

Data Selection Panel

Name of Image Matrix

Select Data ...

Name of Variable Matrix

Select Variables ...

This tutorial contains navigation buttons that enable you to move throughout the tutorial.

Please use the navigation buttons and not the page up/page down or arrow keys to navigate through the tutorials.

This is the 'Next' button. It takes you to the next frame or stop point.



This is the 'Previous' button. It takes you to the previous frame or stop point.



This is the 'Go to frame' button. It takes you to a specified frame.



This is the 'Go to URL' button. It takes you to a website link.



Press the 'Next' button below to start this tutorial.



Data Selection Panel

Name of Image Matrix

imagedata_dan01

Name of Variable Matrix

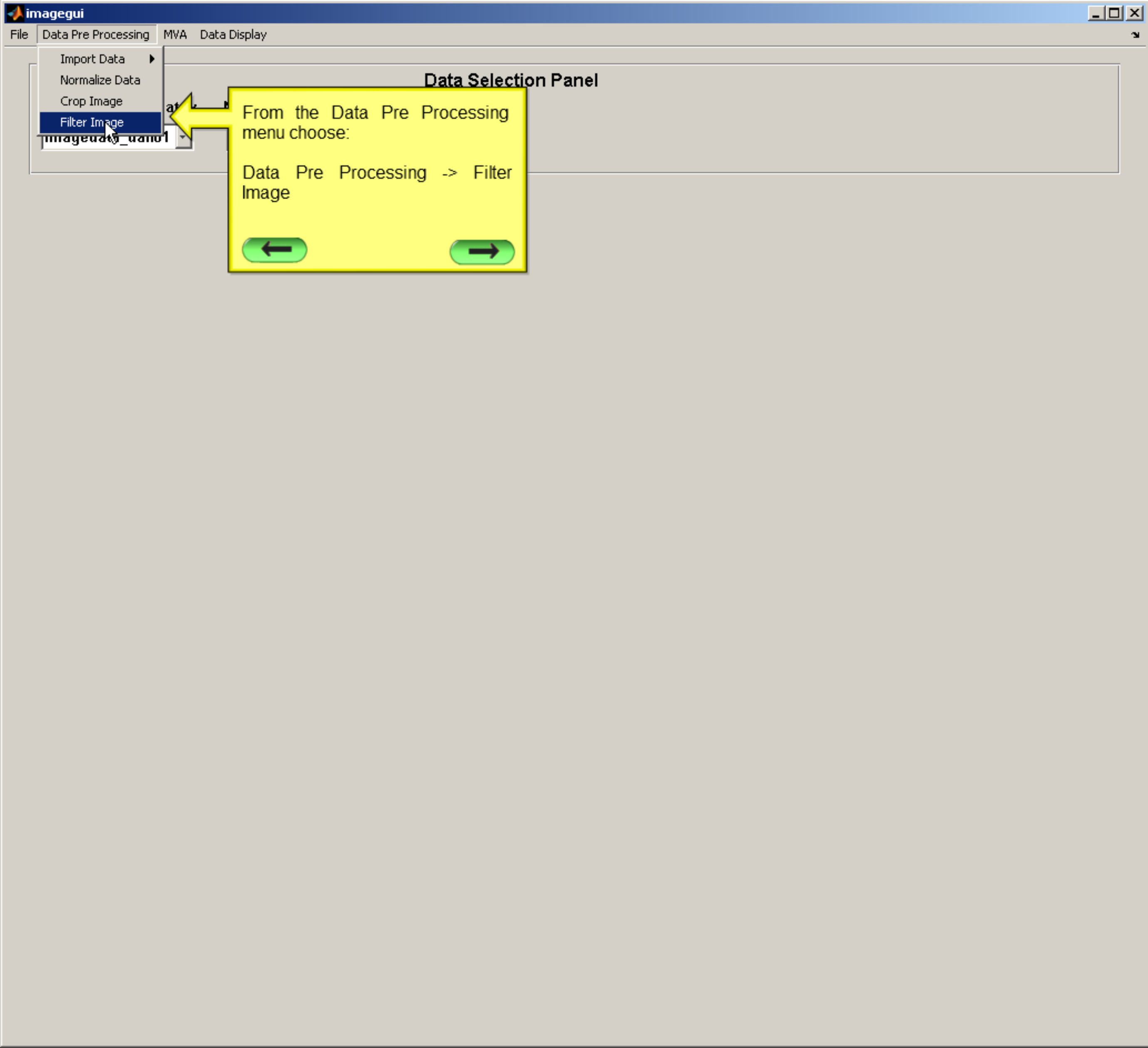
exactmass_dan01

This tutorial will cover the image filtration options available in the imagegui.

These filters are provided for experimentation and their inclusion in this program does not represent an endorsement or suggestion that one should use them.

As with any data processing method, one should understand why they are using any given method. All data manipulations should be reported clearly in all presentations or papers.





Data Selection Panel

Name of Image Matrix

imagedata_dan01

Name of Variable Matrix

exactmass_dan01

Load Selected Data

Image:

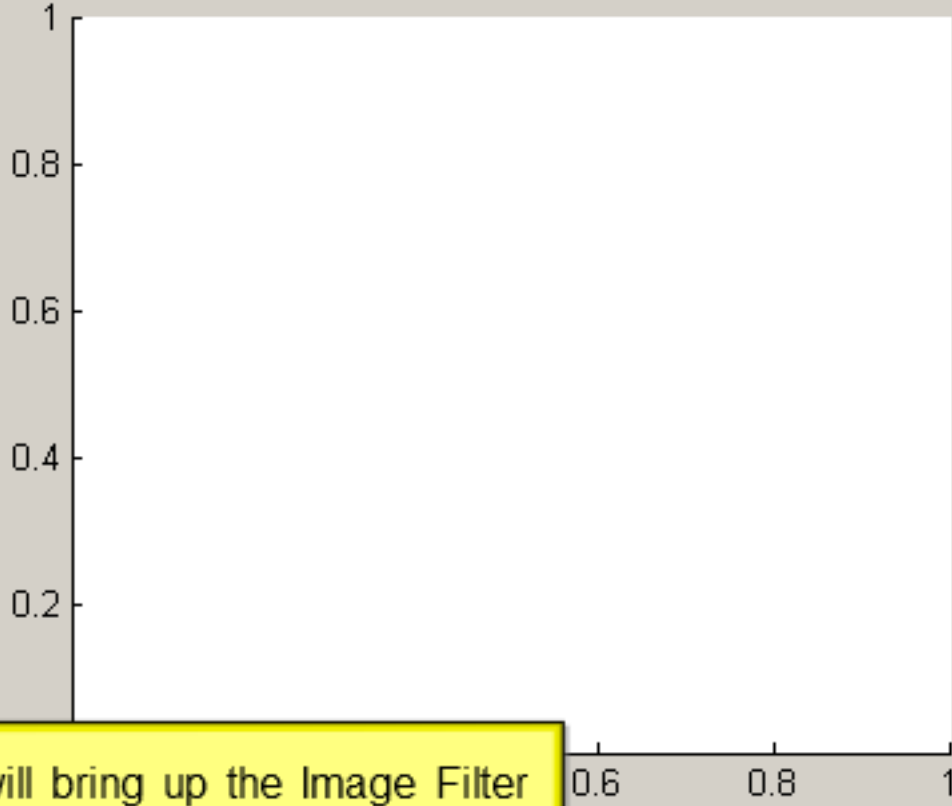
None

Choose a Function

Choose one... ..

Close Panel

Input Image



This will bring up the Image Filter panel.



Data Selection Panel

Name of Image Matrix

imagedata_dan01

Name of Variable Matrix

exactmass_dan01

Load Selected Data

Image:

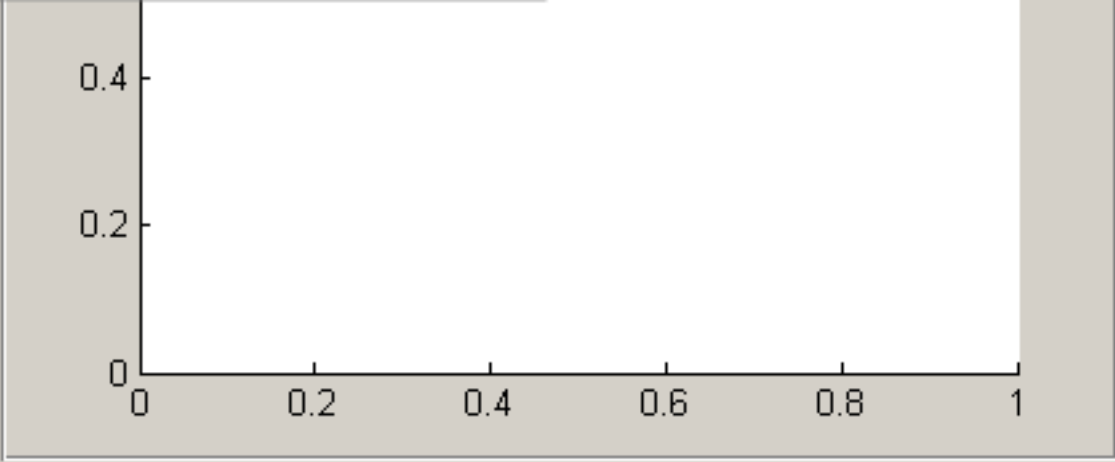
None

Choose a Function

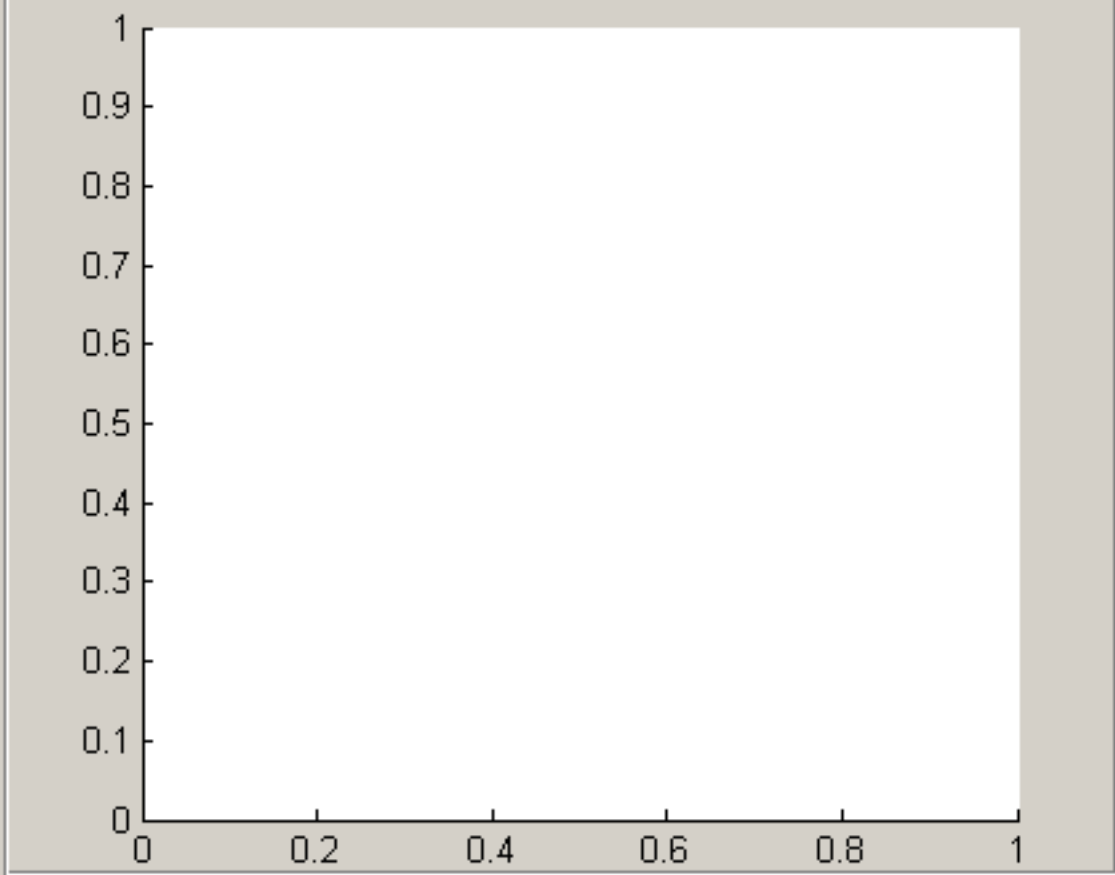
Choose one... ...

