

Breast cancer detection methods using medical imaging techniques

Prof. Ing. Alexandru Dinu

Barau Elena Raluca
Trandafir Alexandra Simona
Marculescu Tudor

Table of contents

01

Introduction

02

**Methods of
detection**

03

**Software
implementation**

04

**Image processing
methods**

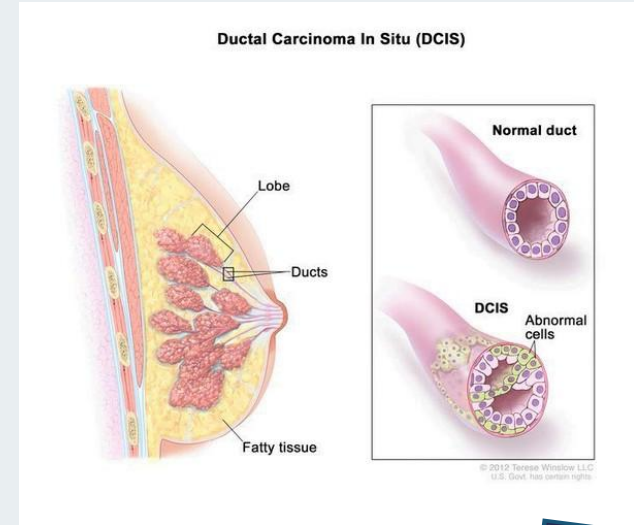
05

**Results &
Conclusion**



What is breast cancer?

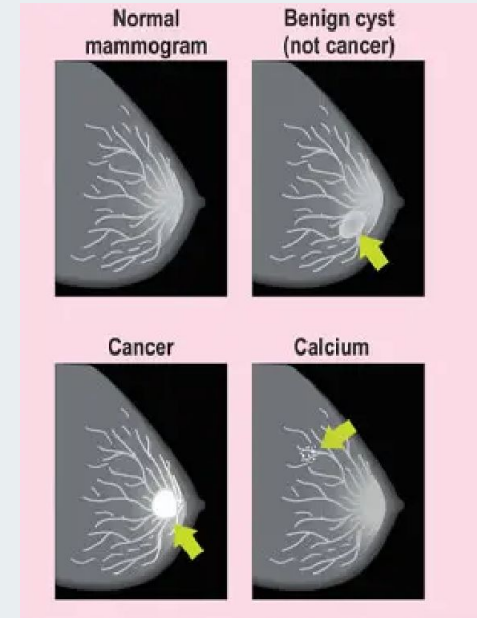
- The **second** leading cause of cancer deaths among women.
- Over 1.5 million women (25% of all women with cancer) are diagnosed every year throughout the world.
- It is a metastatic cancer and can commonly transfer to distant organs such as the bone, liver, lung and brain, which mainly accounts for its incurability
- Its prevention remains challenging in the world



