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:

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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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