# Automated Method and System for Computerized Image Analysis for Prognosis

## Technology description

## Summary

An examination of the role of computer extracted features as prognostic indicators for the extent of cancer.

## Description

Published RSNA Abstract

Purpose:: To develop a computerized method to aid in the prognostic assessment of breast cancer patients using computer extracted features from mammograms. It is recognized that auxiliary lymph node status is related to the extent of breast cancer. Our method correlates computer extracted features of both the mammographic lesions and the normal parenchyma from the contralateral breast with auxillary node status.

Materials and Methods:115 lesions from 74 women diagnosed with breast cancer were collected along with the corresponding clinical information on auxiliary lymph node status; 49 cases (72 images) were lymph node negative and 25 cases (43 images) were lymph node positive. Films were digitized and analyzed at 12 bit and 0.1 mm pixel size. Each malignant mass was manually localized and segmented from the breast parenchyma. For each case we extracted two ROIs: one including the lesion and the other including the normal tissue of the contralateral breast. For each case 15 lesion features and 23 parenchyma features were extracted. Selected features were then merged using a Bayesian neural network. ROC analysis was used to assess the ability of the features to predict lymph node involvement based on both resubstitution and round robin evaluation.

Results:: From ROC analysis, the combination of two lesion features, related to shape and texture, and two parenchyma features, related to density and texture, yielded Az values of 0.87 (resubstitution) and 0.81 (round robin) in the task of distinguishing between positive and negative lymph node cases.

Conclusion:Our results indicate a potential role of computer extracted mammographic features as prognostic indicators for the extent of breast cancer.

Claim 1. A method of processing medical image data to determine a prognosis, comprising: obtaining segmented image data of a portion of the medical image data corresponding to an abnormality;

extracting at least one abnormality feature from the segmented image data corresponding to the abnormality; and determining the prognosis based on the extracted at least one abnormality feature.

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