

Denoising of ultrasound images

Goals:

General goal

To improve the quality of ultrasound images by reducing the levels of speckle noise.

Specific goals

Test various algorithms utilizing spatial and transform domain for speckle noise reduction and compare their performance using quantitative metrics.

Brief Description:

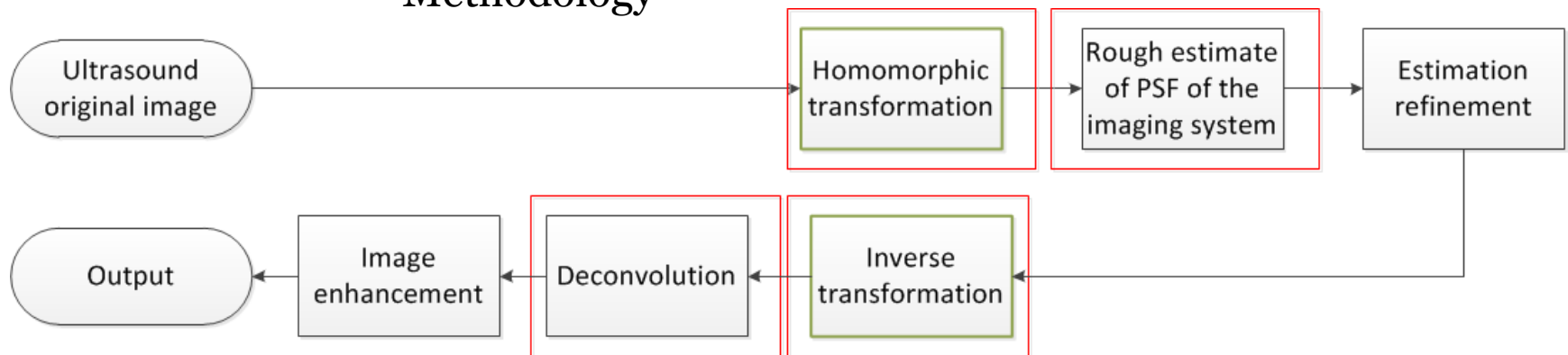
The ultimate goal of our work with ultrasound images is image segmentation. This is a challenging task because of the poor quality of ultrasound images. The main problem of this kind of medical imaging systems is the high level of speckle noise, which makes difficult the computer-aided delineation of body structures, tumors and masses. In this research we pretend to filter out as much noise as possible and to preserve important diagnostic information.

Heights of Achievements this semester:

- Implementation of an homomorphic filter for the estimation of PSF in ultrasound imaging
- Implementation of an algorithm for decomposing grayscale image using Empirical Mode Decomposition.
- Application of several filters on IMFs

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Methodology



Some results



Homomorphic filtering



EEMD + Non-linear diffusion