# Method and System for the Automated Analysis of Lesions in Ultrasound Images

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## Technology description

## Description

A method and apparatus for the computerized automatic analysis of lesions in ultrasound images, including the computerized analysis of lesions in the breast, using gradient, gray-level, and texture based measures. Echogenicity features are developed to assess the characteristics of the lesions and in some cases give an estimate of the likelihood of malignancy or of prognosis. The output from the computerized analysis is used in making a diagnosis and/or prognosis. For example, with the analysis of the ultrasound images of the breast, the features can be used to either distinguish between malignant and benign lesions, or distinguish between (i.e., diagnosis) the types of benign lesions such as benign solid lesions (e.g., fibroadenoma), simple cysts, complex cysts, and benign cysts. The ultrasound image features can be merged with those from mammographic and/or magnetic resonance images of the same lesion for classification by means of a common artificial neural network.
Claim 1. A method for the analysis of a lesion existing in anatomical tissue, comprising: obtaining first digital image data derived from an ultrasound image of the anatomical tissue in which the lesion exists; determining a location of the lesion in relation to the first digitaldata; selecting for feature extraction analysis at least one of 1) a region of interest on the margin of the lesion, and 2) a region of interest which includes the lesion and a region of interest which is in the surrounding vicinity of the lesion, and 3) a region of interest which includes the lesion and a region of interest which is on the margin of the lesion; extracting from each selected region of interest selected in said selecting step at least one first feature that characterize a lesion within said first image data; and characterizing said lesion based on the extracted at least one first feature.

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