Abstract

Evaluation have been done to different enhancement techniques applied to ultrasound kidney images to see which enhancement techniques is the most suitable techniques that can be applied to the kidney images before segmenting the edge of the kidney. Five common enhancement techniques have been used including the spatial domain filtering, frequency
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domain filtering, histogram processing, morphological filtering and wavelet filtering. The
techniques applied were assessed by few methods which are the observer sensitivity,
measuring the image quality by calculating the MSE and PSNR of the image and applying one
of the segmentation techniques to the output images. In conclusion, for ultrasound kidney
image, if the whole image were taken into consideration (by measuring MSE and PSNR),
morphological filtering seems to be the best option in enhancing the image. If the evaluator is
concerning more on the kidney edges, enhancement techniques that should be taken into
consideration are median filtering and histogram equalization.

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**Index Terms**

Computer Science  
Image Processing

**Key words**

Comparative Evaluation  
Ultrasound Kidney Image

MSE and PSNR