
Subject: Re: matching coordinates

Posted by [Conor](#) on Mon, 30 Jul 2007 14:58:20 GMT

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On Jul 30, 7:12 am, jradavenp...@gmail.com wrote:

> On Jul 30, 4:36 am, jradavenp...@gmail.com wrote:

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>> On Jul 29, 7:53 am, David Fanning <n...@dfanning.com> wrote:

>

>>> jradavenp...@gmail.com writes:

>>>> Hello, I'm a long time lurker of this group, and finally have a

>>>> problem I can't solve efficiently enough! I have coordinates for stars

>>>> (RA and DEC for us astronomers out there), from two sources. i.e.

>>>> (x1,y1) and (x2,y2). These lists are huge, like 150k for one and

>>>> 5million in the other (a lot of stars!). I need to find the matches

>>>> from these catalogs within a tolerance. I've tried a few programs

>>>> I've found online (close_match_radec for instance) and they have not

>>>> given me results I believe (multiple matches and such). Here is some

>>>> horrible code I wrote just now which solves the problem VERY slowly:

>

>>> Here is an article that might help:

>

>>> http://www.dfanning.com/code_tips/matchlists.html

>

>>> For background, you might want to read the precursor

>>> article, and one of my personal favorites:

>

>>> http://www.dfanning.com/code_tips/slowloops.html

>

>>> Cheers,

>

>>> David

>>> --

>>> David Fanning, Ph.D.

>>> Fanning Software Consulting, Inc.

>>> Coyote's Guide to IDL Programming:<http://www.dfanning.com/>

>>> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

>

>> Thanks David, Big fan of your site and of yours and JD Smith's code...

>> I guess it really is time to learn that Histogram function (something

>> I've put off for over a year!)

>

>> I'm turning that example code into a workable program, but am confused

>> on where the results are. Which Variable do I want to return with the

>> answers?

>

```
> Actually, scratch that. I believe it's the min_pos and min_dist
> variables. The only other problem I'm having is it's telling me in
> line 40 (including a program begin line)
>
> % HISTOGRAM: Illegal binsize or max/min.
>
> This is for the line:
>      ;; Dual HISTOGRAM method, loop by repeat count in bins
>      h2 = histogram(h[b],MIN=1,REVERSE_INDICES=ri2)
>
> Anybody have ideas who knows about Histogram?
```

As an alternate solution, here's what I use:

astro.ufl.edu/~cmancone/pros/qfind.pro

I wrote this code as a result of the discussion here:

http://groups.google.com/group/comp.lang.idl-pvwave/browse_thread/thread/629cbb2a852c5371/6ada6d1659bc55a7?hl=en#6ada6d1659bc55a7

You would call:

```
result = qfind(x1,y1,x2,y2,posshift=tolerance)
```

'result' would be a 2xn array where n is the total number of matched stars. result is essentially the equivalent of two where functions. So for instance:

```
abs( x1[result[0,*]] - x2[result[1,*]] ) is always less than tolerance
```

x1,y1,x2,y2 all need to be row vectors. If you pass them as column vectors, they will automatically be transposed (which, now that I think about it, might be bad if the rest of your program expects column vectors). I'm not sure how it compares to the other for speed (probably worse), but I'd be curious.
