, 07 Nov 2013 20:16:48 GMT
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On Thursday, November 7, 2013 1:27:00 PM UTC-6, Dick Jackson wrote:

> I seem to recall someone explaining this behaviour before, and thanks to
>
> Russell, I realize one good way of getting *part* of what you (reasonably!) want
>
> to do. If all of your 'e' values were equal, then you can find how many counts
>
> of each (x,y) pair exist by using Hist_ND:
>
> (http://tir.astro.utoledo.edu/idl/hist_nd.pro)
>
> IDL> Print, Hist_ND(Transpose([[1,1,2],[1,1,2]]), 1, Min=0)
>
> But, in general, to add a varying set of 'e' values to those (x,y) locations...
>
> I have to think a bit...
>

I've got you covered....

Oliver, reverse indices are your friend here, as Russell alluded to. Get the two-dimensional histogram, slightly modified from Dick's version:

```
h = HIST_ND( [ TRANSPOSE(x), TRANSPOSE(y) ], 1, MIN=0, REVERSE_INDICES=ri )
```

Since you said you have large arrays, I transpose each individually, and then concatenate.

Now, go through the reverse indices:

```
totalE = FLTARR(SIZE(h, /DIM))
FOR i=0, N_ELEMENTS(h)-1 do if h[i] GT 0 THEN totalE[i]= TOTAL( e[ri[ri[i]:ri[i+1]-1]])

print, totalE
     0.00000     0.00000     0.00000
     0.00000     20.0000     0.00000
     0.00000     0.00000     10.0000
```

This is the basic idea. It can be sped up by only looping over the elements of h with non-zero counts (as opposed to "skipping" them as I did here).

Here's some highly recommended reading on histograms:
http://www.idlcoyote.com/tips/histogram_tutorial.html