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Automatic Post Stroke Detection from Computed Tomography Images

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Abstract : For detecting strokes, Computed Tomography (CT) scan is preferred for imaging the abnormalities or infarction in the brain. Because of the problems in the window settings used to evaluate brain CT images, they are very poor in the early stage infarction detection. This paper presents an automatic estimation method for the window settings of the CT images for proper contrast of the hyper infarction present in the brain. In the proposed work the window width is estimated automatically for each slice and the window centre is changed to a new value of 31HU, which is the average of the HU values of the grey matter and white matter in the brain. The automatic window width estimation is based on the average of median of statistical central moments. Thus with the new suggested window centre and estimated window width, the hyper infarction or post-stroke regions in CT brain images are properly detected. The proposed approach assists the radiologists in CT evaluation for early quantitative signs of delayed stroke, which leads to severe hemorrhage in the future can be prevented by providing timely medication to the patients.

Keywords : computed tomography (CT), hyper infarction or post stroke region, Hounsefield Unit (HU), window centre (WC), window width (WW)
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