Chapter 12

An Intelligent-Based Wavelet Classifier for Accurate Prediction of Breast Cancer

Anandakumar Haldorai
Anna University, India & Sri Eshwar College of Engineering, India

Arulmurugan Ramu
Bannari Amman Institute of Technology, India

ABSTRACT

The detection of cancer in the breast is done using mammograms (x-ray images). The authors propose a CAD framework for distinguishing little changes in mammogram which may demonstrate malignancies which are too little to be felt either by the lady herself or by a radiologist. In this chapter, they build up a framework for analysis, visualization, and prediction of cancer in breast tissue by utilizing Intelligent based wavelet classifier. Intelligent-based wavelet classifier is a new approach constructed using texture value and wavelet neural network. The proposed framework is applied to the genuine clinical database of 160 mammograms gathered from mammogram screening focuses. The execution of the CAD framework is examined utilizing ROC curve. This will help the specialists in determination of the breast tissues either cancerous or noncancerous in an accurate way.

INTRODUCTION

Breast cancer is presently a standout the most well-known sicknesses among ladies in the both developed and developing nations. In the real situation, one out of 500 ladies will get breast cancer sooner or later in her life (Ramón González, Moreno, Fernández, Izquierdo, Borrás, & Gispert, 2005). It’s recorded that 23% cancer cases and 14% lead to death. It is evaluated that more than 1.6 million new instances of breast cancer disease happened among ladies worldwide in 2010 (Jemal, Bray, Forman, O’Brien, Ferlay, Center, & Parkin, 2012). In 2011, about 1.7 million individuals were risked having breast malignancy; in that 527 new USA patients of breast cancer were analyzed every day and 110 individuals were die
in every day. Early detection stays vital for survival, especially in low and moderate nations where the sicknesses are analyzed in late stages and assets are extremely constrained. One demonstrated method for diminishing mortality from bosom tumor is the screening of asymptotic ladies by mammography.

Mammography is the best screening method that utilizes low amount X-ray beams to make a picture of the breast to discover breast tumor. The screened Images are shown in Figure 1. Mammography has been successful in screening asymptomatic ladies. The Cancer Society prescribes that all ladies who completed 40 years should go screening mammography once in a year. Thick breast tissue can look white or light dots on a mammogram. This can make mammograms harder to decipher in younger ladies, who have a tendency to have denser breast shown in Figure 2.

*Figure 1. Mammogram of the breast*

*Figure 2. a) Fatty and b) Dense tissue*
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