Close Panel

Press the 'Load Selected Data' button to load the data selected in the drop down menu above.



Output Image



Data Selection Panel

Name of Image Matrix

imagedata_dan01

Name of Variable Matrix

exactmass_dan01

Load Selected Data

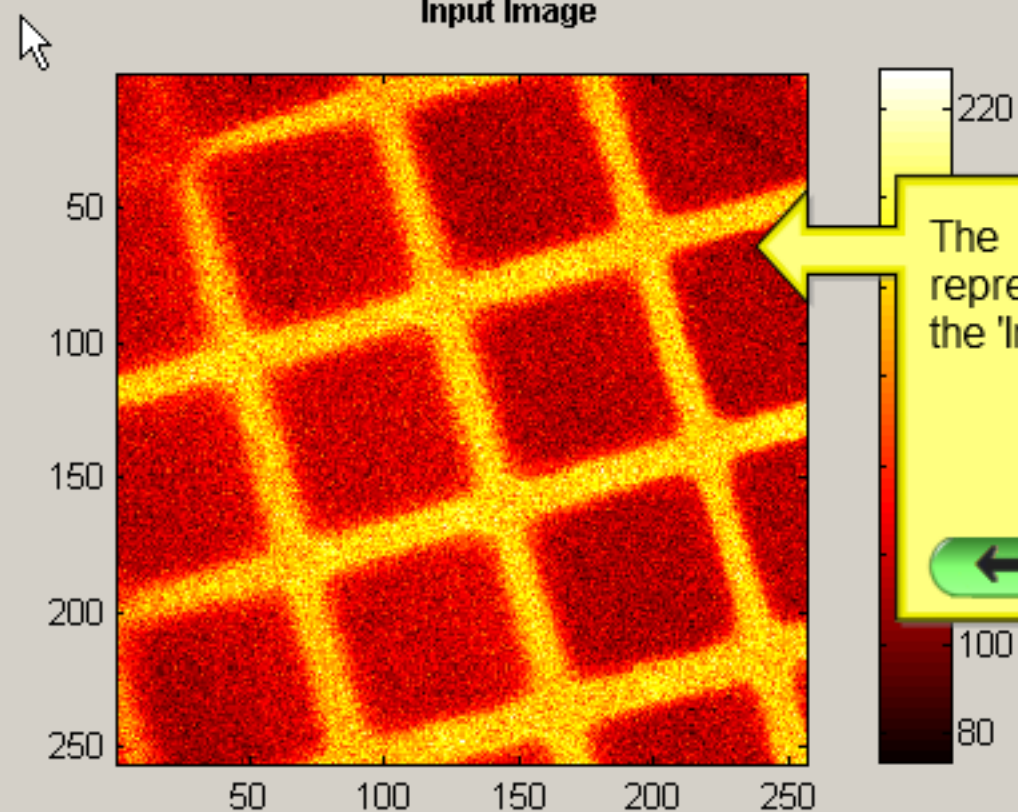
Image: **imagedata_dan01**

Choose a Function

Choose one...

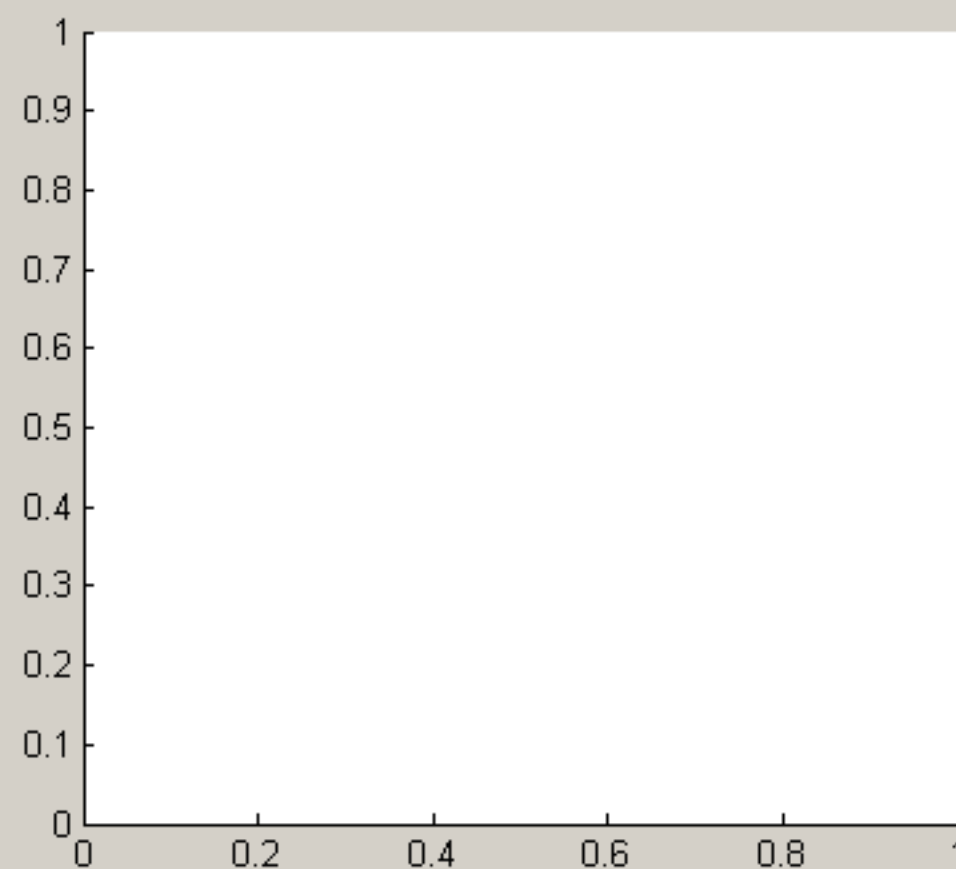
Close Panel

Input Image



The data is loaded and a representative image is shown in the 'Input Image' plot box.

Output Image



Data Selection Panel

Name of Image Matrix

imagedata_dan01

Name of Variable Matrix

exactmass_dan01

Load Selected Data

Image: **imagedata_dan01**

Choose a Function

Choose one... ...

Choose one...

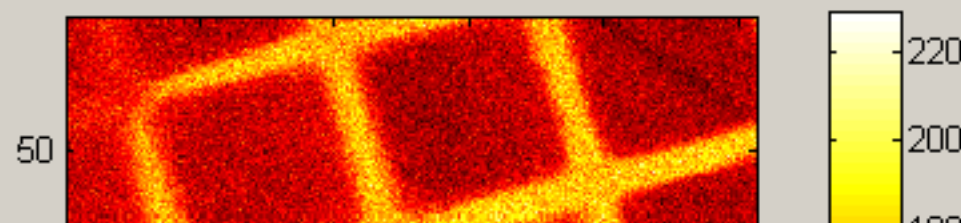
Down bin image by 2

Up sample image by 2

Boxcar filter (kernel = 3)

Wavelet filter image

Input Image



Use the 'Choose a Function' drop down menu to choose a filter to apply to the image.

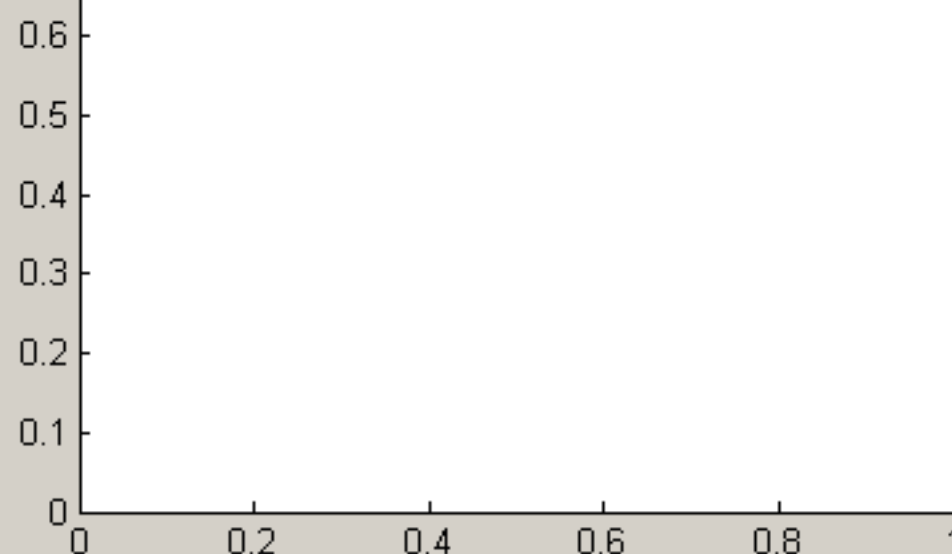
The choices include:

Down bin image by 2 - This option reduces the pixel dimension of the image by a factor of 2. So a 256 x 256 image would become a 128 x 128 image.

Up sample image by 2 - This option increases the pixel dimension by a factor of 2. So a 128 x 128 image would become a 256 x 256 image.

Boxcar filter (kernel = 3) - carries out a box car filter with a kernel size of 3.

Wavelet filter image - This option carries out a wavelet filter on the image using the wavelet function in the Matlab wavelet toolbox. If you do not have this toolbox you cannot use this option.



Data Selection Panel

Name of Image Matrix

imagedata_dan01

Name of Variable Matrix

exactmass_dan01

Load Selected Data

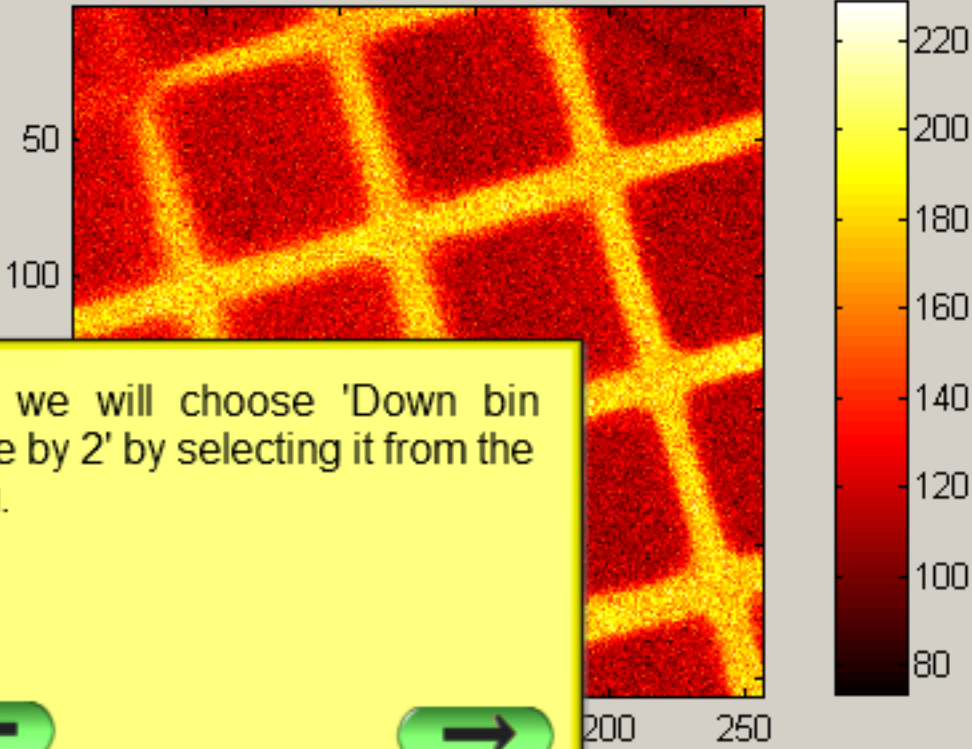
Image: **imagedata_dan01**

Choose a Function

Choose one... ...

