BREAST CANCER MODELLING BASED ON HISTOPATHOLOGY IMAGES

LITERATURE REVIEW

BY

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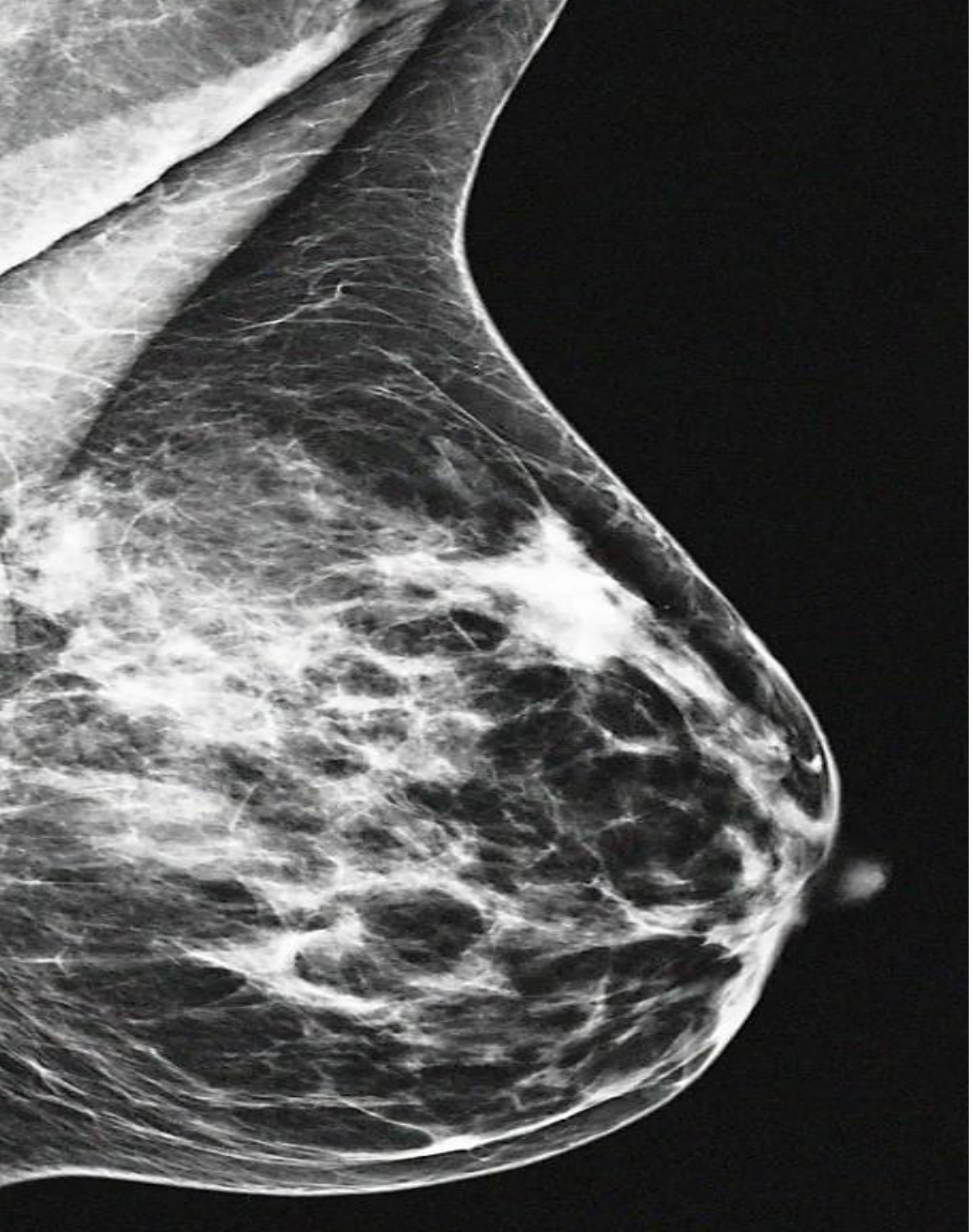


BREAST CANCER

- Breast cancer is a disease in which malignant (cancer) cells form in the tissues of the breast.
- In 2020 there were 684,996 deaths from breast cancer globally. (WHO, 2021).
- In 2022, it is estimated that 43,250 women and 530 men will die of breast cancer. (ACS, 2022).
- Every thirteen minutes, a woman dies from breast cancer.
- About 1 in 8 women are diagnosed with breast cancer during their lifetime.
- There's a good chance of recovery if it's detected at an early stage.

DEEP LEARNING

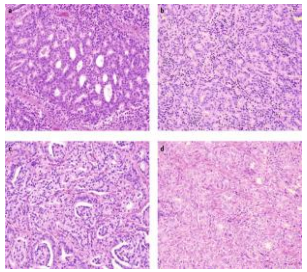
- Deep learning is a type of machine learning and artificial intelligence (AI) that imitates the way humans gain certain types of knowledge.
- The computing capability of deep learning models has enabled fast, accurate and efficient operations in healthcare.
- Deep learning models can make effective interpretations by a combination of aspects of imaging data, for example, tissue size, volume, and shape.
- In recent years, scientists have achieved promising results with Deep Learning for the diagnosis of breast cancer.
- AI application by 2026 can create $150 billion in annual savings for the U.S. healthcare economy.

IDEA

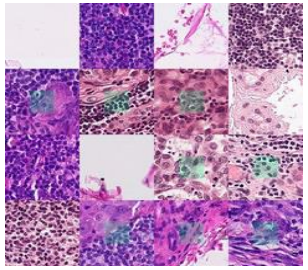
Breast Cancer can be detected using Deep Learning in three phases.

- **Segmentation** – Here we pre-process images to remove irrelevant data.
- **Feature Extraction** – With the help of the training dataset we will extract features using the Convolution Neural Network.
- **Classification** – The trained model is then used to classify whether patients have breast cancer or not.

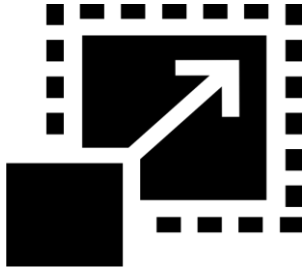
F L O W



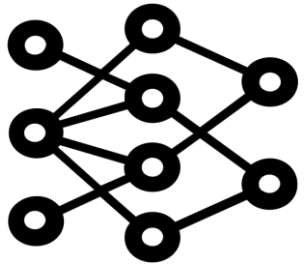
Test Data



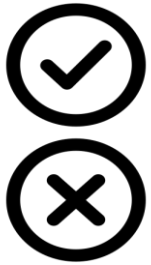
Training Data



Pre-processing Image

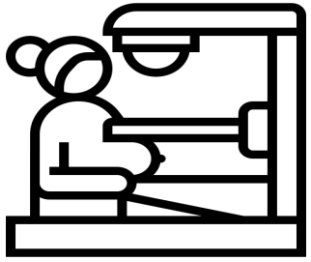


*CNN

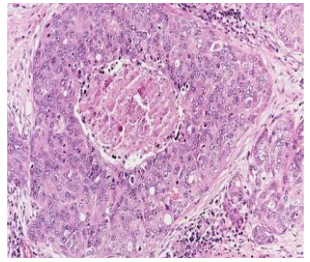


Normal

Abnormal



Mammogram



Pathology

*CNN-Convolution Neural Network

RESULT

Fully automatic breast cancer detection system which takes in Histopathological Images as an input

REFERENCE

- https://en.wikipedia.org/wiki/Breast_cancer
- https://www.techtarget.com/searchenterpriseai/definition/deep-learning-deep-neural-network
- https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0262349

THANK YOU