
Subject: Re: the fastest way to find number of points in sphere(radius r)
Posted by [Xavier Lobet](#) on Tue, 22 Nov 2005 12:16:43 GMT
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In article <1132659183.873193.230050@g44g2000cwa.googlegroups.com>,
"PYJ" <snfinder@naver.com> wrote:

> Data-----
> lots of points: X, Y, Z
> lots of spheres: XC, YC, ZC (positions of center), R(radius)
> -----
>
> I want to know the number of galaxies inside each sphere without a
> loop.(If it is possible)
> The faster, the better!
>
> Help me, experts~~!!!

I have the nagging feeling of doing someone's homework...

A way to do what you want:

```
ix=indgen(n_elements(X))      ; index array to be used in BLAS_AXPY  
t=transpose([[X], [Y], [Z]])  ; array(3,n) of cartesian coordinates
```

```
;Loop over spheres' centers:
```

```
  t1=t                        ; temporary array
```

```
; Shift points' coordinates to the j-th sphere's center  
  blas_axpy, t1, -1, [XC(j), YC(j), ZC(j)], 1, [0,0], 2, ix
```

```
; Convert to spherical coordinates (long, lat, radius)  
  sph = cv_coord(from_rect=t1, /TO_SPHERE)
```

```
; So sph(2,*) is the array of distances.  
; Histogram it, or treat as you please.
```

```
;end_loop
```

It could be faster than your method...

```
--  
_xavier
```

```
--  
Only one "o" in my e-mail address
```

```
--  
A: Because it messes up the order in which people normally read text.
```

Q: Why is top-posting such a bad thing?

A: Top-posting.

Q: What is the most annoying thing on usenet and in e-mail?