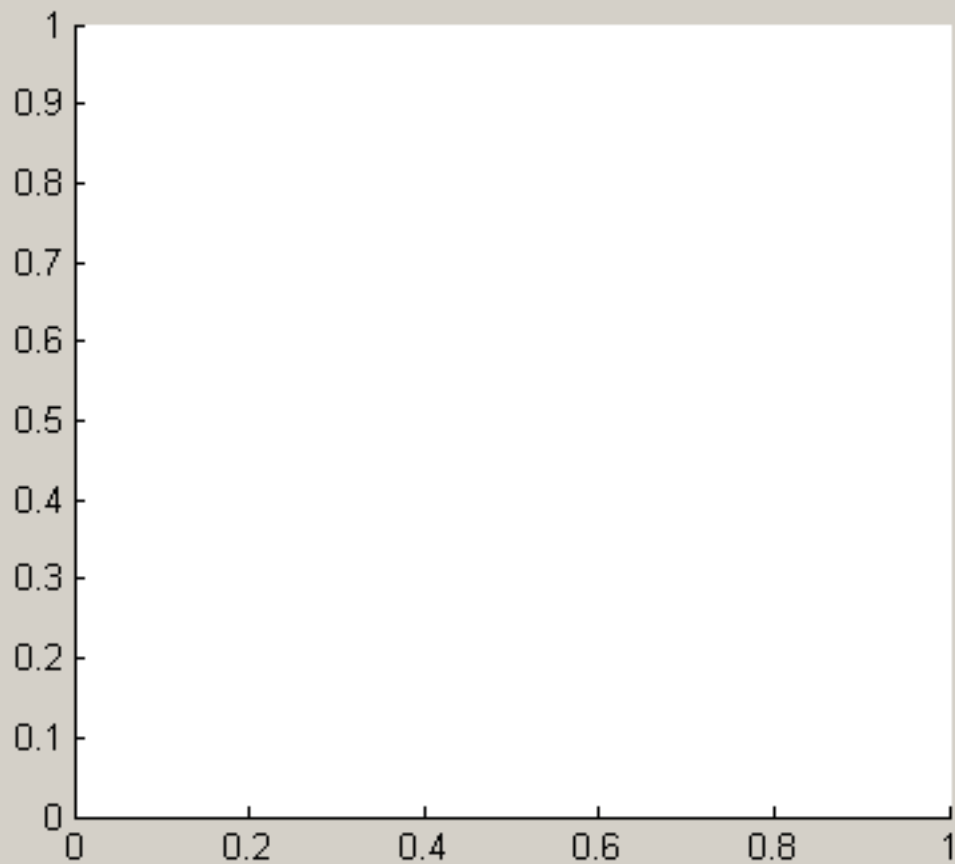
- Choose one...
- Down bin image by 2**
- Up sample image by 2
- Boxcar filter (kernel = 3)
- Wavelet filter image

Input Image



Here we will choose 'Down bin image by 2' by selecting it from the menu.

Output Image



Data Selection Panel

Name of Image Matrix

imagedata_dan...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

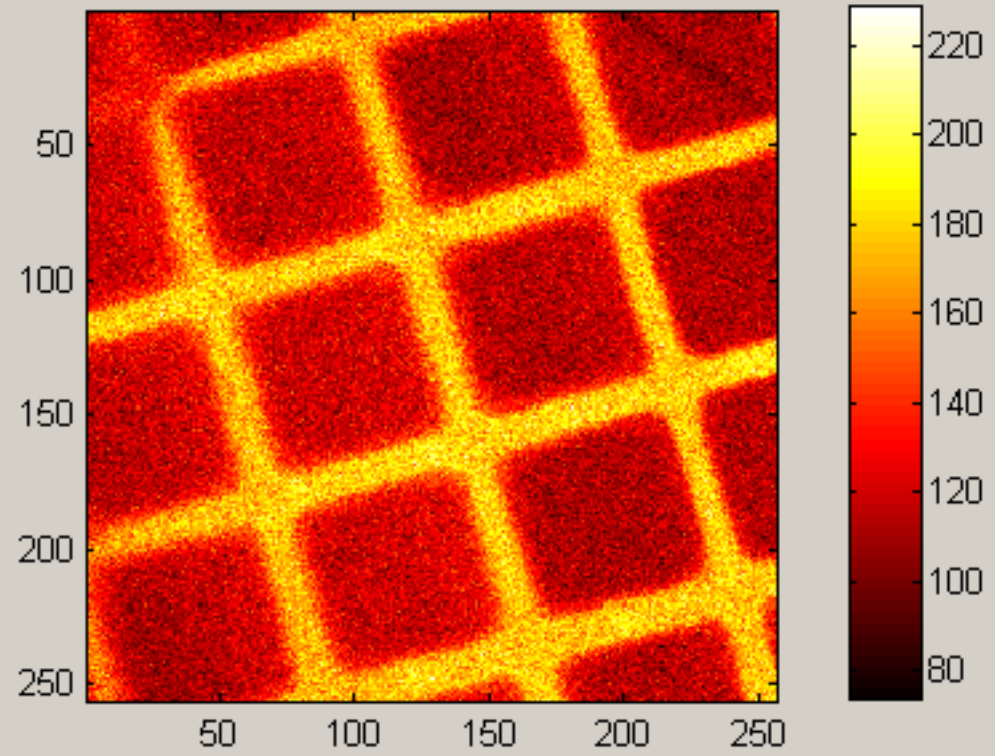
Image: imagedata_dan01

Choose a Function

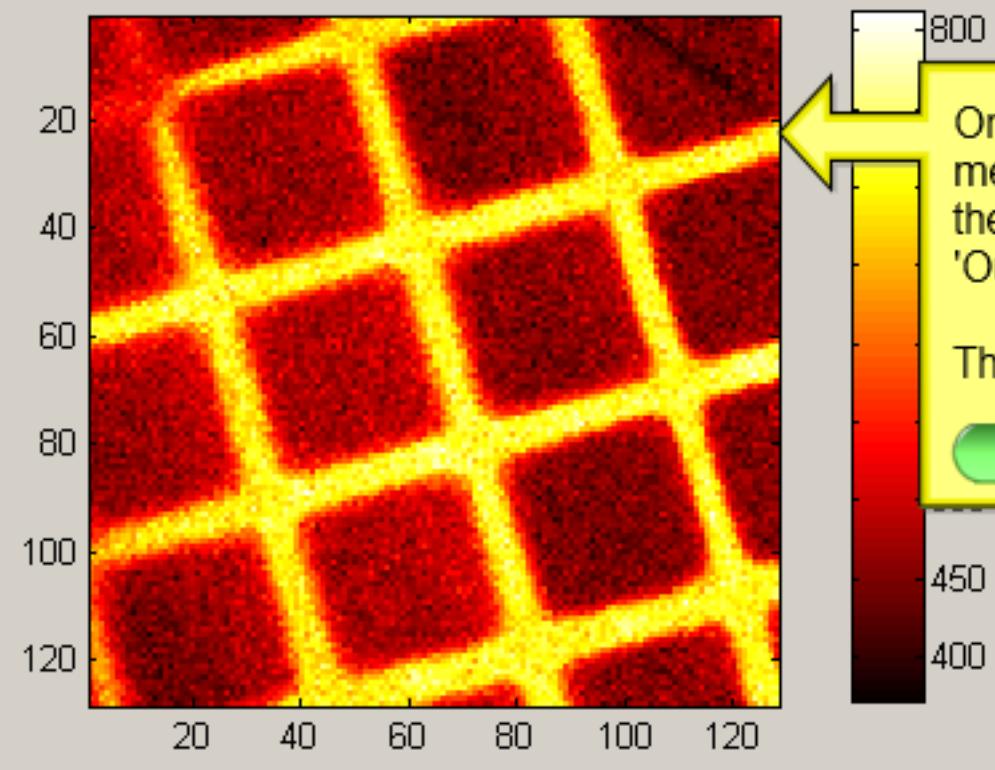
Choose one...

Close Panel

Input Image



Output Image
Down binned x2



Down Binned Data Saved. Image shown here ->

Once the data is processed a message appears to the left and the modified image is shown in the 'Output Image' plot box.

This is the down binned data.



Data Selection Panel

Name of Image Matrix

imagedata_dan...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

Image: imagedata_dan01

Choose a Function

Choose one...

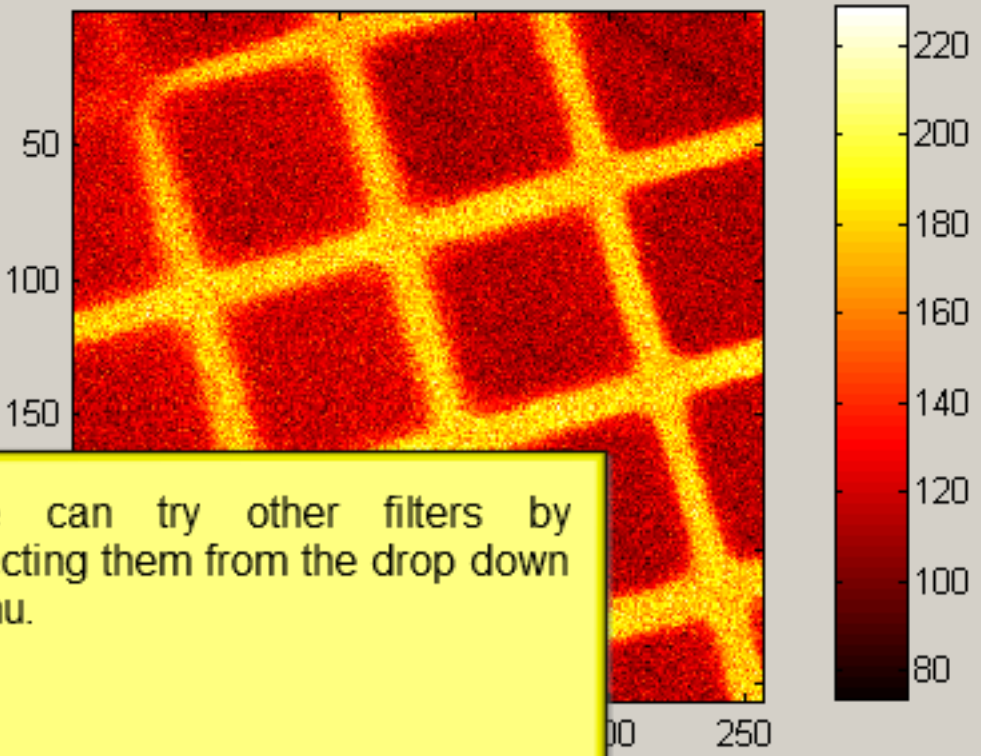
- Choose one...
- Down bin image by 2
- Up sample image by 2
- Boxcar filter (kernel = 3)
- Wavelet filter image



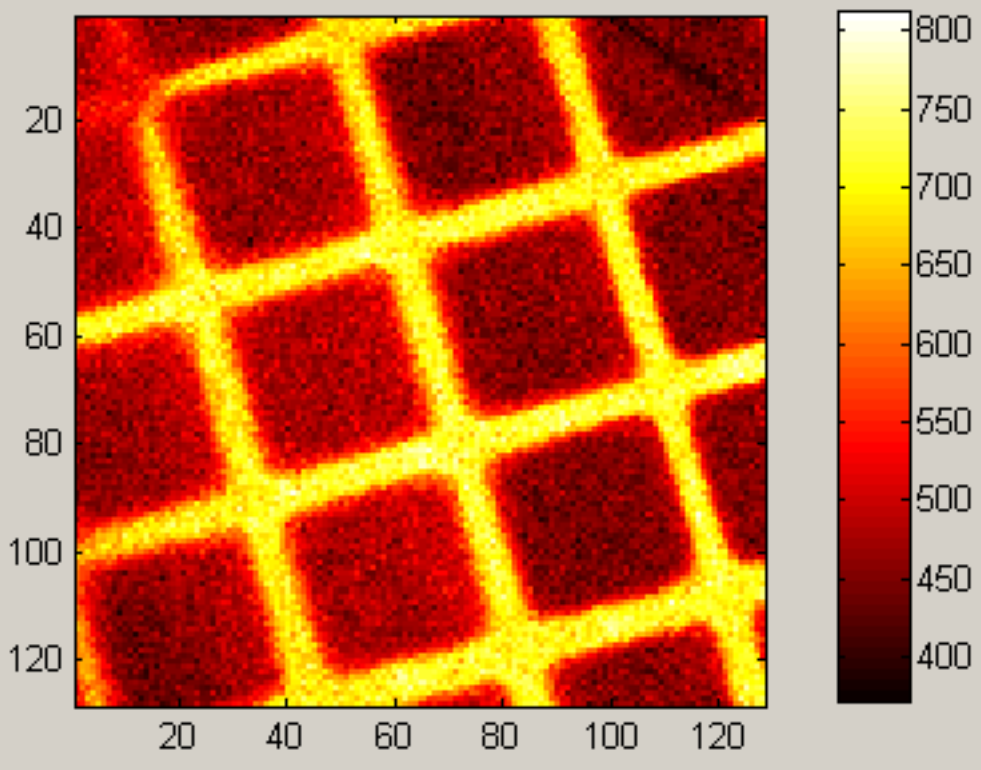
One can try other filters by selecting them from the drop down menu.