Mammograms

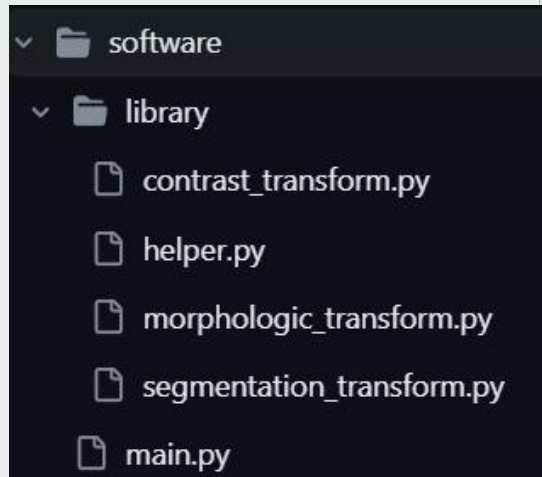
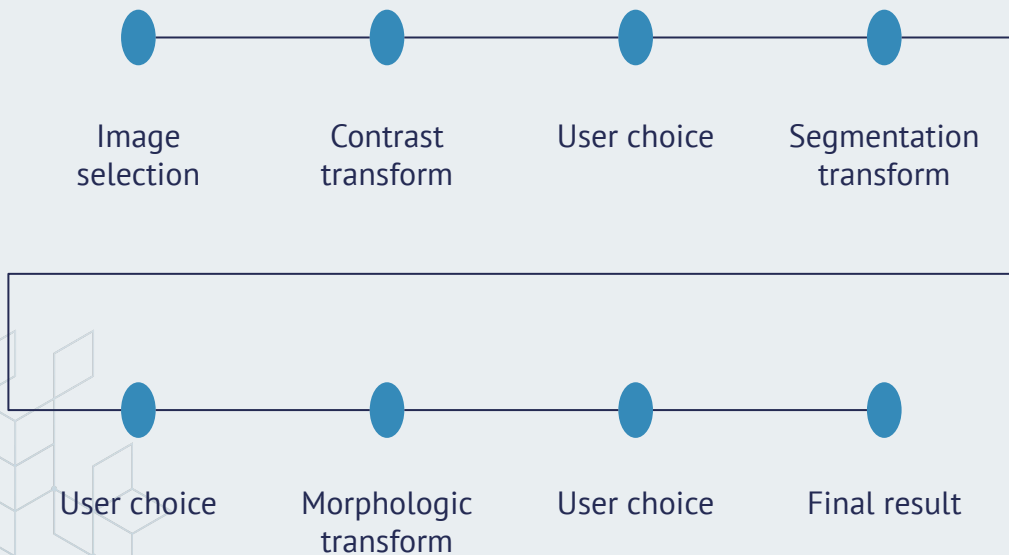


- An x-ray picture of the breast that can be used to check for breast cancer in women who have no signs or symptoms of the disease.
- Make it possible to detect tumors that cannot be felt
- Can also find microcalcifications (tiny deposits of calcium) that sometimes indicate the presence of breast cancer

