Subject: Re: 3D images
Posted by jnettle1 on Sun, 20 Jun 2004 06:54:30 GMT
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Al,

The problem seems to be the way you're making the tif files in Photoshop. Photoshop has lots of optional items you can put in tif files (including, i think, preserving Photoshop layers now). I'm not surprised at all that IDL is having problems reading them. I'd go back to Photoshop and try to make the simplest file you can make....flatten the image before you save it, make sure it's not compressed, etc. Also, note that your code is going to bomb unless you have Photoshop save grayscale files instead of RGB mode files. The read_tiff routine will assign a [3,m,n] array to the variable image that you then try to assign to a single band in the variable volume. (I'm sure you know this but you also have to be saving 8-bit tif files in Photoshop or otherwise not use byte arrays in IDL) You may also want to use the count keyword to findfile and use that in setting up the volume (ie, volume = bytarr(1600,1200,count)) and in the loop that reads the tiffs (for j = 0, count-1 etc). Anyway, i did what you said you did....made a tif file in photoshop, made copies, and then ran your code (modified as i suggested above) and it worked fine, though i didn't bother sorting the images since they were all the same in my rough little experiment. Good luck.

Jeff

siliconcube@yahoo.com (Aleks) wrote in message news:<79140897.0406181249.6e0342b5@posting.google.com>...
> Hello,
> this board has been very helpful and I was wondering if anyone could
> help me with the following.
> I'm trying to construct a cylinder. I made a circle in photoshop and
> made 10 copies of the file just renaming it. (example circle_01.tiff,
> ...._02.tiff etc)
>
> this is the code I have (which is barely modified code from Dr.
> Fannings website) and with the following code i was hoping to get an
> isosurface of a cylinder and this is the error that I get before I
> make past the last line:
> % READ_TIFF: Not a TIFF file, bad magic number 19778 (0x4d42)
> % Execution halted at: $MAIN$
> The images are TIFF Files, I checked them from properties tab in
> windows.
> when I run query_tiff command I get the following error
> IDL> ok = query_tiff('test_01.tif', info)
> % Loaded DLM: TIFF.

> IDL> print, info.dimensions
> % Expression must be a structure in this context: INFO.
> % Execution halted at: $MAIN$
>
>
> files=findfile('*.tif')
> index=bsort(files, sortedfiles)
> volume=bytarr(1600,1200,80)
> for j=0,9 do begin
> image=read_tiff(sortedfiles[j])
> volume[*,*,j] = image
> endfor
>
> Thank you
> Al

Subject: Re: 3D images
Posted by Timm Weitkamp on Mon, 21 Jun 2004 13:31:32 GMT
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On 18.06.04 at 13:49 -0700, Aleks wrote:

> Hello,
> this board has been very helpful and I was wondering if anyone could
> help me with the following.
> I'm trying to construct a cylinder. I made a circle in photoshop and
> made 10 copies of the file just renaming it. (example circle_01.tiff,
> ...._02.tiff etc)
>
> [...]

If those images do not contain anything more than a binary image of a
cylinder, then the best is to forget Photoshop and do everything in IDL.
Like this, for example:

```
;;  (code starts here)

nx = 1600
ny = 1200
nz = 80
radius = 500.0


;;  Define coordinates

xVec = FINDGEN(nx) - (nx -1 ) / 2.0
```

```
yVec = FINDGEN(ny) - (ny -1 ) / 2.0
x = xVec # (1.0 + FLTARR(ny))
y = yVec ## (1.0 + FLTARR(nx))
r = SQRT(x^2 + y^2)


;;  Calculate image of filled circle

circle = r LT radius


;;  Extend circle into third dimension

cylinder = REBIN(circle, nx, ny, nz)


;;  "Cap" cylinder with zero slice on top and bottom

cylinder[*, *, 0] = 0
cylinder[*, *, nz-1] = 0


;;  Fire up Slicer3 to visualize interactively

SLICER3, PTR_NEW(cylinder)


;;  (code ends here)
```

In "Slicer3" you can then simply have a 3D isosurface plot drawn by selecting "Mode: Surface", then "Low", and clicking on "Display". After that, there are lots of ways to change angles, color, etc.

There are alternatives to SLICER3, among which are XVOLUME and Volume Objects. Just try and see which suits you best.

