

# **Abstract**

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## **A Comparison between Support Vector Machine and Artificial Neural Network for Breast Cancer Detection**

Breast cancer is one of the most common kinds of cancer, as well as the leading cause of disease among women. Early detection and diagnosis of breast cancer increases the chances for successful treatment and complete recovery for the patient. Mammography is currently the most sensitive method to detect early breast cancer however, the magnetic resonance imaging (MRI) is the most attractive alternative to mammogram. Manual readings of mammograms may result in misdiagnosis due to human errors caused by visual fatigue. Computer aided detection systems (CAD) serve as a second opinion for radiologists. A new CAD system for the detection of breast cancer in mammograms is proposed. The discrete wavelet transform (DWT), the contourlet transform (CT), and the principal component analysis (PCA) are all used for feature extraction. As for classification the support vector machine (SVM) and the artificial neural network (ANN) are both used and their results are compared. The system classifies normal and abnormal tissues in addition to benign and malignant tumours.