Subject: Re: using convol with 2D image and 1D kernel
Posted by Chris[1] on Sat, 29 Nov 2003 22:23:17 GMT
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Just a little note - the easiest way to see what a filter is doing is to give it a single impulse point in a field of zeros, and look at the result. For example, for Bruce's question, just set all of the 'mandrill's array to zero, and then set the central point to 1 (or 256, or whatever). then look at the output. The value in each cell after the filtering can be considered as the contribution that a specific cell makes at that distance to another, through the filter.

Cheers;

Chris

"David Fanning" <david@dfanning.com> wrote in message news:MPG.1a329ebbb9da263a989760@news.frii.com...
> Bruce writes:
>
>> Hello, I was wondering what the convol(array,kernel) function does
>> when it is given a 2D array and a 1D kernel ?
>>
>> I have run through "Example 2" for the digital_filter() function,
>> in which the 2D array "mandril" is convolved with the 1D array
>> "filter" (in Reference Volume 1):
>>
>> mandril = bytarr(512,512)
>> ...
>> mandril = float(mandril)
>> filter = digital_filter(0.0,0.1,50,10)
>> filt_image = convol(mandril,filter)
>>
>> I can see that the image is smoothed, but did convol()
>> 1) take the 1D kernel of size 1x21 and run it over the image, where
>> the result at each point is only influenced by points in the
>> horizontal direction,
>> OR
>> 2) take the 1D kernel and transform it into some 2D kernel of
>> dimension 21x21, and run that over the image, where the result is
>> now influenced by points in both the horizontal and vertical
>> directions ?
>
> If you do a "Help, filter" after the DIGITAL_FILTER step,
> you see that the filter is a 21-element 1D array. So
> the convolution is performed as in 1 above.
>
> You can also see this because there will be black

> bands on the left and right edge of the image, since
> the example did not use the EDGE_TRUNCATE keyword.
> Had the filter been applied two-dimensionally, you
> would have seen a band around the entire image.
>
> Cheers,
>
> David
> --
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