Subject: Re: Put a 2d plot and an image into a 3D coordinate system
Posted by Jianbao on Fri, 26 Aug 2011 05:07:03 GMT
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BTW, as a starting point for making this kind of plot, I used the following fake data:
<code>
image = dist(200)
z = findgen(500)
phi = gaussian(z) ; make a gaussian potential profile as a function of z.

Subject: Re: Put a 2d plot and an image into a 3D coordinate system
Posted by David Fanning on Fri, 26 Aug 2011 12:02:10 GMT
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Jim writes:

> I am trying to make a series of images with IDL for my simulations.
> After exploring the new IDL graphics system and the coyote graphics
> for over 3 hours, I still don't get a good concept of how to do it.
>
> So, here is a sketch of what I am after:
> http://dl.dropbox.com/u/38390926/idl.jpg
>
> In the sketch, the simulation is basically a color-scale image
> of current density in the 2D simulation plane, which moves
> along the z-axis as the simulation goes.
>
> Can anyone help me with this, please? I really appreciate it.

Well, I wouldn't do this with Coyote Graphics, because
you want something 3D. And, as far as I know, it is
impossible to build a new tool in Function Graphics.
So unless one of the already-built tools does this
(I guess there is a slim possibility), then I think
you are hosed there.

So, I would say you have to build this in object
graphics. I would start with something like
Surf_Contour, where your simulation is similar to
the way the contour plot moves in this program.
You will have to automate the movement, but
that's the trivial part of the program. ;-)

http://www.idlcoyote.com/misc/surf_contour.pro

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Put a 2d plot and an image into a 3D coordinate system
Posted by Jianbao on Sat, 27 Aug 2011 15:21:28 GMT
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Thanks, David. Yeah, you are right. Object graphics seems the only solution. I am working on it right now.

Subject: Re: Put a 2d plot and an image into a 3D coordinate system
Posted by Mark Piper on Tue, 30 Aug 2011 15:31:05 GMT
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On 8/25/2011 11:07 PM, Jim wrote:
> BTW, as a starting point for making this kind of plot, I used the following fake data:
> <code>
> image = dist(200)
> z = findgen(500)
> phi = gaussian(z) ; make a gaussian potential profile as a function of z.

Hi Jim,

I have a NG solution. Though it uses less code than OG, I had to think about it a bit (NG are still much newer to me than OG). I also had to rely on the undocumented TEXTUPDIR property to flip the labels on the Z axis (thanks, CT!). Please give this a try:

```
n1 = 200
n2 = 500
image = dist(n1)
z = findgen(n2)
phi = gaussian_function(n2/10, width=n2)

w = window()
w.refresh, /disable

; Set up 3D axes and phi plot.
```

```
p = plot3d(z*0.0+n1, phi*n1, z, axis_style=2, /current, $
   xrange=[0,n1], xtitle='X', ytitle='Y', ztitle='Z')
p.rotate, 30, /zaxis
p.rotate, 90, /xaxis

; Hide obscuring axes.
to_hide = 'axis' + strtrim([3, 4, 6, 7, 8, 9, 10, 11], 2)
foreach axis, to_hide do p[axis].hide = 1

; Make phi axis.
phiaxis = axis('y', location=[max(p.xrange), 0.0, max(p.zrange)], $
   textpos=1, title='$\phi$')
phiaxis.tickname = $
   string(float(phiaxis.tickname)/n1, format='(f4.2)')

; Display image.
g = image(image, overplot=p, transparency=20)
g.zvalue = 200

; XXX: I got help in uncovering TEXTUPDIR. Should it be exposed?
p['zaxis'].setproperty, textupdir=[0,0,-1], /undoc

w.refresh
```