

عنوان مقاله:

A Novel Intelligent System to Accurately Segmentation of Brain Tumors in MR images by Using Image Processing and Discrete Wavelet Transform

محل انتشار:

اولین کنفرانس ملی مهندسی برق اصفهان (سال: 1391)

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خلاصه مقاله:

Nowadays, automatic suspicious tissue detection in MR images is very important in many diagnostic applications. Thediagnosis and separation of cancerous tumors in MR images require accuracy, experience and time, and it has alwaysposed itself as a major challenge to the physicians because they rely on visual detection more than anything inidentifying the tumor and determining its location in MR images. In this paper, we have proposed a new method basedon image processing techniques that enhance the accuracy, sensitivity and specificity of detection in the diagnosis ofcancerous tumors. Initially by applying the DWT on the input images and constructing the approximate coefficients ofscaling components, the different parts of image are classified, and with the selection of the appropriate threshold, the suspicious cancerous mass will be separated. The reception of 170 images from the MedPixTm and Harvard MedicalSchool databases including of MRI T1-Wighted, T2-wighted and PD (Proton Density) images which 100 imagescontain tumor or Edema and other images only represents normal healthy tissue (white and gray tissue) and 97.66% sensitivity and 97.45% accuracy indicate the optimum performance of the system and the correlation coefficient of PHYSICIANS EARLY detection with our system were highly significant ($p < 0.05$). The precise positioning of the canceroustumor and other suspicious tissue enables the physicians to determine the progress level of the .disease and recommendthe proper treatment proportional to the growth of the cancerous tumor

کلمات کلیدی:

Image processing, MRI, Segmentation, DWT, Edge Detection, Edema, Tumor, GM, CSF, 3D

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