Input Image



Output image
Down binned x2



Down Binned Data Saved. Image shown here ->

Data Selection Panel

Name of Image Matrix

imagedata_dan...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

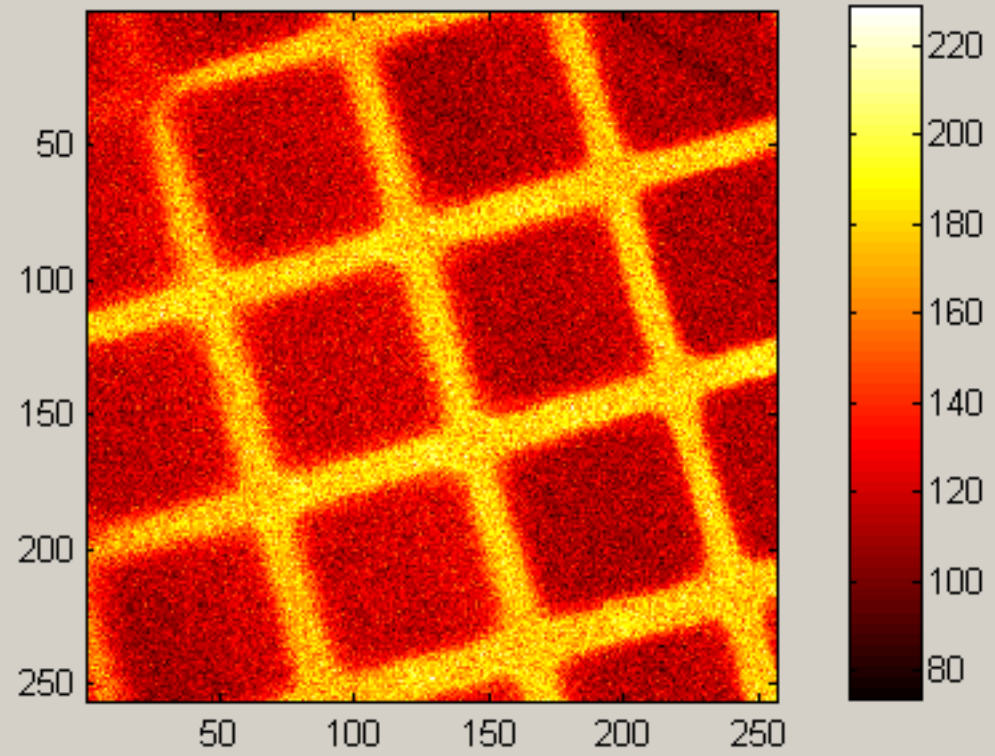
Image: imagedata_dan01

Choose a Function

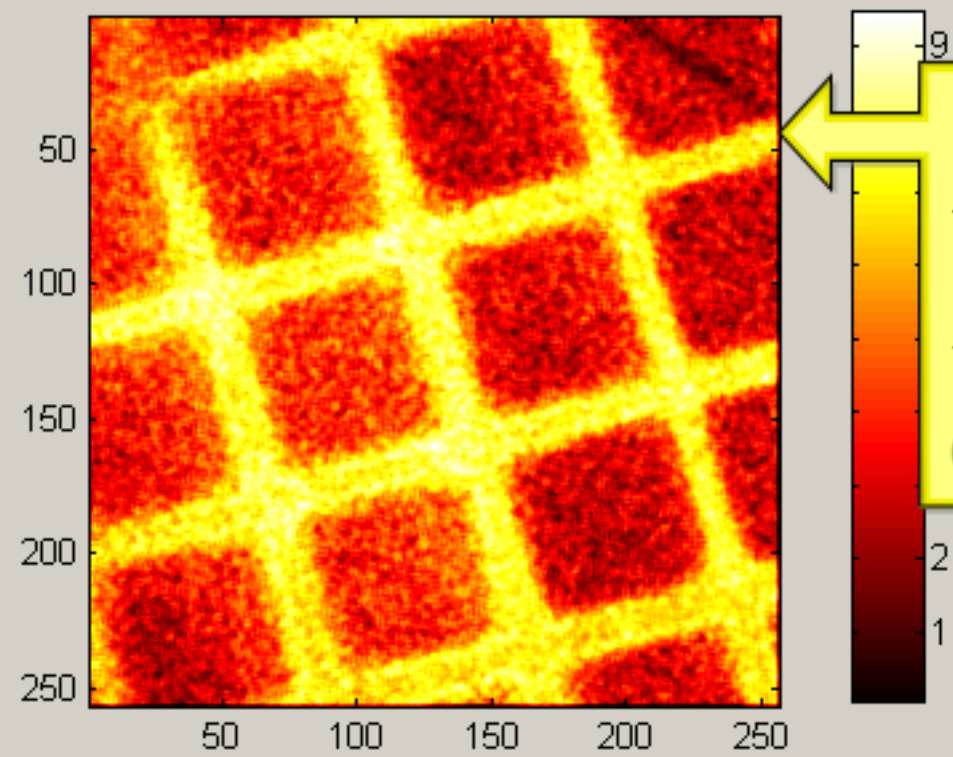
Choose one...

Close Panel

Input Image



Output Image
Box Car (k=3)



Box Car filtered Data Saved. Image shown here

Once the data is processed a message appears to the left and the modified image is shown in the 'Output Image' plot box.

This is the boxcar filtered data.



Data Selection Panel

Name of Image Matrix

imagedata_dan...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

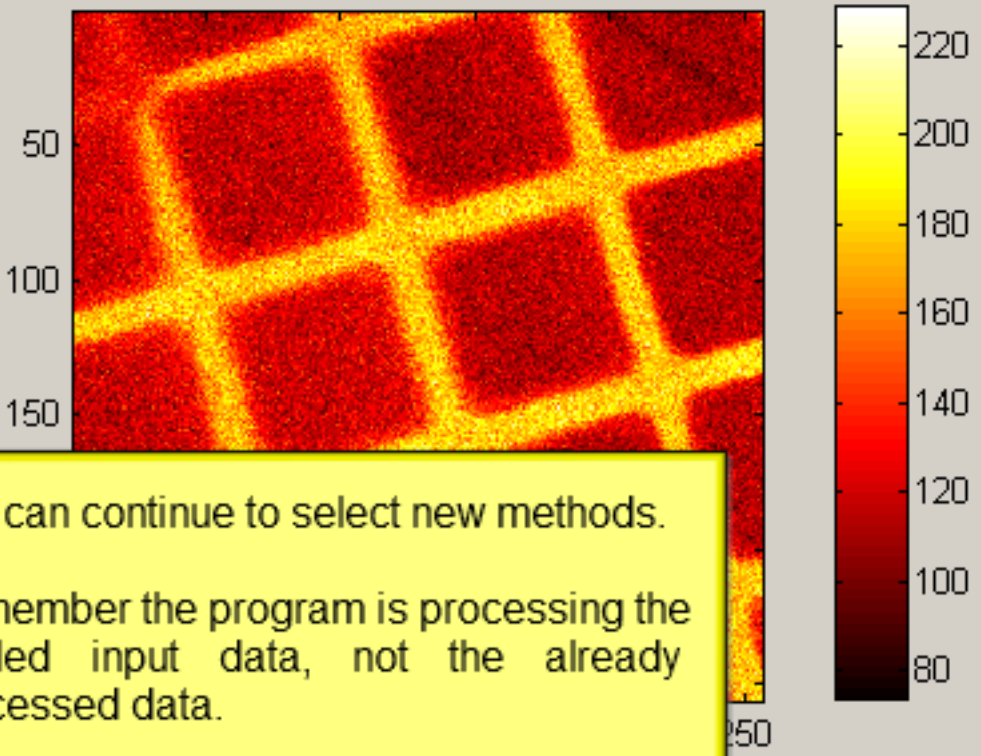
Image: imagedata_dan01

Choose a Function

Choose one...

- Choose one...
- Down bin image by 2
- Up sample image by 2
- Boxcar filter (kernel = 3)
- Wavelet filter image

Input Image



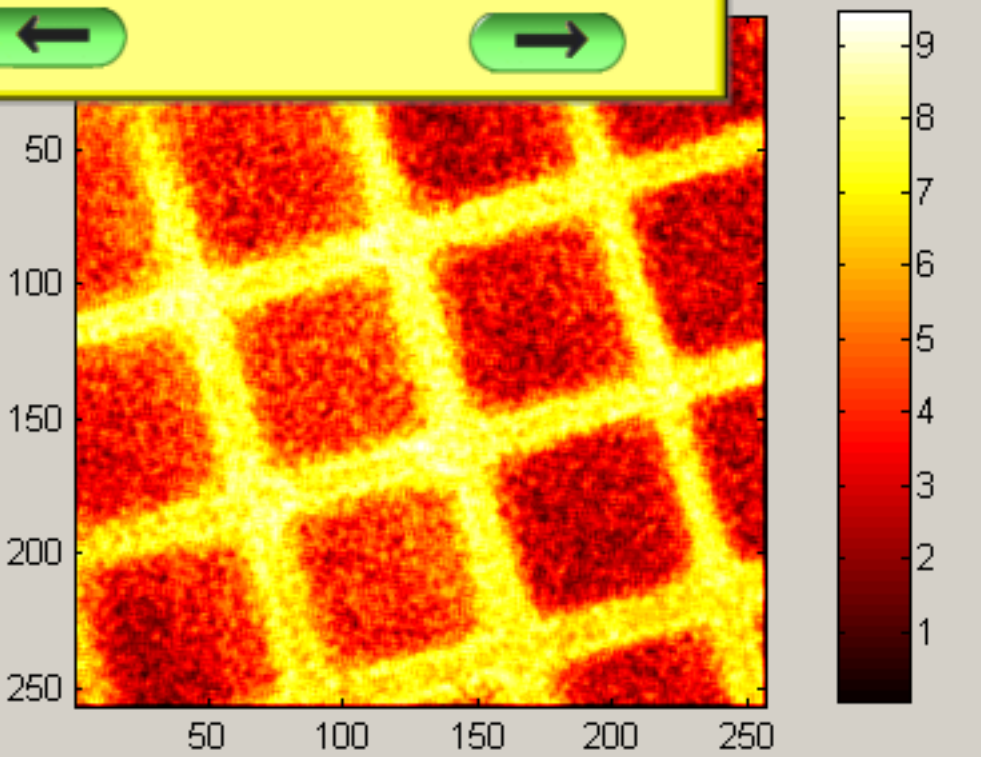
You can continue to select new methods.

