



RESEARCH ARTICLE

Texture Analysis of Ultrasound Medical Images for Diagnosis of Thyroid Nodule Using Support Vector Machine

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Abstract— A texture analysis of medical images gives the quantitative information about the tissue characterization & internal structure of organs for possible pathology. The physician deducing the useful information concerning internal body parts for the pathology or lesions. This is the till subjective matter of concern & thus to provide the objectification of disease diagnosis from the medical image, this paper gives the idea for thyroid nodule diagnosis using texture of the ultrasound images. Thyroid gland is located at the base of the neck, just below Adam’s apple which produces hormones that control body metabolism. The nodules are found in thyroid may be benign or malignant. In this paper, gray level co-occurrence matrix (GLCM) is used as the texture characterization technique. The 10 GLCM feature are selected for feature extraction & GLCM matrix is calculated for four different orientation & different pixel distance from 1 to 15. The extracted features are classified using SVM classifier with linear kernel for diagnosis of thyroid nodule malignancy risk. The experimental results show the performance measure of SVM classifier in terms classification accuracy, Positive predicted rate, Negative predicted rate, sensitivity & specificity.

Keywords— Texture analysis; thyroid nodule; GLCM; SVM

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