Universiti Teknologi MARA

Identification of microcalcification in mammographic images

Noor Azliza Bt Abdul Shauti

Thesis submitted in fulfillment of the requirements for

Bachelor of Comp Science (Hons)

Faculty of Information Technology And

Quantitative Science

May 2008

Abstract

This study is conducted to determine the minimum detectable microcalcifications sizes for mammography identification. Microcalcification is sometimes difficult to detect because of their small size and low contrast. Identification microcalcifications images application was developed to improve detection of microcalcifications efficiency in image quality and high detection efficiency in early detection environments. This identification . application was developed to overcome the limitations of conventional mammography the currently identification. Beside that, this study will apply the algorithm experimental analysis such as invert, contrast, blur, and sharpen in analyzing the enhancement. The result also will be compare with all of algorithm experimental. This study will focused on mammographic images only by using mammography CAD (computer-aided diagnosis). By using this identification, it can simulate in flexible images post processing and analysis in easy image management using java aplication. The mammographic images quality can be high, clear, efficiency and flexible. From the result showed that image enhancement is to give a good and better image after ehnace.For future direction, this enhancement can be use to improve a quality of image and in image processing field especially in identify of microcalcification in future.

Keywords: microcalcification,   mammography,   mammographic   images.

Acknowledgements

Thank you very much.

Table of Contents

1 Introduction

1.1 Introduction

Breast cancer is one of the most devastating and deadly diseases for women today. Despite advances in cancer treatment, early mammographic detection remains the first line of defence in the battle against breast cancer. Mammography is currently the method of choice for early detection of breast cancer in women. However, the interpretation of mammograms is largely based on radiologist's opinion. Useful interpretation in mammography depends on the quality of the mammographic images and the ability of the radiologists who interpret them. In this study an attempt is made to develop an image processing algorithm for the detection of microcalcifications and also a computer based decision system for early detection of breast cancer.

The proposed method deals with a novel approach for the development of a computer aided decision (CAD) system for early detection of breast cancer by mammogram image analysis. Ultimately, computer-aided diagnosis (CAD) may become an integrated tool in the diagnostic work-up of suspect breast lesions by using multimodality images. It is generally believed that CAD can provide a valuable second look and improve the accuracy of breast cancer detection at an earlier stage.

Many of the researchers have done their study in detection of microcalcification. Several techniques or algorithms have been proposed to detect the presence of microcalcifications. Among the most important are methods that use physics-based mammogram representation, wavelet transform, and machine learning algorithms, morphological filters, multiresolutional analysis and fuzzy logic.

For pre-processing mammogram images, local contrast enhancement, noise equalisation and tissue thickness correction have been used. Finally, microclassification algorithms have been applied to identification of