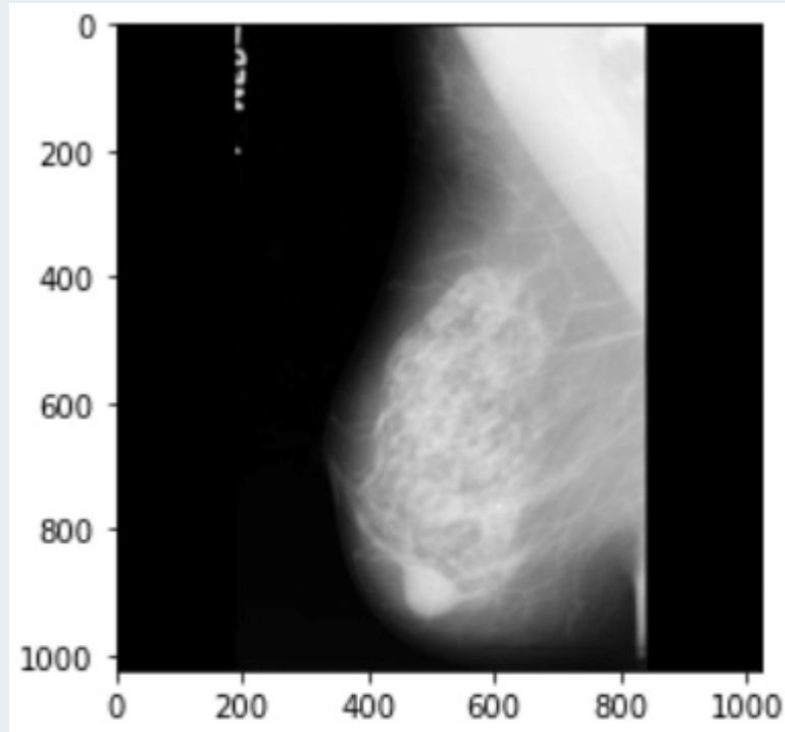




Software implementation

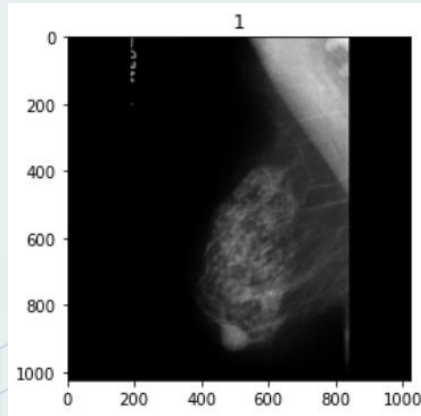


Mammogram - original image

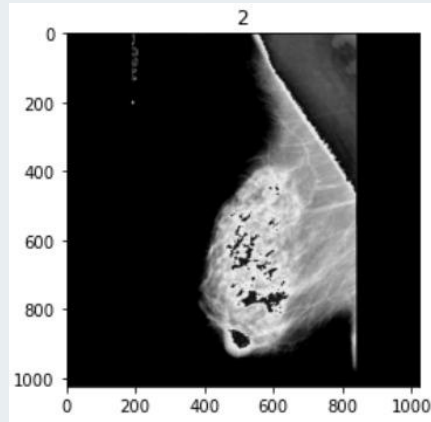


Contrast enhancement

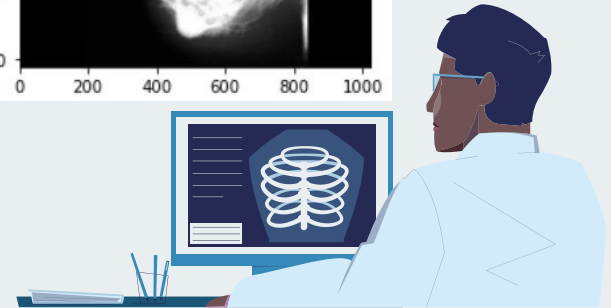
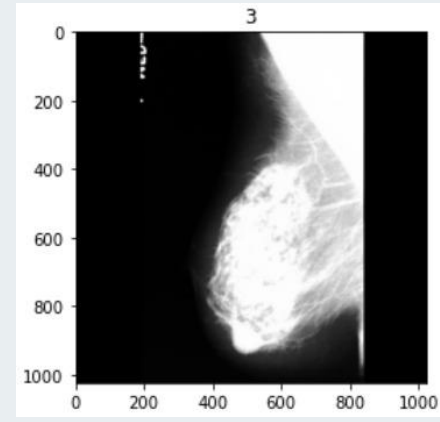
Exponential transform



