
Subject: Re: Voxels in IDL

Posted by [weclifton](#) on Sun, 23 Aug 2009 15:21:22 GMT

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On Aug 17, 4:38 am, Irim <amiri.r...@gmail.com> wrote:

> On Aug 13, 11:53 pm, Spon Il <christoph.b...@gmail.com> wrote:

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>> On Aug 12, 8:49 am, Irim <amiri.r...@gmail.com> wrote:

>

>>> Hi,

>

>>> I am new to the whole thing. Does anybody know about an implementation
>>> of voxel model in IDL?

>

>>> Cheers,

>>> Reza

>

>> Hi Reza,

>

>> I don't know what you mean by 'voxel model', but IDL is very well
>> suited to manipulating, and working with, 3- to 8-dimensional arrays
>> of various data types.

>> If you want a less general answer, you'll have to ask a more specific
>> question! :-)

>

>> Regards,

>> Chris

>

>> PS<http://www.dfanning.com/isa> a good place to start.

>

> Hi Chris,

>

> Thanks for the reply.

> I am evaluating IDL for the implementation of a 3D image elements of
> tree structure. I have acquired airborne Lidar data and now, I am
> thinking of converting the lidarcloudpointto some sort of 3D
> representation. IDL looks great in this sense but what about
> visualisation? What is the option to visualise the 3D arrays and how
> good is that compared to other options?

>

> Cheers,

> Reza

Reza,

You ask a good question. By the way, airborne lidar data is fun to work with! You probably have a data set consisting of at least xyz triplets and maybe some other attributes such as intensity, etc. ? If this is the case and you want to display the data as voxels, which is essentially a three dimensional histogram. Once you describe the location of a voxel in xyz space as a bin in the 3d histogram you can then manipulate the properties of the voxel by intensity, etc. as you see fit.

If your issue is how to take the xyz triplets and create the 3d histogram, I suggest you use hist_nd which is available at David Fanning's site : http://www.dfanning.com/programs/hist_nd.pro. But, if you have a large data set, which I suspect you do since you are working with airborne lidar (1M+ pts?), you'll probably encounter performance issues, depending on how sparse the data is and how you choose to visualize the data. In that regard, there are techniques using IDL's object graphics, specifically polylines, which can speed this up considerably (see Rick Towler's posts on the subject in this group).

There are also more general kd tree techniques, so a google on "point cloud", "kd tree" may help

Bill
