Visualisation and Topological Aspects of Higher Dimensional Data

Final Report for CS39440 Major Project

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February 24, 2015
Version: 1.0 (Draft)

This report was submitted as partial fulfilment of a MEng degree in Software Engineering (G601)

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Abstract

Include an abstract for your project. This should be no more than 300 words.

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Background & Objectives

1.1 Mammography

Breast cancer is the leading cause of dead among women world wide and is the most common form of cancer found in women [2]. Mammography is the analysis of female breast tissue through the use of X-ray radiology with the goal of producing high resolution images of the structure within the breast. The composition of the internal structure can then be used to permit earlier detection of breast cancer.

Qualitatively speaking the composition of breast tissue can be split into four distinct categories.

1.1.1 Risk Assessment

Mammograms provide a non-invasive means to assess the risk of a patient developing cancer. The general goal of a mammographic risk assessment is to evaluate the risk of patient having cancer. The composition of breast tissue can be categorised using the Breast Imaging Reporting And Data System (BI-RADS) [1]. BI-RADS classifies mammograms based on the density of tissue (and therefore risk) in the mammogram.

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Annotated Bibliography

[1] A. C. of Radiology. BI-RADS Committee and A. C. of Radiology, *Breast imaging reporting and data system*. American College of Radiology, 1998.

[2] R. Siegel, J. Ma, Z. Zou, and A. Jemal, "Cancer statistics, 2014," *CA: a cancer journal for clinicians*, vol. 64, no. 1, pp. 9–29, 2014.