FFT shift

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October 18, 2006

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Abstract

A common usage when working with Fourier transform is to shift the the image to put the zero-frequency component in the center of the image. This contribution comes with a filter to perform this transform.

This filter is multitreaded and works with any dimensions or size of image.

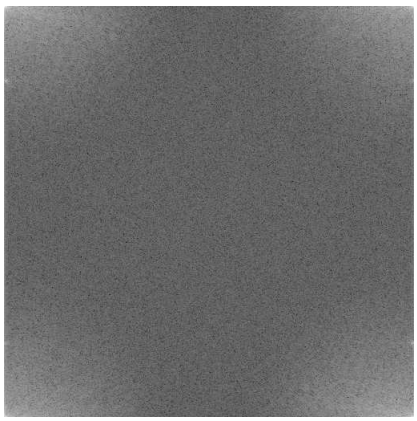

Figure 1: The input image.

When the size of the image is odd on one dimension or more, performing the transform twice will not produce the same image than the input, as shown in the figure below. To get it right, the option `SetInverse(true)` has to be used.

The filter is very simple, and there shouldn't be any problem to use it. Please look at check.cxx in the tar ball for an example.

References

[1] L. Ibanez and W. Schroeder. *The ITK Software Guide*. Kitware, Inc. ISBN 1-930934-10-6, http://www.itk.org/ItkSoftwareGuide.pdf, 2003.

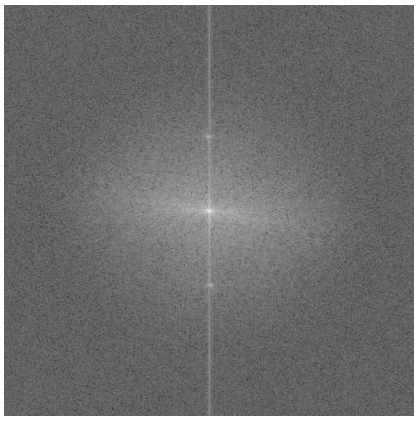

Figure 2: The shifted image.

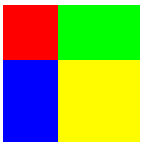

Figure 3: The input image (size = 5 x 5).

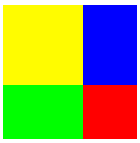

Figure 4: The shifted image.

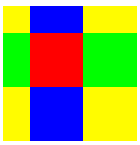

Figure 5: The image shifted twice without using SetInverse(true) for the second transform.