Contrast stretching transform

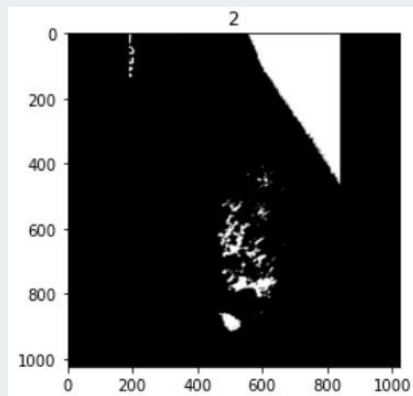


Linear transform

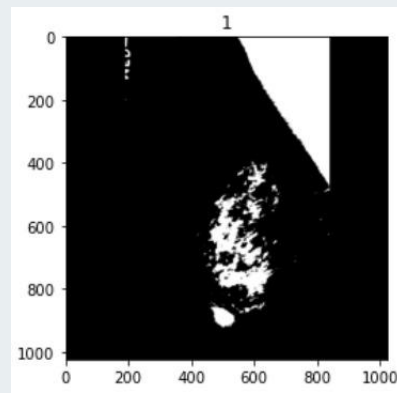


Segmentation

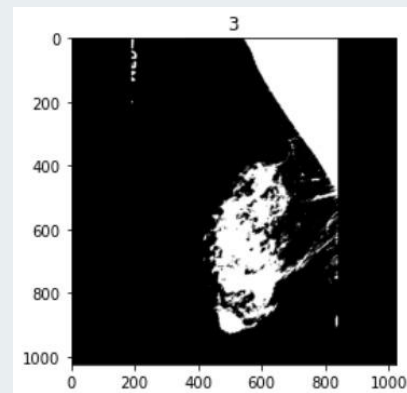
Binarization



Slicing

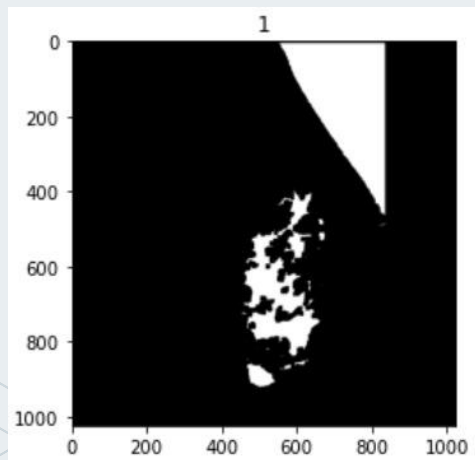


Otsu's Method

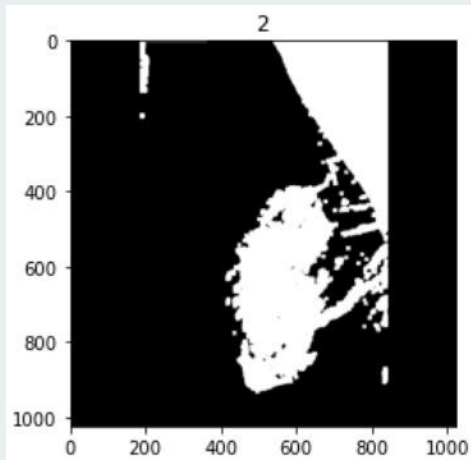


Morphologic transform

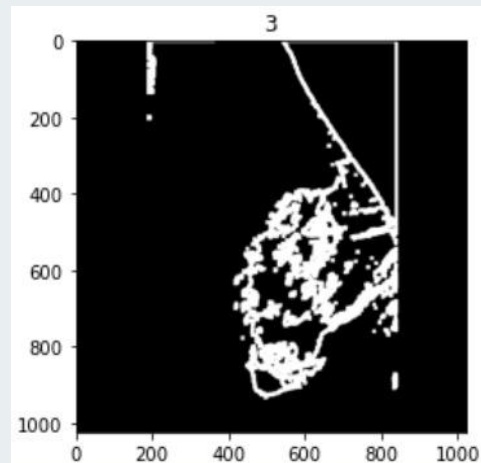
Erosion transform



Dilation transform



Morphologic gradient transform



Results

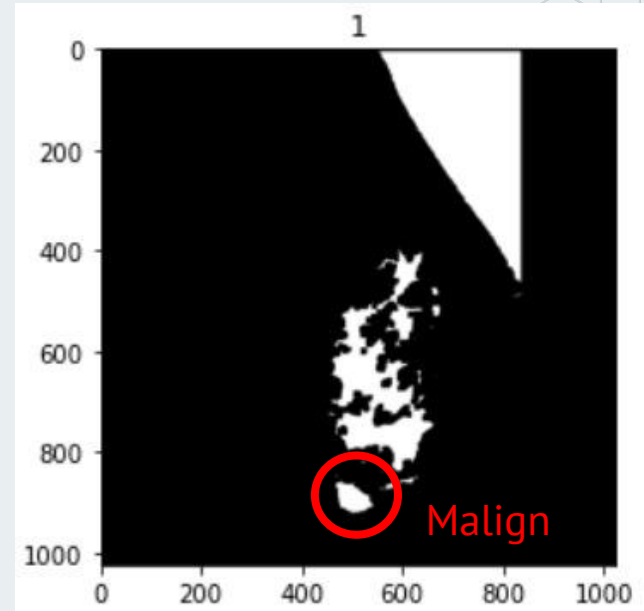


Initiate the processing of the mammogram through the exponential transform.

Subsequently, refine the resulting image through the Otsu transform.

Further enhance the image by applying the erosion transform.

Culminate the process to obtain the final image.



Thank you!

