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Subject: Re: quick matrix algebra question  
Posted by [Dick Jackson](#) on Mon, 09 Jan 2006 21:17:49 GMT  
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Hi Brad,

<b\_gom@hotmail.com> wrote in message  
news:1136835388.675373.55640@z14g2000cwz.googlegroups.com...  
> I'm sure someone must have a quick solution for this problem. I have a  
> color transformation that I want to apply to an RGB pixel as follows:  
>  
> M=fltarr(3,3)  
> RGB=bytarr(3)  
> ;fill RGB and M with some values  
> result = transpose(M ## RGB) ;apply the transform.

To do this with consistency when there's more than one pixel, you might want  
to flip things around:

```
IDL> m=FIndGen(3,3)
IDL> RGB=BIndGen(3)
IDL> Print,Transpose(M ## RGB)
      5.00000 14.0000 23.0000
IDL> Print,RGB ## Transpose(M)
      5.00000 14.0000 23.0000
```

Same result, but now this is extensible to a (3, n) array...

> Now, result contains the new values in the same format as RGB.  
> The question is: how do I do this efficiently on an RGB image (ie a  
> (3,col,row) array)? Quick, before I use a for loop!

```
col=40
row=50
RGB=BIndGen(3, col, row)
```

```
:: Reform RGB to (3, n)
```

```
RGB = Reform(rgb, 3, Long(col)*row, /Overwrite) ; this is fast
```

```
result = RGB ## Transpose(M) ;apply the transform.
```

```
:: Reform the arrays back to (3, col, row)
```

```
RGB = Reform(RGB, 3, col, row, /Overwrite)
result = Reform(result, 3, col, row, /Overwrite)
```

There you go!

Cheers,

--

-Dick

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