Remember the program is processing the loaded input data, not the already processed data.

To do sequential filters one would have to load the desired filtered data from the 'Image Matrix' drop down menu before selecting the new filter method.



Box Car filtered Data Saved. Image shown here



Data Selection Panel

Name of Image Matrix

imagedata_dan...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

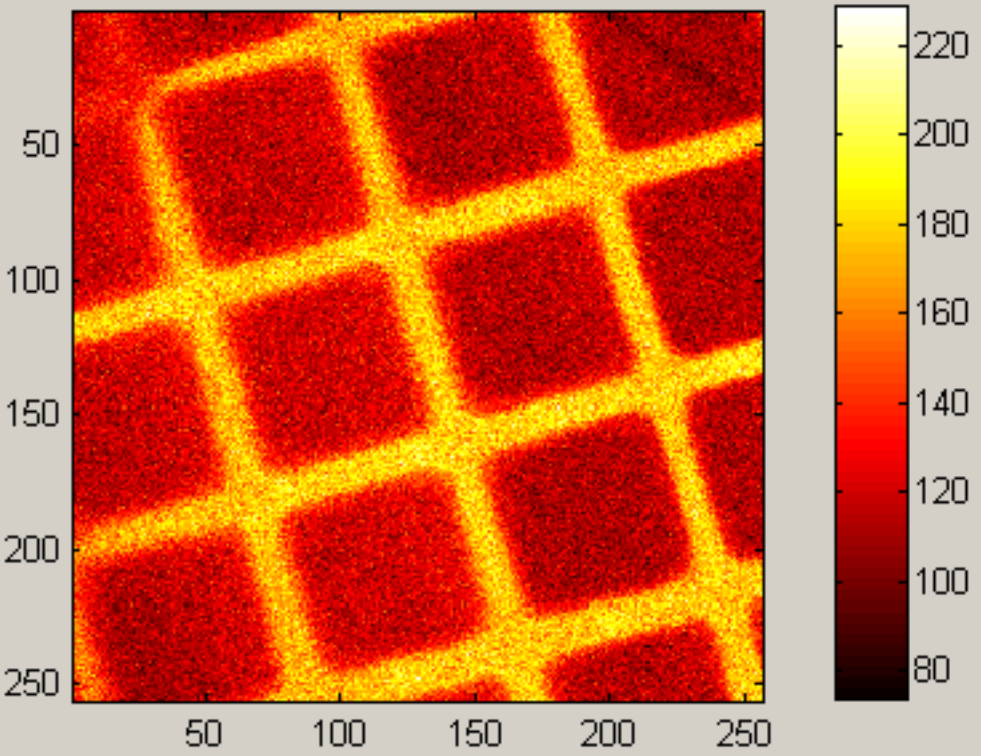
Image: imagedata_dan01

Choose a Function

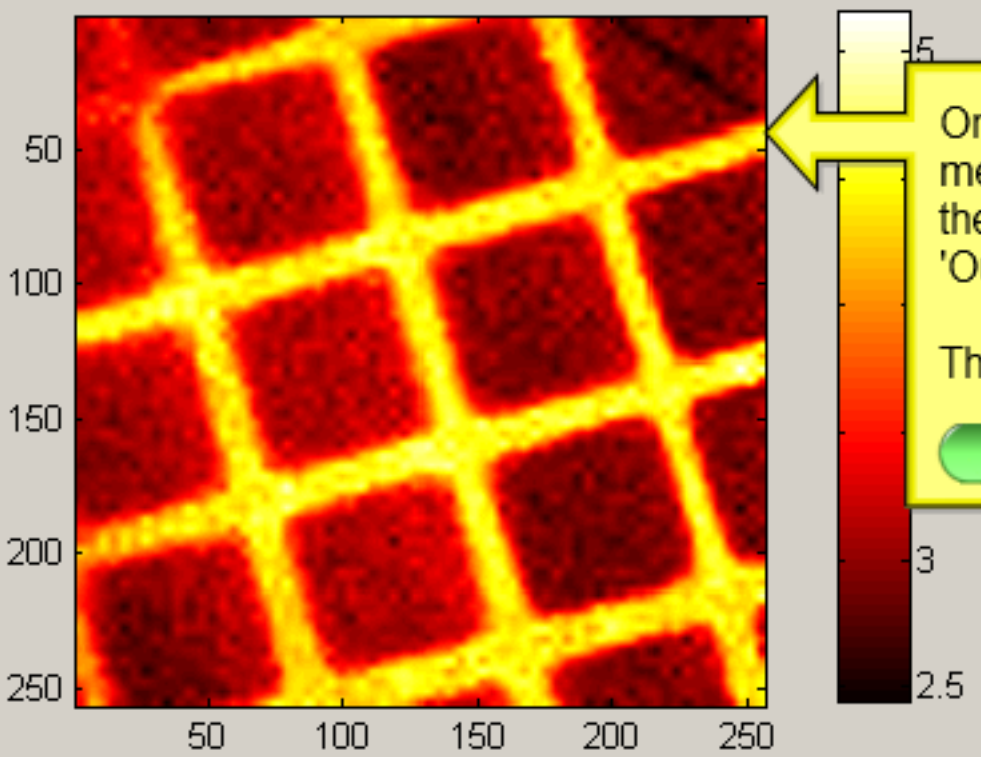
Choose one...

Close Panel

Input Image



Output Image
Wavelet



Wavelet Filtered Data Saved. Image shown

Once the data is processed a message appears to the left and the modified image is shown in the 'Output Image' plot box.

This is the wavelet filtered data.



Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_dan...

exactmass_dan01

Select Data

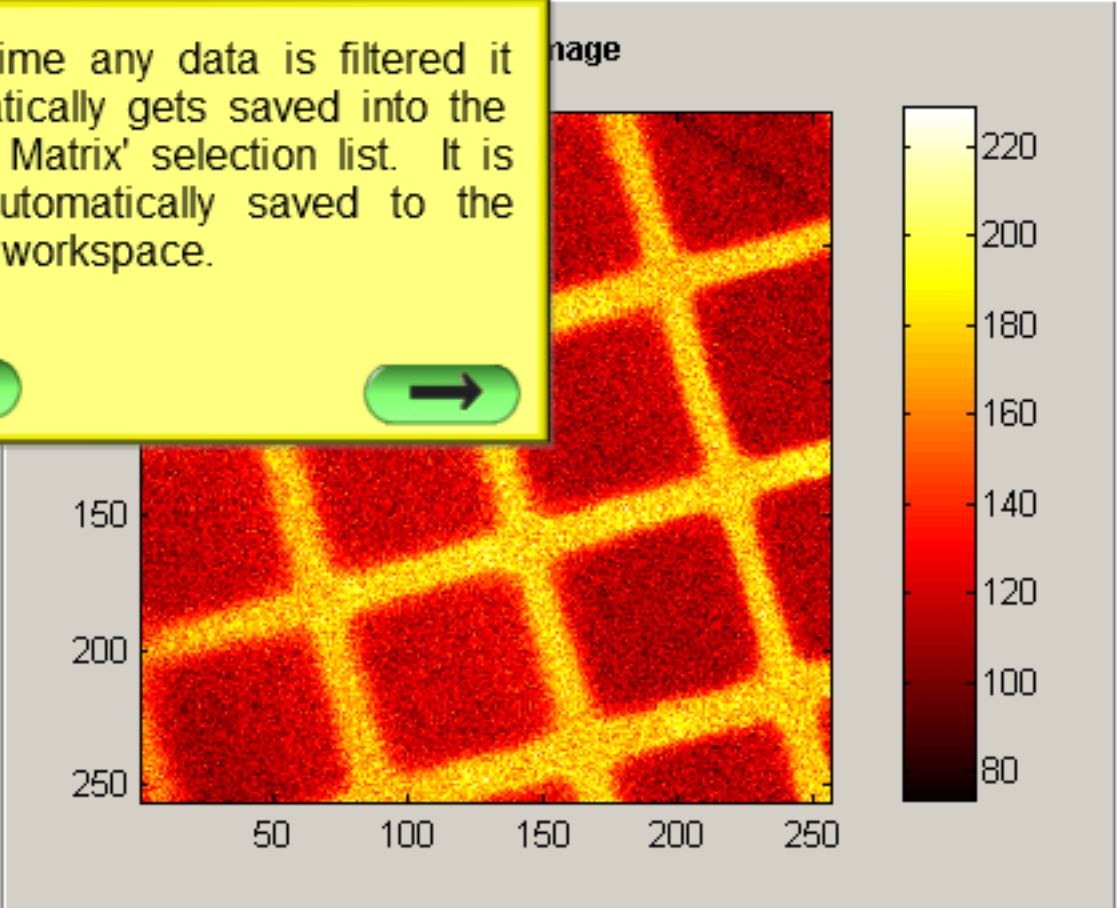
- imagedata_dan01
- downbinx2_imagedata_dan01
- Boxcar_k3_imagedata_dan01
- Wavelet_imagedata_dan01

Each time any data is filtered it automatically gets saved into the 'Image Matrix' selection list. It is also automatically saved to the matlab workspace.

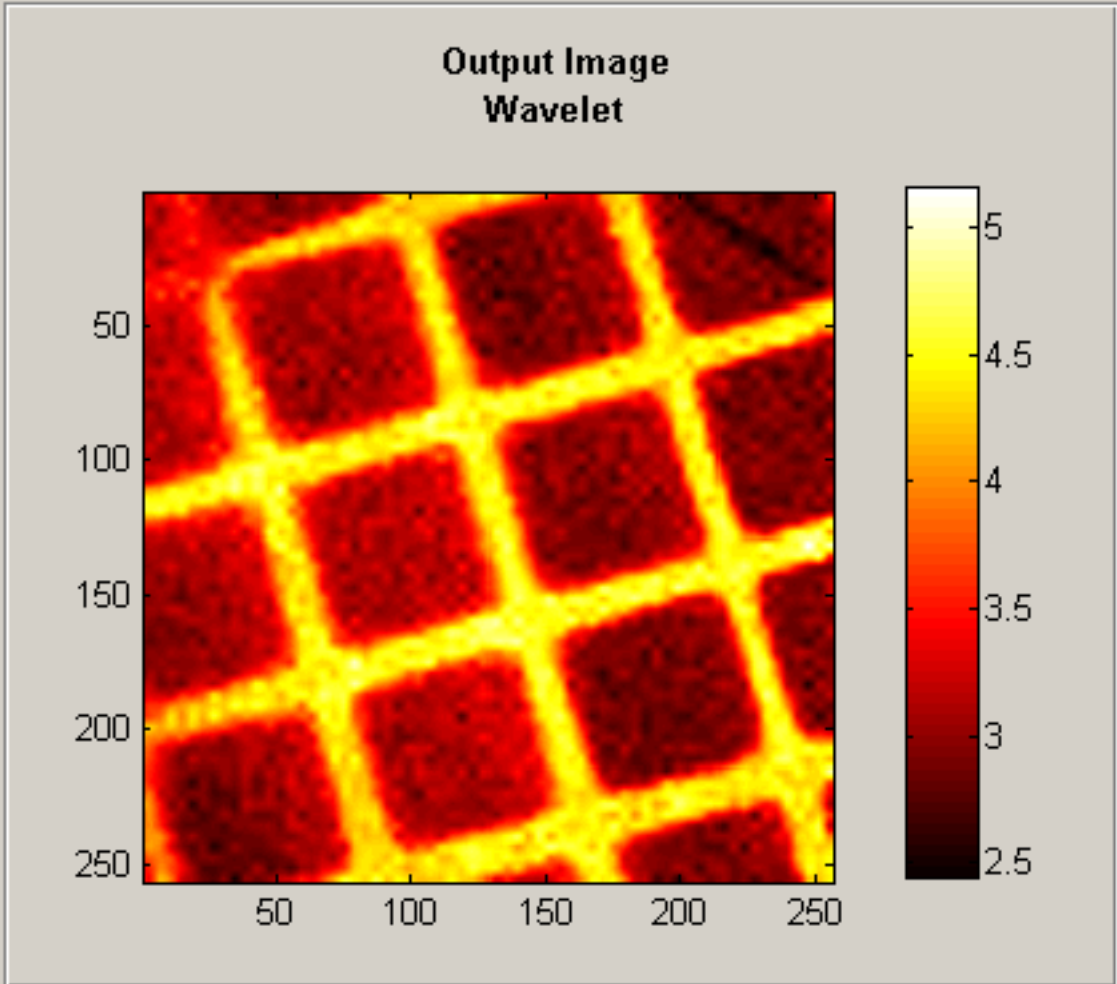
Choose a Function

Choose one...

