

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(وَلَوْلَا فَضْلُ اللَّهِ عَلَيْكَ وَرَحْمَتُهُ لَهَمَّتْ طَائِفَةٌ مِنْهُمْ أَنْ يُضِلُّوكَ وَمَا يُضِلُّونَ إِلَّا أَنْفُسَهُمْ وَمَا يَصُرُّونَكَ مِنْ شَيْءٍ ۖ وَأَنْزَلَ اللَّهُ عَلَيْكَ الْكِتَابَ وَالْحِكْمَةَ وَعَلَّمَكَ مَا لَمْ تَكُن تَعْلَمُ ۚ وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا)

صدق الله العظيم

(سورة النساء الآية 113)

DIDICATION

To My parents

Who represent a life for me,

I dedicate this research to them

... And my life forever.

ACKNOWLEDGEMENT

I would like to give thanks to Allah for guiding my directions throughout this study, and for granting me more knowledge, more insight and more enlightenment.

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المستخلص

يأتى سرطان الثدي فى المرتبة الثانية من جميع أنواع السرطانات ويوجد بنسبة عالية فى الأنثى غير الذكور.

يعنى هذا البحث بدراسة فروقات التشخيص عند قراءة صور الماموغرام بواسطة الاخصائين . كما يعنى ايضا بمحاولة تطوير خوارزميه تعمل على تشخيص اورام الثدي اليا .

قمنا باخذ عشرين صوره ماموغرام من (MIAS database) وتوزيعها على ثلاثه اخصائين واتضح لنا من الدراسه ان هنالك تباين واضح فى تشخيص الاخصائين اما فى حجم الورم او عدده .

كما قمنا أيضا بتحليل العشرين صوره مستخدمين معادلات هيرلك لتحديد الطاقة والتباين والتجانس لكل . حيث تم أخذ أطار طبيعى وآخر غير طبيعى لكل صورة وتم تحديد خصائصها التى تم تحديدها باخذ المتوسط لكل اطار والتى اعطت نتائج يصعب معها تحديد الورم بدرجة عاليه من الدقه .

Abstract

Breast cancer is the second most common cancer. Mostly it founds in females as compared to males. The objectives of this study are to show and prove the difference of the interpretation of mammographic images by radiologists and attempt to develop CAD techniques that aim to provide a second option diagnosis for radiologist.

Samples of twenty digital mammograms obtained from the mini-MIAS (Mammographic Image Analysis Society) database were distributed to three different radiologists in order to verify the variability amongst them, the result of their diagnosis showed a marked variation in size and number of tumors.

MIAS images have been taken to detect benign tumors using digital image processing techniques (haralick equation), the features: energy, contrast and homogeneity were extracted using GLCM (Gray Level Co-Occurrence Matrix). For each image a normal an abnormal frame was taken and its features were determined. Its scatter shows it's not possible to locate exactly place of the tumor.

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ABBREVIATIONS

SFM	: Screen-Film Mammography
DM	: Digital Mammography
CAD	: Computer-aided Detection/Diagnosis
MIAS	: Mammographic Image Analysis Society
MATLAB	: Matrix Laboratory
FFDM	: Full-Field Digital Mammography
ROI	: Region Of Interest
GLCM	: Gray Level Co-occurrence Matrix
G	: Gray levels
ANNs	: Artificial Neural Networks
SVM	: Support Vector Machines
CLAHE	: Contrast-Limited Adaptive Histogram Equalization
HIW	: Histogram-based Intensity Windowing
CMS	: Centers for Medicare and Medicaid Services
LINPACK	: Linear System Package
EISPACK	: Eigen System Package
BLAS	: Basic Linear Algebra Subprograms