Subject: Re: stereo in window
Posted by James Kuyper on Thu, 11 Aug 2005 14:12:10 GMT
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chamakuri@gmail.com wrote:
> Hello,
>
> I have been using IDL for sometime, and have grown to appreciate the
> possibilities it offers to a programmer.
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> I have a peculiar problem at hand which is described below
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> I have two images which have been taken from two different angles (I
> came to understand that they are referred as *stereo* pairs), I am
> interested in creating a 3D effect by simultaneously viewing them in a
> single window (aka stereo in a window) using IDL.
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> Now I am not an expert in this kind of things, but I understand that
> there are two methods of achiveing stereo in window
>
> A) Anaglyph, if I am not wrong, uses two colors to display the image
> viz. red and green (god knows why only red and green)

All that's needed are two well-seperated colors, though I would hope that red and green have become popular because studies have found that they work better than other color combinations that were tried. The key point is the use of eyeglasses with filters that let the left eye see only the red part of the image, and the right eye see only the green part of the image (or vice versa).

> Any ideas how one can create anaglyph in IDL using object graphics?

I'm not sufficiently familiar with object graphics; but in direct graphics it's fairly simple. Let 'left' and 'right' be the two grayscale images that you want to combine. Then the left image can be displayed in red, and the right image in green, with the following code:

```
TV,[[[left]],[[right]],[[left*0]]],TRUE=3
```

> Oh I forgot to mention that the images are color images and I dont want
> to loose the color information.

Anaglyph uses color to seperate the left and right images; it's inherently incompatible with retaining color information in your images.

Subject: Re: stereo in window
Posted by Benjamin Luethi on Thu, 11 Aug 2005 15:18:43 GMT
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Hi,

You can add some color information by also using the third color channel.
But the result is not always very good and depends on the dominant colors
of the images. (Under Windows use Images 3D to create a colored anaglyph
of your images to see how well it works: http://home.cogeco.ca/~grichter1/)

Another very simple method: shrink the images to 6 cm width on the screen,
display them next to each other and relax your eyes. Your left eye should
look at the left image, same for the right eye. (same trick as in the
magic eye books). If you get to overlap the two images, you see 3d and
color!

Ben

On Thu, 11 Aug 2005 16:12:10 +0200, James Kuyper <kuyper@wizard.net> wrote:

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Subject: Re: stereo in window
Posted by Rick Towler on Thu, 11 Aug 2005 16:37:22 GMT
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> B) Quadbuffer ,something related to hardware rendering and is way
> beyond me(and is definitely ruled out leaving me with option A only.)
>

> Any ideas how one can create anaglyph in IDL using object graphics?
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> Oh I forgot to mention that the images are color images and I dont want
> to loose the color information.
>
> Any kind of help in form of code and/or pointers to literature on
> stereo in window would be highly appreciated.

Another option is polarizing filters and glasses which I would think would be the preferred method. In the most basic form you would do as Ben suggested by displaying the image in two windows close together but you would position each behind a sheet of polarizing film. Along with the glasses this blocks the left and right images from the opposite eye much like those old stereo viewers.

There have been a number of creative display methods tossed around from using saran wrap taped to your monitor to dual monitor displays to dual projector displays with polarizing filers. There are also commercial 3d display systems too but they might not be in your budget. I'm a fan of the dual projector approach if only I had the time to play around with it...

Dick Jackson has done a lot of work on this recently (with OG primitives, not stereo image pairs). He was kind enough to send me this link to a company that sells polarizing films (http://www.3dlens.com/enter.html) There are a number of shops that will sell the glasses too.

You should be able to google a ton of information about this. From the concepts to methods to materials.

Good luck!

-Rick

Subject: Re: stereo in window
Posted by Dick Jackson on Thu, 11 Aug 2005 21:10:51 GMT
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"Rick Towler" <rick.towler@nomail.noaa.gov> wrote in message news:ddfveb$es2$1@news.nems.noaa.gov...
> chamakuri wrote:
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If you have a good stereo image pair, the real problem is how to get the two different images to your two eyes at the same time, and perhaps to nudge them as needed to get the correct positioning in front of the eyes.

>> A) Anaglyph, if I am not wrong, uses two colors to display the image
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The anaglyph method requires red-green "3D glasses" to let your eyes see two different pictures from the same RGB image. This requires changing the colour of the images in a fairly substantial way (but I haven't seen how that "Images 3D" program does it).

>> B) Quadbuffer ,something related to hardware rendering and is way
>> beyond me(and is definitely ruled out leaving me with option A only.)

I believe you are talking about something like Stereo OpenGL which is not currently supported in IDL. In any case you still need some way to direct two different images to your two eyes. Rick mentions several...

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> company that sells polarizing films (http://www.3dlens.com/enter.html)
> There are a number of shops that will sell the glasses too.

As it turns out, I've been working with image pairs too, and for either kind
of stereo viewing, I've had very good results with a commercial system
(about US$3000) from Planar:
http://www.planar.com/Advantages/Innovation/docs/ds-planar-s tereo-mirror.pdf
Here is another popular one:
http://www.stereographics.com/products/crystaleyes/body_crys taleyes.html

> You should be able to google a ton of information about this. From the
> concepts to methods to materials.

For a good starting point, Wikipedia is indeed our friend:
http://en.wikipedia.org/wiki/Stereoscopy

Hope this helps!

Cheers,
--
-Dick

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