

ANNEX A – Master Thesis Proposal

1. Student Information

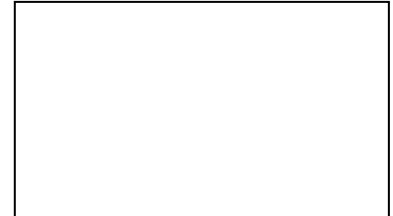
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the 16th of February 2009



2. Master Thesis Information (use as many pages as needed)

Title: Texture descriptors for Digital Mammography

Description

Breast cancer is the second cause of death among women cancers. Computer Aided Detection has been demonstrated a useful tool for early diagnosis. In this context, several recent works have applied texture based mammographic image segmentation using co-occurrence matrices (GLCM), textons, Local Binary Patterns (LBP), and many others.

Aims

In this thesis techniques based on 2D texture descriptors will be investigated. Hence, the aim of this project will be to review the literature and analyze existing works in this subject (state of the art), classifying them according to some parameters (strategy used, features used, classifier used, etc). GLCM is one of the state of the art methods well known and very used in the last studies. However, it has a high number of parameters. The main goal of this thesis is to test the performance of different 2D texture descriptors. In this sense, we want to show advantages and disadvantages of different 2D texture descriptors when applied to mammographic images, as well as to point out significant conclusions.

Tasks:

The state of the art of texture descriptors for digital mammography will be studied. The most relevant papers will be analyzed, implemented and compared. Well known public databases (MIAS and DDSM) will be used for testing and comparison.

Planning:

The master thesis is scheduled for a period of 20 weeks (16th of January to 1st of June 2009), in which four milestones are defined: the submission of the master thesis proposal (16th of February), the submission of the master thesis dissertation (1st of June), the submission of the MSc research paper and a poster (5th of June), and the final presentation of the master thesis (VIVA assessment) in Heriot-Watt University (16th-17th of June). According to these fixed deadlines, the task scheduling is as follows:

- **4 weeks:** Reading, understanding and classifying information.
- **6 weeks:** Analysis and implementation of most relevant approaches.
- **2 weeks:** Testing and comparing results.
- **4 weeks:** Discussing results and refining algorithms.
- **4 weeks:** Writing
 - Writing the master thesis dissertation.
 - Writing a MSc research paper.
 - Poster.

3. Supervisor Information

Name:

Department:

Institution:

e-mail:

Date and Signature