Subject: Distances in 3D
Posted by panblosky on Thu, 27 Oct 2005 19:17:59 GMT
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Hi all,

probably this is a knwon question with a known solution, but I haven't figure it out yet. I have points in 3D, and I want to calculate the distances between them, but not the distance between the same point. This is because I want to know the total sum of the inverse of those distances. The first thing it came to my mind was to do it with a for loop, but of course, for large number of points (which is the case), takes for ever (basically a nxn operation). This is the code I did (very simple, brutal way):

```
; xp,yp,zp are the positions

xold=xp
yold=yp
zold=zp

np=n_elements(xp)

dist=fltarr(np)

for i=0,np-1 do begin

   xp[i]=0.
   esc1=where(xp ne 0,cc1)   ;removing the i-th particle
   newxp=xp[esc1]

   yp[i]=0.
   esc2=where(yp ne 0,cc2)
   newyp=yp[esc2]

   zp[i]=0.
   esc3=where(zp ne 0,cc3)
   newzp=zp[esc3]


 dist[i]=total(1./sqrt((newxp-xold(i))^2.+(newyp-yold(i))^2.+ (newzp-zold(i))^2.))

   xp[i]=xold[i]
   yp[i]=yold[i]   ; restoring the i-th particle
   zp[i]=zold[i]

endfor
```

Any idea of how to make this better? Thanks a lot!!

Andres