Department of Computer Science and Engineering
Bangladesh University of Business and Technology (BUBT)

CSE 478: Literature Review Records

Student's Id and Name	**Name:** Fabia Zaman Ekah and **ID:** 19202103225
Project Title	Deep Learning in Healthcare: Breast Cancer Detection and classification using Image Processing and CNN
Supervisor Name & Designation	**Name:** Khan Md. Hasib & **Designation:** Assistant Professor, Department of CSE, BUBT
Course Teacher's Name & Designation	**Name:** Khan Md. Hasib & **Designation:** Assistant Professor, Department of CSE, BUBT

Aspects	**Paper # 3 (Title)**
Title / Question (What is problem statement?)	Development of an Artificial Intelligence-Based Breast Cancer Detection Model by Combining Mammograms and Medical Health Records
Objectives / Goal (What is looking for?)	The main aim of the work was to investigate the accuracy and efficiency of combined mammography images and clinical records for breast cancer detection using machine learning and deep learning classifiers.
Methodology / Theory (How to find the solution?)	The work was divided into some phases. • Study Design and Data Preparation. • Breast Cancer Detection Algorithm. • Deep-Learning Classifiers. • Machine-Learning Classifiers. • Performance Evaluation Metrics
Software Tools (What program/software is used for design, coding and simulation?)	The experiments were executed using Python 3.6 software based on Tensorflow 1.13.1, 16 GB installed RAM, Intel® Core™ i5-8400 CPU @2.80 GHz, and NVIDIA Geforce GTX 1060 6 GB mounted graphic card..
Test / Experiment How to test and characterize the design/prototype?	They divided the dataset into training and testing sets a ratio of 8:2.
Simulation/Test Data (What parameters are determined?)	This cross-sectional study comprised 357 women (136 malignant, 221 benign) collected from the Oncology Hospital Ho Chi Minh City between July 2017 and September 2017..
Result / Conclusion (What was the final result?)	The best classification performance was obtained with the GBM model in terms of accuracy (81.7%).

Obstacles/Challenges (List the methodological obstacles if authors mentioned in the article)	• First, a small sample size from our dataset was used to train the proposed model, so the results may not be sufficient to represent the population and limited the model's performance. • Second, the variability in the clinical factor in each population is different. However, we identified the highest contributing features that may lack particular information for a detection objective. • Third, many women with benign findings were imported into this study, hence the results may be able to occur due to the biases in the discrimination between benign and malignant.
Terminology (List the common basic words frequently used in this research field)	breast cancer; Xception; Resnet-v2; Resnet50; VGG16; CNN; k-nearest neighbor; support vector machine; random forest; artificial neural network; gradient boosting machine.
Review Judgment (Briefly compare the objectives and results of all the articles you reviewed)	• Mohapatra et al., and Li et al. [50] used Resnet50, VGG16, and Resnet-v2 with over 1500 mammography images. They achieved an accuracy of 97.3%, 65.0%, and 70.0%, respectively. • Ting et al. used an available dataset including 221 images which resulted in an accuracy of 74.9%. • Sun et al. [35] collected and analyzed 1874 mammogram images to obtain an accuracy of 82.4%.
Review Outcome (Make a decision how to use/refer the obtained knowledge to prepare a separate and new methodology for your own research project)	For my own research I would use some of the mentioned techniques.