Close Panel



Output Image
Wavelet



Wavelet Filtered Data Saved. Image shown

Data Selection Panel

Name of Image Matrix Name of Variable Matrix

imagedata_dan... exactmass_dan01

- Select Data
- imagedata_dan01
 - downbinx2_imagedata_dan01**
 - Boxcar_k3_imagedata_dan01
 - Wavelet_imagedata_dan01

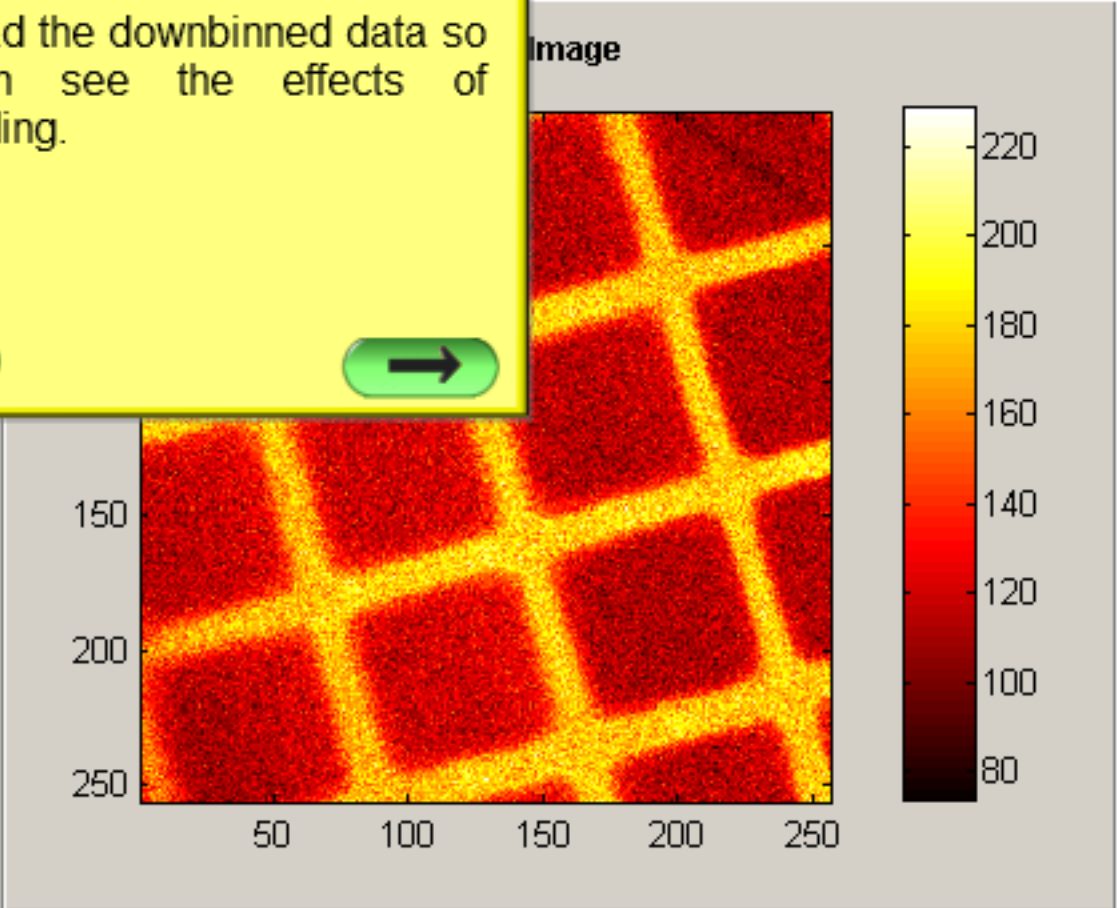
Let's load the downbinned data so we can see the effects of upsampling.



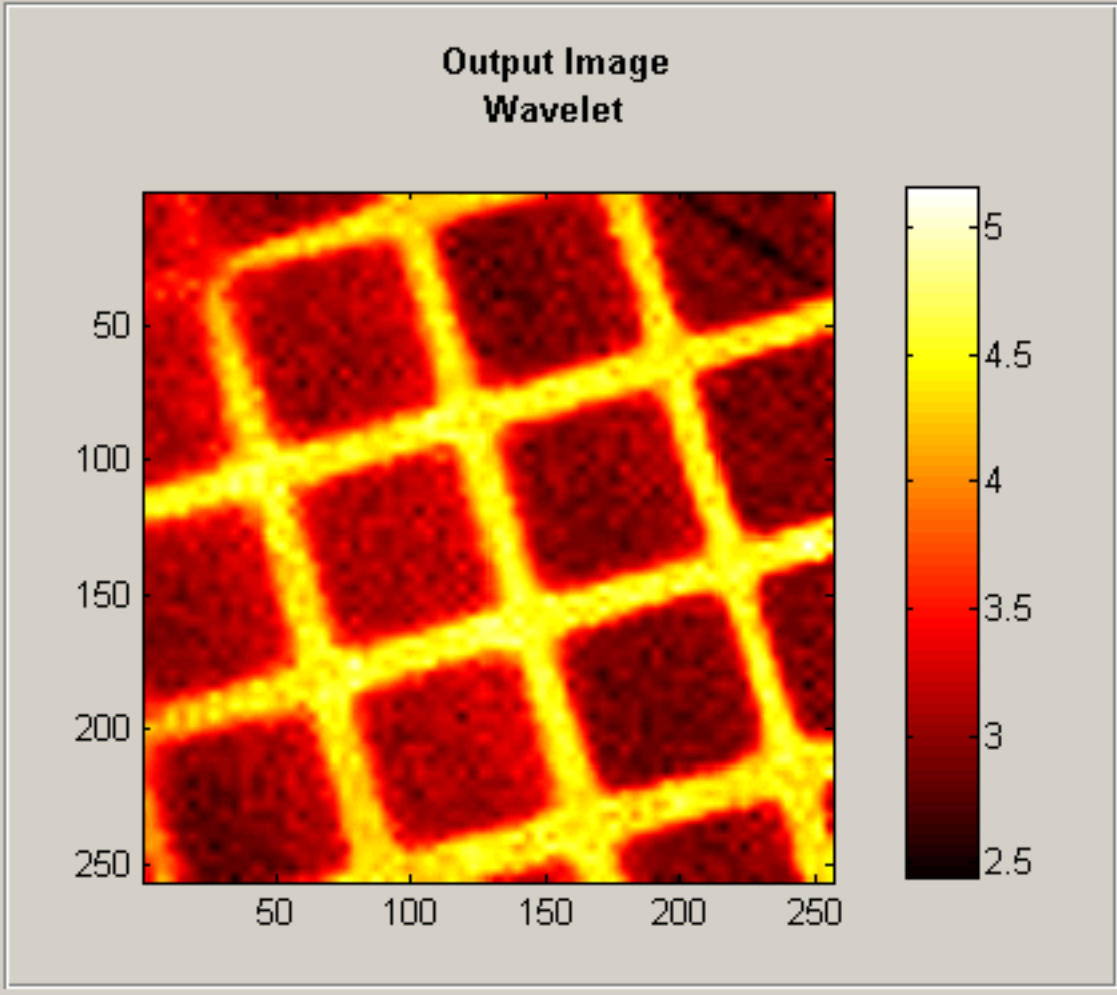
Choose a Function

Choose one... ...

Close Panel



Wavelet Filtered Data Saved. Image shown



Data Selection Panel

Name of Image Matrix

downbinx2_ima...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

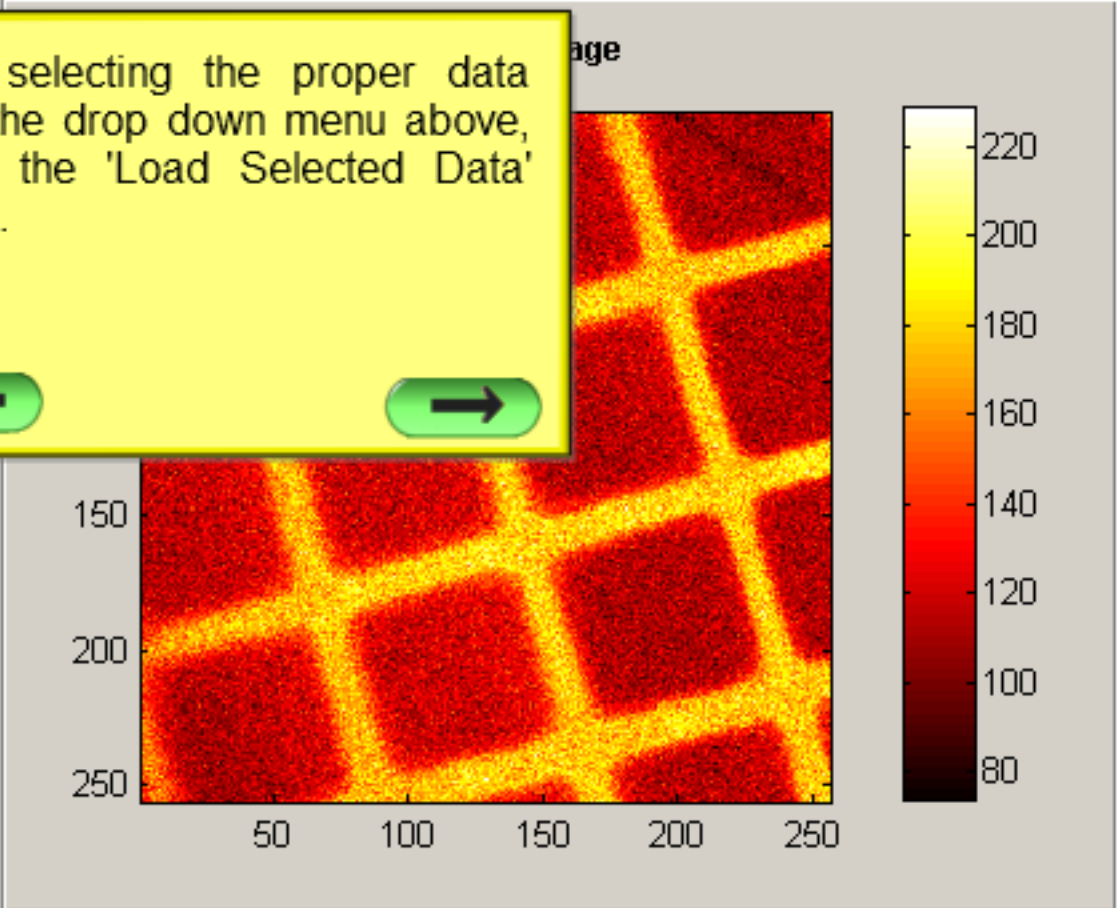
Image: imagedata_dan01

Choose a Function

Choose one... ..

