## Wiener Filter

[1]

Wiener filter is mainly used for noise reduction in an image.

Example of its application : Restoring a blurred image(deblurring).

[2]

Wiener filter python function : **Scipy.signal.wiener()**

Syntax **: scipy.signal.wiener(***im***,** *mysize=None***,** *noise=None***)**

Perform a Wiener filter on an N-dimensional array.

Apply a Wiener filter to the N-dimensional array *im*.

Parameters :

1) **im** *: ndarray*

An N-dimensional array.

2) **mysize** *: int or arraylike, (optional)*

A scalar or an N-length list giving the size of the Wiener filter window in each dimension. Elements of mysize should be odd. If mysize is a scalar, then this scalar is used as the size in each dimension.

3) **noise** *: float, (optional)*

The noise-power to use. If None, then noise is estimated as the average of the local variance of the input.

[3]

I am not sure that this filter has an application on medical images, if it is used on medical images it would be used in the signal conditioning stage, we try to eliminate noise by using this filter.

[4]

A Scientific paper that uses wiener filter as an image enhancement technique.

IMAGE ENHANCEMENT USING WIENER FILTRATION

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<http://www2.humusoft.cz/www/papers/tcp05/dobes.pdf>

References :

## 1) Deblurring Images Using a Wiener Filter

<https://www.mathworks.com/help/images/examples/deblurring-images-using-a-wiener-filter.html>

2) scipy.signal.wiener()

<https://docs.scipy.org/doc/scipy-0.14.0/reference/generated/scipy.signal.wiener.html>

3) IMAGE ENHANCEMENT USING WIENER FILTRATION

http://www2.humusoft.cz/www/papers/tcp05/dobes.pdf