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Investigation on digital image processing with respect to extraction of Breast Cancer Cell

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Breast cancer ranks as the most prevalent malignancy in women and the second leading cause of cancer death. There are currently no reliable methods for either preventing or treating breast cancer since its cause remains unknown. If breast cancer is detected at an early stage, it may be treated more successfully, and the patient has a better chance of making a full recovery. Mammography is still the most used screening and diagnostic imaging modality for breast cancer because of its high sensitivity for detecting the disease at an early stage. This technique has the potential to identify a wide range of disorders, including cancer, and to differentiate between benign and malignant forms of the disease. This thesis gives an effective framework for extracting features from a mammography image to detect malignant regions, which is crucial for the diagnosis and verification of breast cancer. Several methods were used to isolate the mammogram's cancer cell region. These characteristics are derived from the original grayscale mammography using image processing techniques. The identifying method begins with an image segmentation. This method is used to disentangle an image's foreground and background elements. Binary pictures are where most of the cancer cell identification algorithms have proven most effective. The second step, binarization, involves changing a grayscale image into its binary representation. As a result, the contrast of the picture improves. Once a binary picture has been thinned, it may be transformed into its skeletal form. In post-production, increasing the range of grayscale is the first step. Improving human comprehension of pictures and providing a more solid foundation for automated image processing techniques are the main goals here. Mammography images are then grayscale-extended to help find tumour cells in the breast. Therefore, the purpose of this research is to use mammograms to detect breast cancer as early as possible. The suggested ID tree outperformed KNN and SVM, with an accuracy of 93% and a total of 95% for both positive precision and recall, respectively (comparison with normal regression). The total amount of time spent training went down from 5.534 to 3.432 minutes, and the percentage of correct responses went up from 86% to 93%. The study's authors attempted to improve upon the existing 93 percent accuracy by experimenting with a variety of new feature designs. Here are the results of the research: When compared to the SVM classifier in the recommended NFe, Bagging achieved a 33% improvement in accuracy (from 0.65 to 0.98), and an overall increase in accuracy from 93% to 97%.

Biography

Bhawna Solanki 8 years of academic experience in the field of Medical Radiology Imaging Technology. Research scholar, M.Sc. & B.sc from University College of medical science, Delhi University. Presently working as assistant professor, Santosh University, Ghaziabad, Delhi. Former Assistant Professor, Era University & Noida international university, India. She has 15 national & international research publications. She is listed as an expert member (course instructor) for finalizing the curriculum for radiology technician, CTS NSQF level 5 under ministry of skill development and entrepreneurship. She worked as a project coordinator of “unnat bharat abhiyan 2.0” a flagship program of the ministry of human resources development.