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Medical image illumination enhancement and sharpening by using stationary wavelet transform

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Résumé en anglais	Medical images captured by various devices have different illumination states based on chemicals used by patient prior to scanning. Consider a MRI image which has low contrast or is too bright, hence the experts cannot analysis that image due to poor representation of data in the image. In this paper we are proposing new medical image illumination enhancement and sharpening technique based on stationary wavelet transform which is addressing the aforementioned problem. The technique decomposes the input medical image into the four frequency subbands by using stationary wavelet transformation and enhances the illumination of the low-low subband image, and then it enhanced edges of image by adding the high frequency subbands to the image. The technique is compared with the conventional and state-of-art image illumination enhancement techniques such as histogram equalisation, local histogram equalisation, singular value equalisation, and discrete wavelet transform followed by singular value decomposition contrast enhancement techniques. The experimental results are showing the superiority of the proposed method over the conventional and the state-of-art techniques.
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