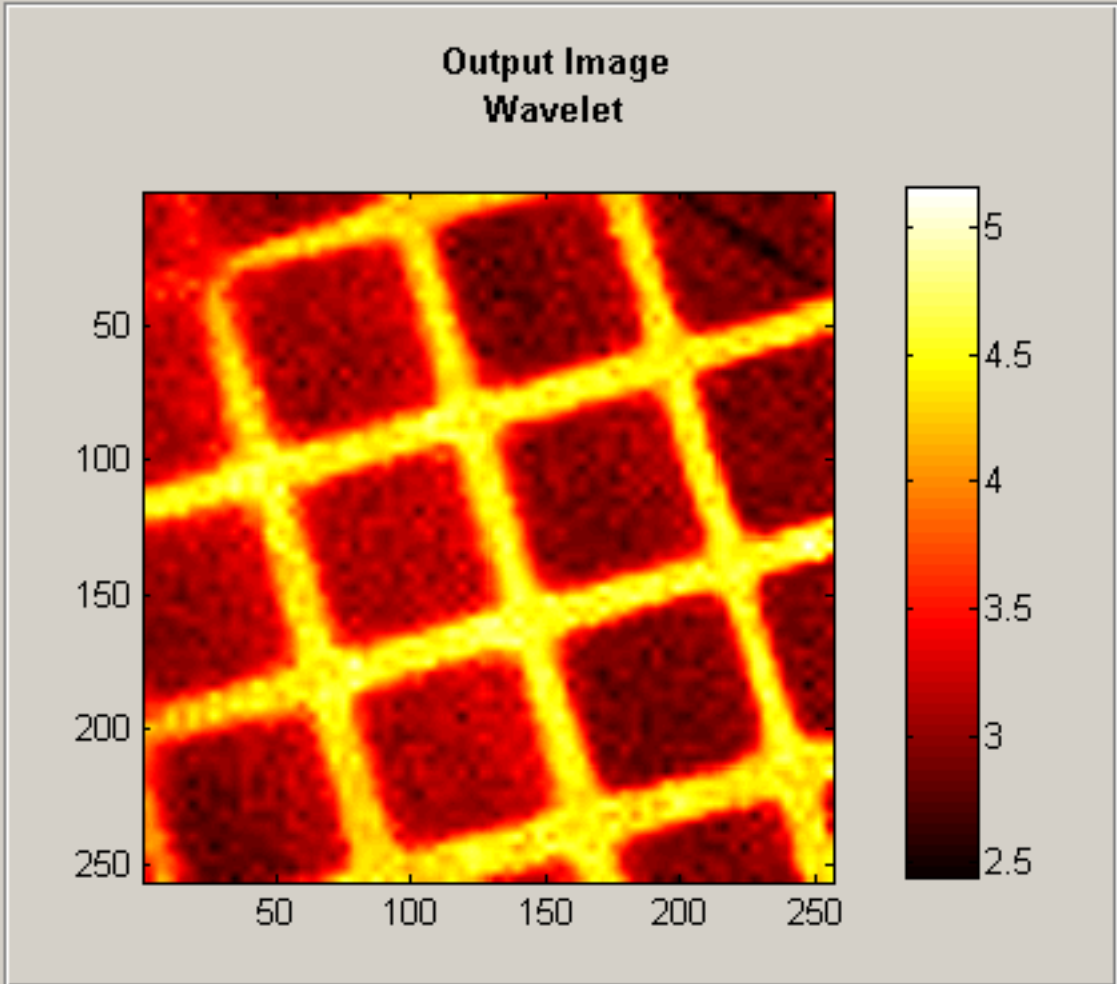
Close Panel

After selecting the proper data from the drop down menu above, press the 'Load Selected Data' button.



Output Image
Wavelet

Wavelet Filtered Data Saved. Image shown



Data Selection Panel

Name of Image Matrix

downbinx2_ima...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

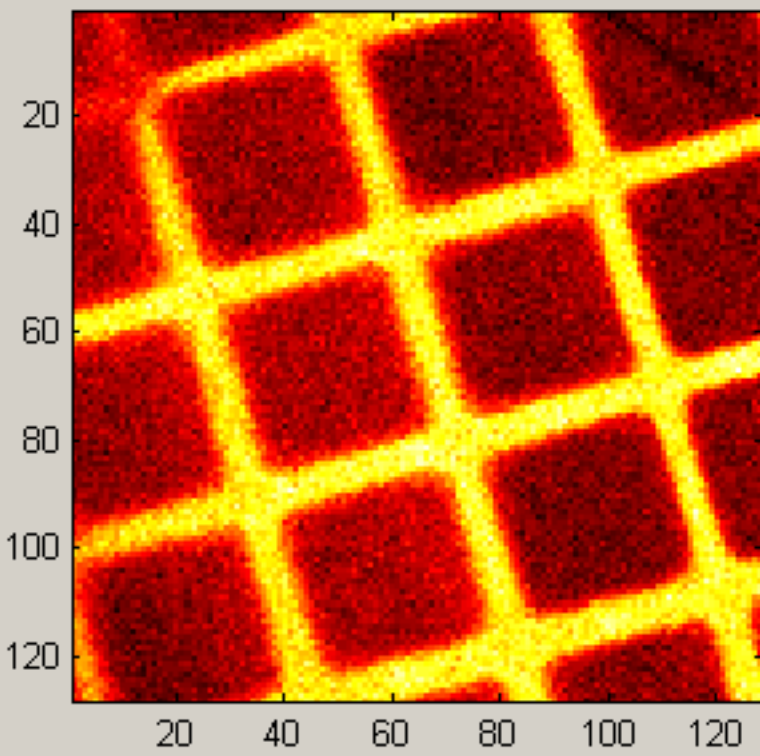
Image: downbinx2_imagedata_da

Choose a Function

Choose one...

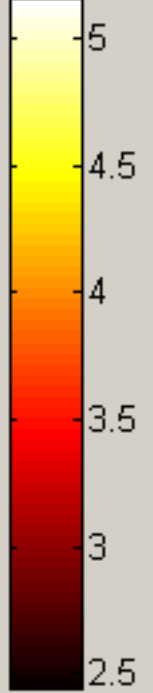
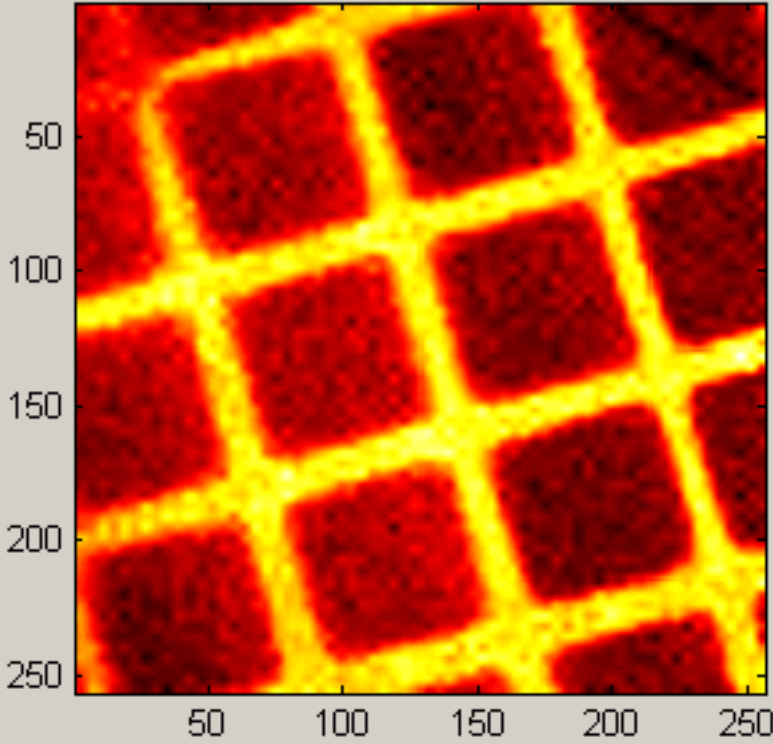
Close Panel

Input Image



The image data is loaded. Note this image is 128x128 as expected.

Output Image
Wavelet



Wavelet Filtered Data Saved. Image shown

Data Selection Panel

Name of Image Matrix

downbinx2_ima...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

Image: downbinx2_imagedata_da

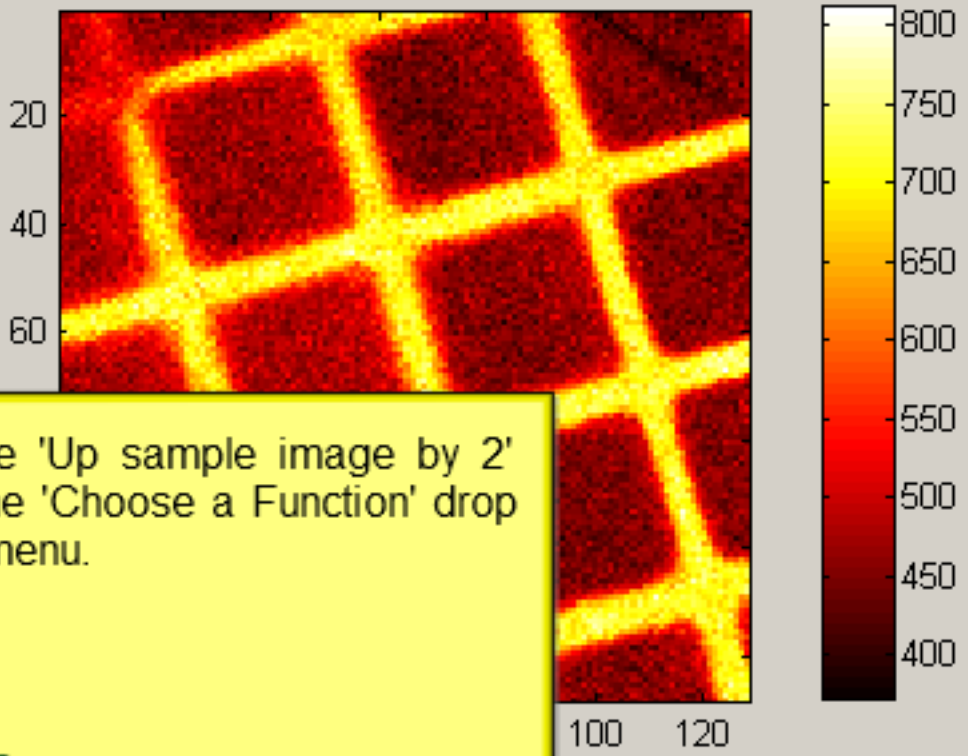
Choose a Function

Choose one...

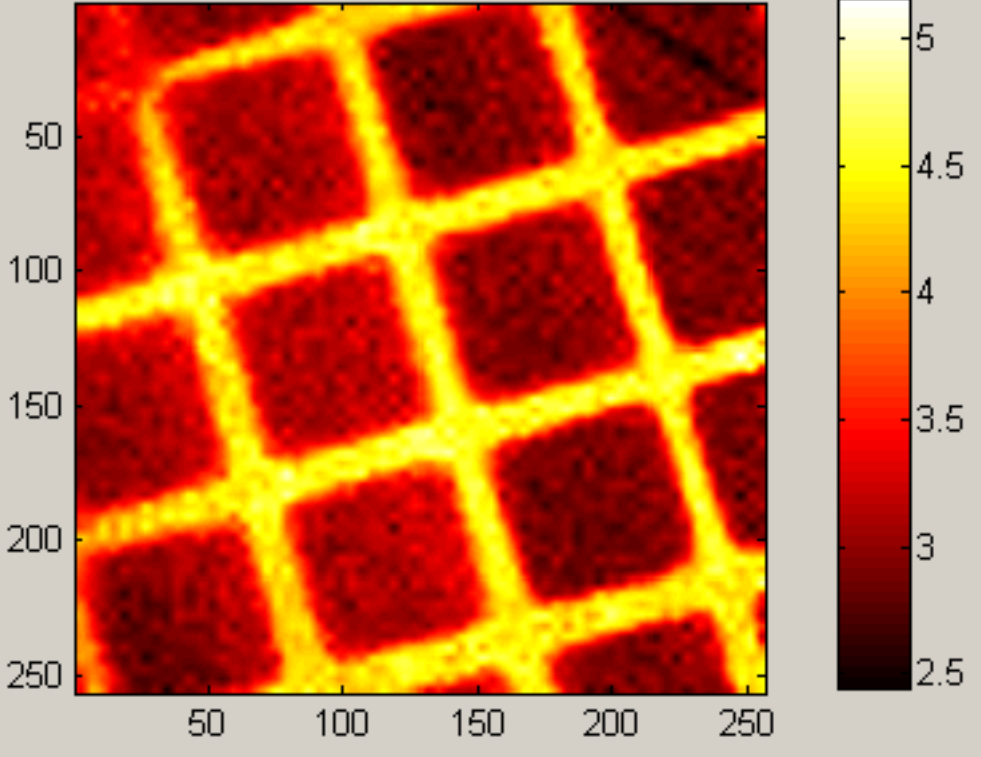
- Choose one...
- Down bin image by 2
- Up sample image by 2
- Boxcar filter (kernel = 3)
- Wavelet filter image

Choose 'Up sample image by 2' from the 'Choose a Function' drop down menu.

