Subject: Re: Three questions
Posted by biomedical on Wed, 08 Apr 1998 07:00:00 GMT
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David Foster wrote:
>> 1: what is 'sharp' function to images, or 'sharpening'?
>> what is 'unsharp' ? how to do them in IDL?
>
> These are just basic filtering techniques, to enhance either
> low-frequency or high-frequency information in the image.
> You can use convolution (CONVOL) with specialized kernels to
> perform both.
>

Thank you for your help. It seems that low and high frequency filtering
only give low and high freqency components of the image, the result
image doesn't seem sharper. I used butterwidth, hanning, expontential...
maybe you have some special filter. Band pass and reject do not work
for me either. The convolution (convol) seems to give the same image
if the kernel is delta function, otherwise it will give unsharp results.

Could you give me more specific kernel or filter information?

>> 2: how to read 1-bit Tiff (mono) file?
>> 3: how to do the Matlab image processing, please take a look at:
>> http://www.mathworks.com/demos/toolbox/image/ipss0011.html
>> how to removes the minor regions, skeletonize, ...
>
> Get a good book on image processing, and look into Convolution
> (IDL's CONVOL) as a means to do filtering,
> edge detection, feature removal, etc. The BW* Matlab routines
> are very specialized functions, from the Image Processing toolbox
> I would guess; I'm not sure IDL has anything like that. But do
> look into LABEL_REGION, ROBERTS, SOBEL, SEARCH2D, ERODE, DILATE.
>

I know IDL can easily do something, and also can do something else
not that easy. I expected IDL to do this 'skeleton' easy. I found
myself that it is not easy at my level to do this. I hope someone who
has code for this and is willing to contribute.

BTW, my question is very specific, just do what Matlab did!
you can use their image to test. Finaly you can get just enclosed
lines which segments the region.

> IDL can be used to do what the slide show does, but will require

> some coding. When you get a better idea of what you need, ask
> the newsgroup again, and be more specific. I'm sure someone has
> coded some of these tasks.
>
> Dave
>
>>
>> Thanks, please do NOT send me emails, just post here.
>>
>> Chester
>
> --
>
> ~~~~~~ ~~~~~~
> David S. Foster Univ. of California, San Diego
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> foster@bial1.ucsd.edu Department of Psychiatry
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Subject: Re: Three questions
Posted by muswick on Thu, 09 Apr 1998 07:00:00 GMT
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In article <352BD7FA.256B@bial1.ucsd.edu>,
David Foster <foster@bial1.ucsd.edu> wrote:
>
> biomedical wrote:
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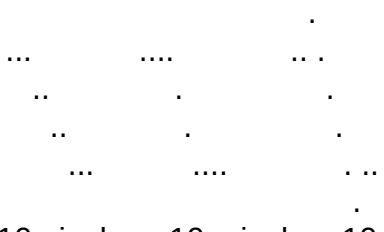
> perform both.

'sharpening' is as David states, a filtering technique to enhance
high-frequency information. If you plot the gray scales of one row
of an image, you would see the plotted points go up for white and
down for black. At the edges of objects, you see several points

changing in value (from the left side of the edge) to the value
from the other edge.



10 pixel plot of orig. | 10 pixel plot sharpened (ideal) | 10 pixel plot sharpened with overshoot.

The unsharp mask is a method of sharpening, in which the original
image is smoothed (unsharpened), then the difference of
(original - smooth) is the unsharp mask. This mask is then added
in various degrees to the original to effect sharpening.

Applying to the above example.

10 pixel plot of orig. | 10 pixel plot smoothed | 10 pixel plot (orig - smooth) | 10 pixel plot unshparp mask | sharpened by adding the unsharp mask

Now I'll proceed with the rest of your questions.

>
>> 2: how to read 1-bit Tiff (mono) file?

Unfortunately, RSI does not provide a very robust set of routines to
read some of the standard file formats, especially those items that
are not part of the baseline.

Typically, 1-bit tiff images are stored as G4 encoded Hoffman/Run-Length.
IDL unfortunately does not support this. One method I know to read
these images would be to use Microsoft Imager on a PC, then convert and
store the images as 8bit gray scale. Then read this image into IDL.
There is software to convert TIFF files to other formats, it just

depends on you platform and compiliers etc.

I would love IDL to support G3/G4 TIFF, and 12 bit JPEG.

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David is correct on the fact that IDL can do all of the operations, though some procedures may need to be written. I think I am most concerned at this point on your input data, given your request of 1-bit TIFF images. Are your images already binary? or are they half-tone representations?

Good Luck

Gary Muswick
Image Analysis
University Hospitals of Cleveland
muswick@uhrad.com