
Subject: Re: random slice through a volume of catscan data
Posted by [Jeff Nettles](#) on Fri, 02 May 2003 15:45:26 GMT
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Sergey,

Thanks so much for the reply. I did indeed learn about the `EXTRACT_SLICE` function and am going through it now.
I think that you can actually use the `ANISOTROPY` keyword and use data that isn't uniformly spaced (mine isn't). But if not, your strategy makes sense to me.

So again, thanks so much!
Jeff

"Sergey Kuposov" <astro@mccme.ru> wrote in message
news:b8rp8h\$kje\$1@news.rol.ru...

> Hello, Jeff,
> I think , if your data volume is presented as 3-dimensinal array (i.e.
> your data is uniformly spaced), you can use the `EXTRACT_SLICE` function.
>
> Otherwise , (if your data is presented , for example, as 1-dimensional
> array with x,y & z coordinates) you can
> 1) define the function `distance(x,y,z)` , which will compute the distance
> from the point to the plane
> function `distance,x,y,z`
> common plane ,A,B,C,D ; on the assumption that $A*x+B*y+C*z+D=0$ return
> $(A*x+B*y+C*z+D)/\sqrt{A^2+B^2+C^2}$;define the plane
> end
> 2) Select the points for the slice by using `WHERE`
> `indices=WHERE(dist(X,Y,Z) lt 1)` ;where X,Y,Z are 1-d arrays of x,y,z
> coordinates
> 3) Image the necessary characteristics for `X[indices],Y[indices],Z[..]`
> with some interpolation (if you need of image , not of plot of points)
> (for example the function `GRID_TPS`,and others (other functions are in
> the IDL Online Help , "gridding and interpolation"))
>
> You can also make the interpolation for slicing in the beginning by
> means the `GRID3` function (see also IDL Online Help , gridding and
> interpolation) . And after that , you will can directly perform the
> imaging.
>
> I hope my considerations will be useful. But I don't insist that my
> methods are optimal :)
> Cheers,
> Sergey
>
> Jeff Nettles wrote:

>> Hi All,
>>
>> I have some CT data that I would be able to take randomly-oriented
slices
>> through. (BTW, these are scans of meteorites, not people, in case
you're
>> thinking that it doesn't make any sense why i'd want to do this.) My
>> approach so far has been to randomly select 3 sets of x,y, & z
coordinates
>> so that i have three points that define a plane. Now I want to extract a
2D
>> image that represents that plane from the 3D CT data volume. My
priority
>> here is to preserve the shapes of the objects in the random slice. I
know
>> i'm going to have to do some interpolating since the slice won't always
go
>> through entire pixels. What i'm hoping that i can get help with is:
>>
>> 1) Is there by any chance a program someone has written (or included
with
>> IDL) that can do this already? (I'm a relatively inexperienced IDL
>> programmer)
>>
>> 2) If I'm going to have to code this myself, are there IDL functions
that
>> would make this easier? I've looked at the WHERE function, but haven't
>> convinced myself that it will help. I know to try to avoid for loops as
>> much as possible so I'm trying to do that.
>>
>> 3) Any suggestions about a general approach to the problem would be
very
>> helpful.
>>
>> Thanks for your time (and hopefully your help!),
>> Jeff
>>
>>
>