Input Image



Output Image
Wavelet



Wavelet Filtered Data Saved. Image shown

Data Selection Panel

Name of Image Matrix

downbinx2_ima...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

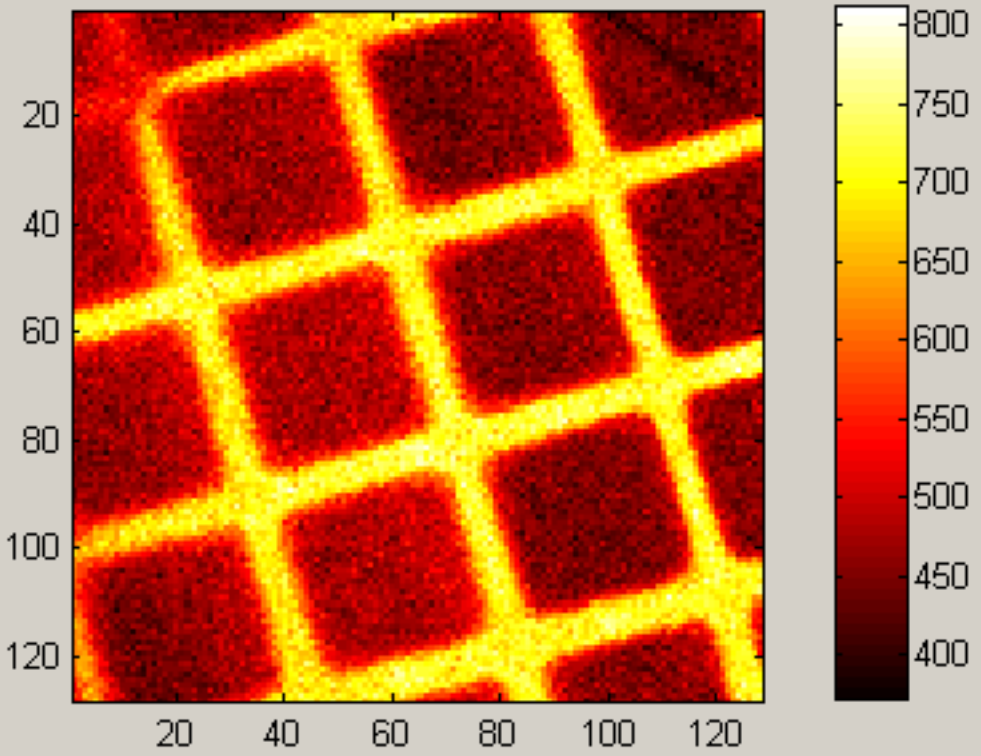
Image: downbinx2_imagedata_da

Choose a Function

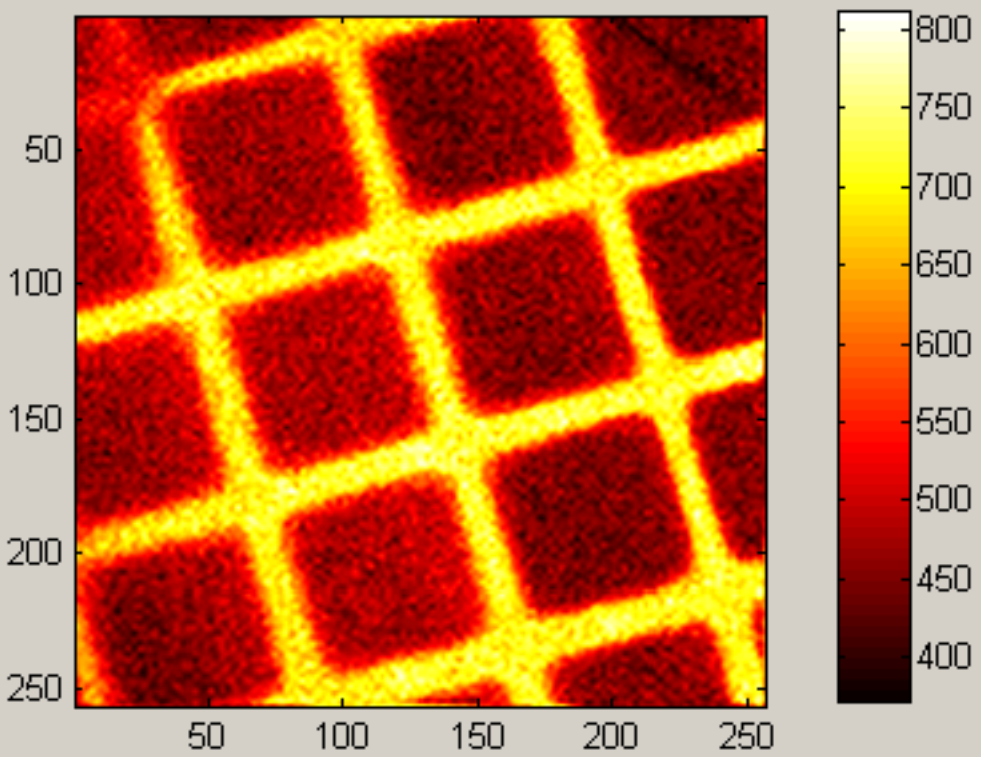
Choose one...

Close Panel

Input Image



Output Image
Up Sampled x2



Once the data is processed a message appears to the left and the modified image is shown in the 'Output Image' plot box.

This is the upsampled data.

Note that this is 256x256, but it is not exactly like the original image since it has now been processed twice.



Data Selection Panel

Name of Image Matrix

downbinx2_ima...

Name of Variable Matrix

exactmass_dan01

Load Selected Data

Image: downbinx2_imagedata_da

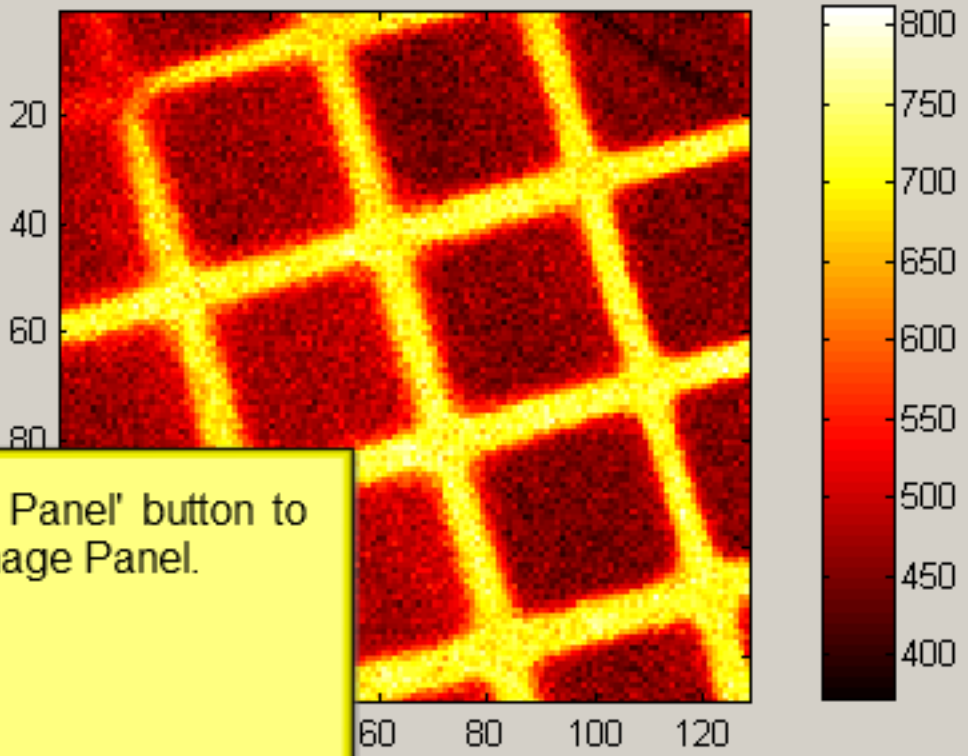
Choose a Function

Choose one...

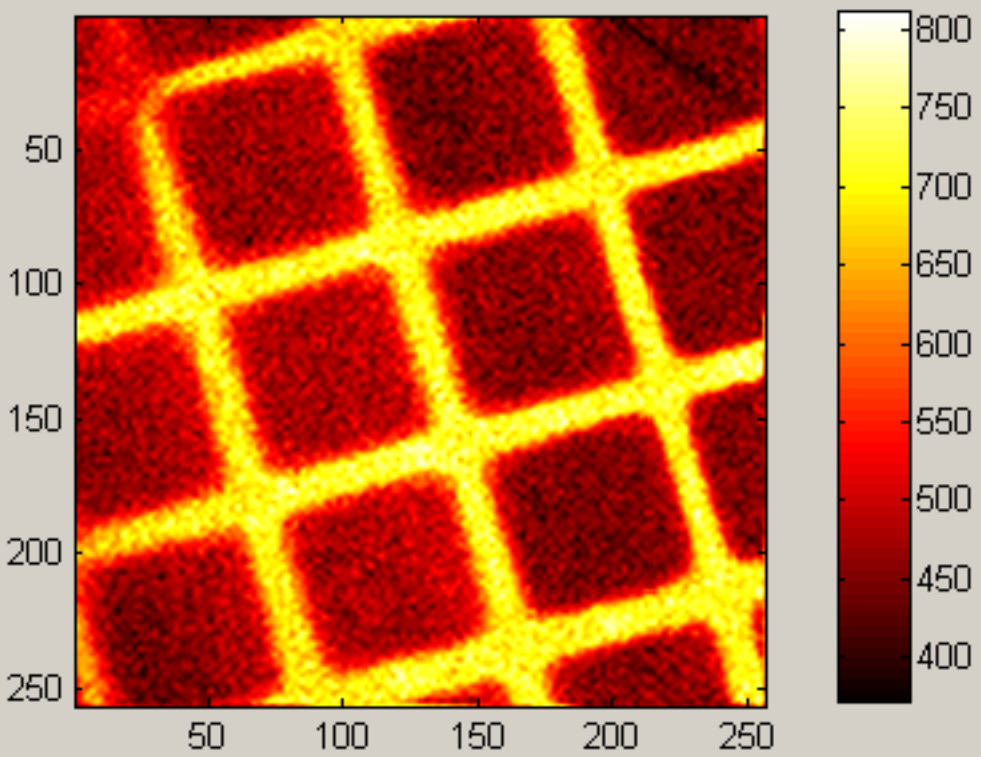
Close Panel

Press the 'Close Panel' button to close the 'Filter Image Panel.'

Input Image



Output Image
Up Sampled x2



Up sampled Data Saved. Image shown here ->

Data Selection Panel

Name of Image Matrix

downbinx2_ima... ▾

Name of Variable Matrix

exactmass_dan01 ▾

That ends this tutorial. Press the button on the left to go back to the previous step. Press the button on the right to start the tutorial over.