Hope this helps

Timm

--
Timm Weitkamp <http://people.web.psi.ch/weitkamp>

Subject: Re: 3D images
Posted by David Fanning on Mon, 21 Jun 2004 13:39:26 GMT
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Timm Weitkamp writes:

> If those images do not contain anything more than a binary image of a
> cylinder, then the best is to forget Photoshop and do everything in IDL.
> Like this, for example:

Or, a little more succinctly, you could do it in one
call to MESH_OBJ. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: 3D images
Posted by siliconcube on Mon, 21 Jun 2004 16:46:31 GMT
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Hi Jeff,
thank you very much that solved my problem.
Aleks
jnettle1@utk.edu (Jeff) wrote in message
news:<330af58b.0406192254.62eefa2f@posting.google.com>...
> Al,
>
> The problem seems to be the way you're making the tif files in
> Photoshop. Photoshop has lots of optional items you can put in tif
> files (including, i think, preserving Photoshop layers now). I'm not
> surprised at all that IDL is having problems reading them. I'd go
> back to Photoshop and try to make the simplest file you can
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> image that you then try to assign to a single band in the variable
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>> volume[*,*,j] = image
>> endfor
>>
>> Thank you
>> Al

Subject: Re: 3D images
Posted by jnettle1 on Mon, 21 Jun 2004 19:00:02 GMT
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Timm,

This is really cool, but now i'm wondering how you figure out things

like this :) Is there a book or some other resource (webpage?) that I
can tap into that deals with creating shapes in images mathmatically?
I can figure some basic stuff out myself (I can do a square! woohoo!)
but I'd like to learn more. Is this called morphometry?

Jeff

Timm Weitkamp <dont.try@this.address> wrote in message
news:<Pine.LNX.4.44.0406211459060.1292-100000@localhost.localdomain>...
> On 18.06.04 at 13:49 -0700, Aleks wrote:
>
>> Hello,
>> this board has been very helpful and I was wondering if anyone could
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>> [...]
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> If those images do not contain anything more than a binary image of a
> cylinder, then the best is to forget Photoshop and do everything in IDL.
> Like this, for example:
>
>
> ;; (code starts here)
>
> nx = 1600
> ny = 1200
> nz = 80
> radius = 500.0
>
>
> ;; Define coordinates
>
> xVec = FINDGEN(nx) - (nx -1) / 2.0
> yVec = FINDGEN(ny) - (ny -1) / 2.0
> x = xVec # (1.0 + FLTARR(ny))
> y = yVec ## (1.0 + FLTARR(nx))
> r = SQRT(x^2 + y^2)
>
>
> ;; Calculate image of filled circle
>
> circle = r LT radius
>
>

> ;; Extend circle into third dimension
>
> cylinder = REBIN(circle, nx, ny, nz)
>
>
> ;; "Cap" cylinder with zero slice on top and bottom
>
> cylinder[*, *, 0] = 0
> cylinder[*, *, nz-1] = 0
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>
> ;; Fire up Slicer3 to visualize interactively
>
> SLICER3, PTR_NEW(cylinder)
>
>
> ;; (code ends here)
>
> In "Slicer3" you can then simply have a 3D isosurface plot drawn by
> selecting "Mode: Surface", then "Low", and clicking on "Display". After
> that, there are lots of ways to change angles, color, etc.
>
> There are alternatives to SLICER3, among which are XVOLUME and Volume
> Objects. Just try and see which suits you best.
>
> Hope this helps
>
> Timm

Subject: Re: 3D images
Posted by David Fanning on Mon, 21 Jun 2004 19:01:54 GMT
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Jeff writes:

> This is really cool, but now i'm wondering how you figure out things
> like this :) Is there a book or some other resource (webpage?) that I
> can tap into that deals with creating shapes in images mathmatically?
> I can figure some basic stuff out myself (I can do a square! woohoo!)
> but I'd like to learn more. Is this called morphometry?

Last time I looked it was called "geometry". But
I'm probably quite a bit older than you. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: 3D images
Posted by Timm Weitkamp on Tue, 22 Jun 2004 11:54:22 GMT
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On 21.06.04 at 12:00 -0700, Jeff wrote:

> This is really cool, but now i'm wondering how you figure out things
> like this :) Is there a book or some other resource (webpage?) that I
> can tap into that deals with creating shapes in images mathmatically?
> I can figure some basic stuff out myself (I can do a square! woohoo!)
> but I'd like to learn more. Is this called morphometry?

Jeff:

Do you mean, how do I do manage to do things in a complicated way that take only little more than a one-liner when done properly, as David has just pointed out? :-(

But seriously: I guess the only "resource" is the *need* to solve a given problem, and some very basic geometry knowledge. Like in this case: x^2 + y^2 < r^2 defines a filled circle. No need to be a math pro for that, thank goodness. I'm sorry, but I really can't point you to any book or web page [1].

Cheers,
Timm

[1] Except, of course, JD Smith's dimension-juggling tutorial for IDL, which helps you to get arrays into shape. But you know where to find that, I hope.

--
Timm Weitkamp <http://people.web.psi.ch/weitkamp>
