Subject: Re: Newbie question (w/colorful points)...
Posted by davidf on Wed, 17 Jan 2001 14:12:21 GMT
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RandyStack (randystack@aol.com) writes:

> I've got a a set of 8192-element 1d arrays that I need to plot. Each point has
> an X & Y value as well as a color (the unique color for each of the 8192 points
> is specified with hue, luminance and saturation values). My question is this:
> What's the best and/or fastest and/or easiest way to plot these values over a
> 512x512 2d grid with 24-bit color? Again, each point has a unique color (and,
> if necessary, I can convert the HLS array into RGB)...I just need to end up
> with a 512x512 3-plane (RGB) matrix for further processing. Just started using
> IDL, so thanks for any assistance and direction y'all can provide...

I'd convert the color HLS array to RGB, for sure.
As to the fastest way to create the array, I'm
not sure I can decipher how a 8192 vector
relates to a 512x512 array. (Except to note
that 8192/512 = 16.) If you can reform the
vector into a 61x512 array, then some kind of
array sub-scripting of the larger 512x512 array
will surely work.

Cheers,

David
--
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Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Newbie question (w/colorful points)...
Posted by randystack on Wed, 17 Jan 2001 22:13:21 GMT
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<< As to the fastest way to create the array, I'm
not sure I can decipher how a 8192 vector
relates to a 512x512 array. >>

The 8192-element vector just contains the coordinates that I need to plot.
Basically...

xy(n,0)=x coordinate for point n (values 0-511)
xy(n,1)=y coordinate for point n (values 0-511)

hls(n,0)=hue for point n
hls(n,1)=luminance for point n
hls(n,2)=saturation for point n

Without IDL, I'd normally go something like...

```
declare mat(512,512,3)
loop n from 0 to 8191
 mat(xy(n,0),xy(n,1),0)=hls(n,0)
 mat(xy(n,0),xy(n,1),1)=hls(n,1)
 mat(xy(n,0),xy(n,1),2)=hls(n,2)
end loop
```

...then convert the resulting 512x512 HLS matrix mat() to RGB for display. Was just looking for a more expedient way to handle this in IDL rather than looping.

Thanks,
~Randy

Subject: Re: Newbie question (w/colorful points)...
Posted by marc schellens[1] on Thu, 18 Jan 2001 04:08:52 GMT
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RandyStack wrote:

> << As to the fastest way to create the array, I'm
> not sure I can decipher how a 8192 vector
> relates to a 512x512 array. >>
>
> The 8192-element vector just contains the coordinates that I need to plot.
> Basically...
>
> xy(n,0)=x coordinate for point n (values 0-511)
> xy(n,1)=y coordinate for point n (values 0-511)
> hls(n,0)=hue for point n
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> hls(n,2)=saturation for point n
>
> Without IDL, I'd normally go something like...
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> declare mat(512,512,3)
> loop n from 0 to 8191
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> mat(xy(n,0),xy(n,1),1)=hls(n,1)
> mat(xy(n,0),xy(n,1),2)=hls(n,2)
> end loop

>
> ...then convert the resulting 512x512 HLS matrix mat() to RGB for display. Was
> just looking for a more expedient way to handle this in IDL rather than
> looping.
>
> Thanks,
> ~Randy

Hi Randy,

you can speed the thing up using matrix operations:

```
mat0=mat[*,*,0]
mat0[ xy[*,0], xy[*,1]]=hls[*,0]

mat1=mat[*,*,1]
mat1[ xy[*,0], xy[*,1]]=hls[*,1]

mat2=mat[*,*,2]
mat2[ xy[*,0], xy[*,1]]=hls[*,2]

mat[*,*,0]=mat0
mat[*,*,1]=mat1
mat[*,*,2]=mat2
```

In IDL the expression:
a[v1,v2,...vn] with a=n dim array, v1,v2,...vn=1 dim arrays
is a n dimensional array if the size of v1, v2, .. vn differ and one dimesional
is the size of v1,v2,...vn are the same.

cheers,
:-) marc

Subject: Re: Newbie question (w/colorful points)...
Posted by marc schellens[1] on Thu, 18 Jan 2001 04:15:12 GMT
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instead of:

```
> mat[*,*,0]=mat0
> mat[*,*,1]=mat1
> mat[*,*,2]=mat2
```

even better:

```
mat=[[[mat0]],[[mat1]],[[mat3]]]
```

:-) marc

Subject: Re: Newbie question (w/colorful points)...
Posted by randystack on Thu, 18 Jan 2001 07:47:50 GMT
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```
>  mat0=mat[*,*,0]
>  mat0[ xy[*,0], xy[*,1]]=hls[*,0]
>  mat1=mat[*,*,1]
>  mat1[ xy[*,0], xy[*,1]]=hls[*,1]
>  mat2=mat[*,*,2]
>  mat2[ xy[*,0], xy[*,1]]=hls[*,2]
>  mat=[[[mat0]],[[mat1]],[[mat3]]]
```

Marc~

Thanks so much for a great solution!

~Randy

P.S. Hmmm...looks like I'll have to start thinking like I did back in my APL days! :)