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Subject: Re: Low pass filter - Problem with kernel

Posted by [James Kuyper](#) on Wed, 04 Oct 2006 16:23:06 GMT

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Vidhya wrote:

```
> Dear All,  
> Sorry for not giving a detailed description of the program. The  
> following is the program, which tries to apply a low pass filter to an  
> image of size, 766*374 with 62 bands.  
>  
> PRO vnoise  
> filename='image.hdf'  
> hdfid=hdf_sd_start(filename, /READ)  
>  
> varid=hdf_sd_select(hdfid, 0)  
> hdf_sd_getdata, varid, image  
>  
>  
> varid=hdf_sd_select(hdfid, 1)  
> hdf_sd_getdata, varid, mask  
>  
> hdf_sd_end_access, varid  
>  
>  
> hdf_sd_end, hdfid  
>  
>  
> column_average=rebin(image, 1, 374, 62)  
>  
>  
> ;applying the log to the average radiance of the image  
> column_log = alog10(column_average)  
>  
> ksize = [3,3]  
>  
>  
> kernel = replicate((1.0/(ksize[0]*ksize[1])), ksize[0], ksize[1])  
>  
>  
> filtered_image = convol(float(column_log), kernel, /CENTER,  
> /EDGE_TRUNCATE)
```

The problem here is that column\_log is a 1x374x62 array, while kernel is a 3x3 array. The number of dimensions of the two arguments has to be the same, and each dimension of the kernel should, in general, be no larger than the corresponding dimension of the first argument.

I'm not quite sure what you're trying to do here. Which dimensions do

you want to do your convolution on? If it's the two spatial dimensions of the image, than you should be passing a 776x374 image to convol. If you only want to convolve along the X direction, you should use a kernel that has a length of only 1 in the other two dimensions.

```
> ;filtered_image = convol(float(column_log), kernel, /CENTER,  
> /EDGE_TRUNCATE)  
> ;% CONVOL: Incompatible dimensions for Array and Kernel.  
> ;% Execution halted at: $MAIN$  
>  
>  
> And this is where I get the error message about the dimensions.  
>  
> What I am trying to do is to rebin the image column-wise, apply a log  
> to the average, and then apply the kernel to the image.
```

If you want to convolve the image, why are you convolving the column\_log instead? What role do you want the column\_log to play in the convolution of the image? If you do in fact want to convolve the column\_log instead of the image itself, then you need to choose a kernel which has the right shape to be used for that purpose.

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