



BREAST TISSUE SEGMENTATION BY FUZZY C-MEANS

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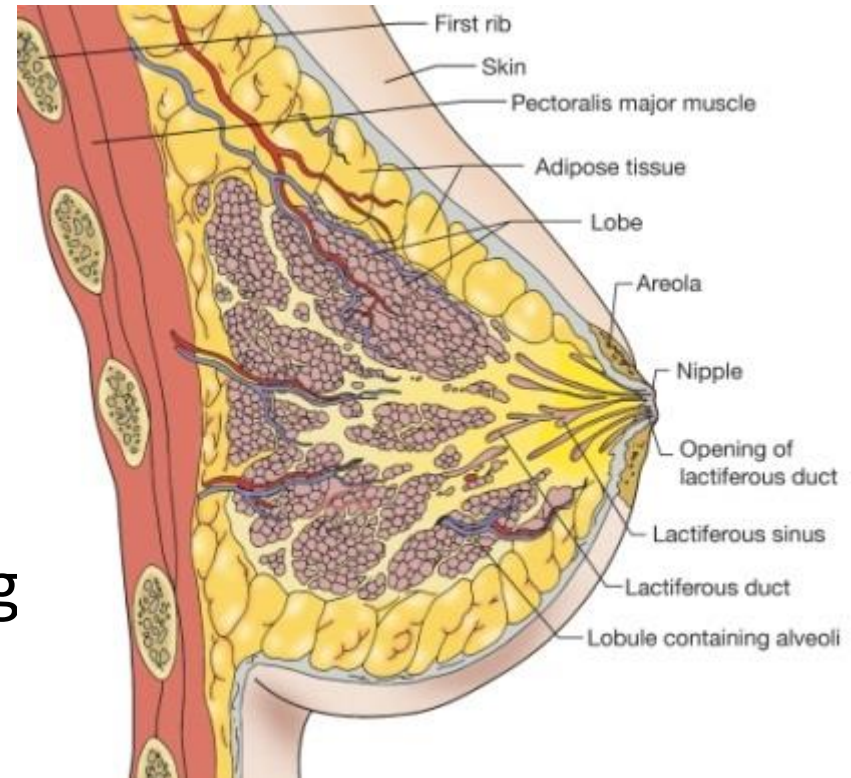
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INTRODUCTION:

Breast cancer

- Most common type among women;
- Leading cause of death among women;



INTRODUCTION:

Mammography

- Population screening
- Used to measure breast density

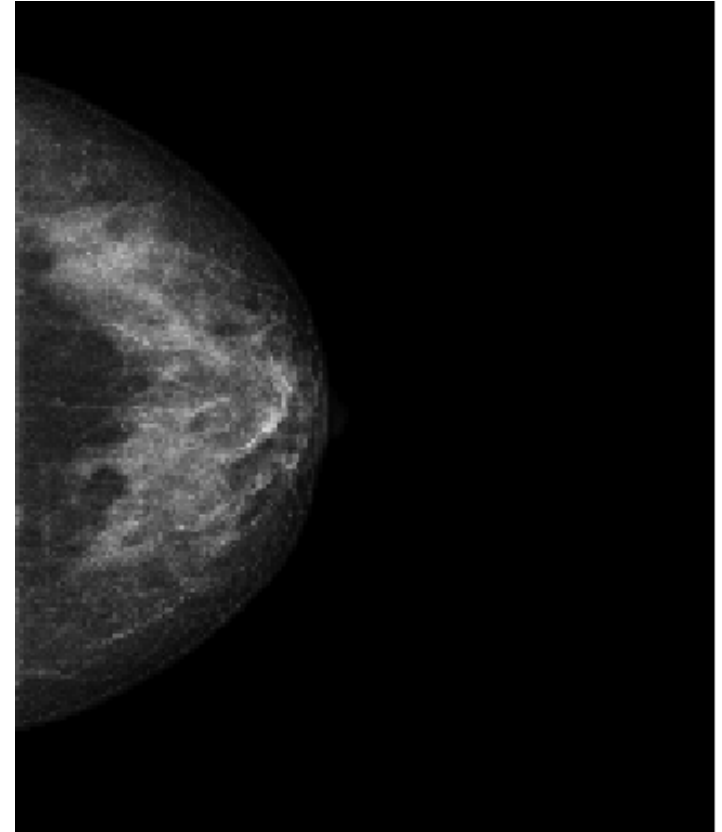


Evaluated by radiologist:
Subjective method

- High density



four-to sixfold increased
risk of developing breast
cancer

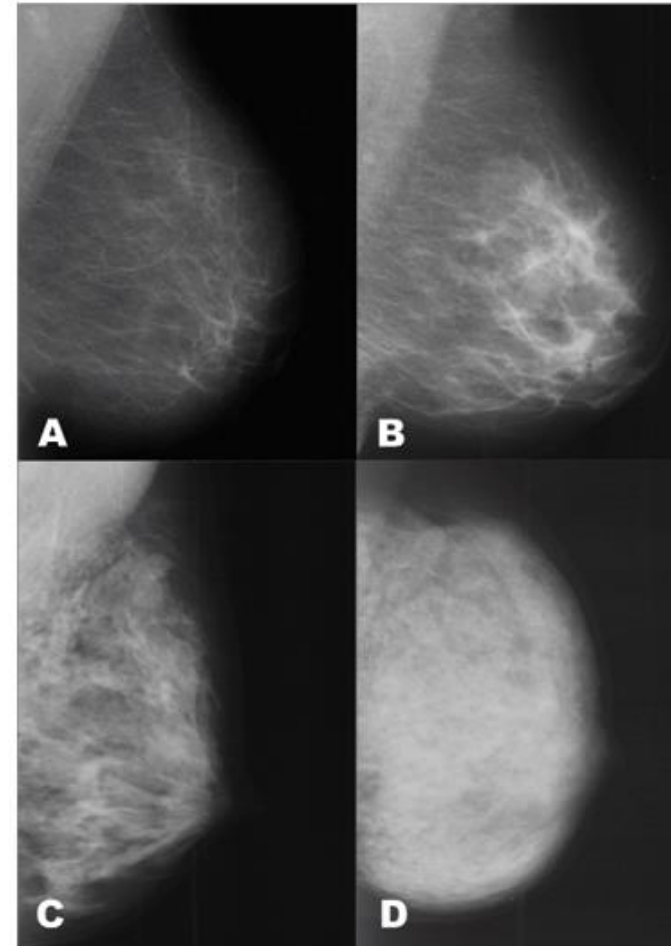


INTRODUCTION:

Breast Imaging Reporting and Data System

- Subjective classification:

- A. Almost entirely fat (<25%);
- B. Scattered fibroglandular tissues (25-50%);
- C. Heterogeneously dense (50-75%);
- D. Almost entirely dense (>75%);



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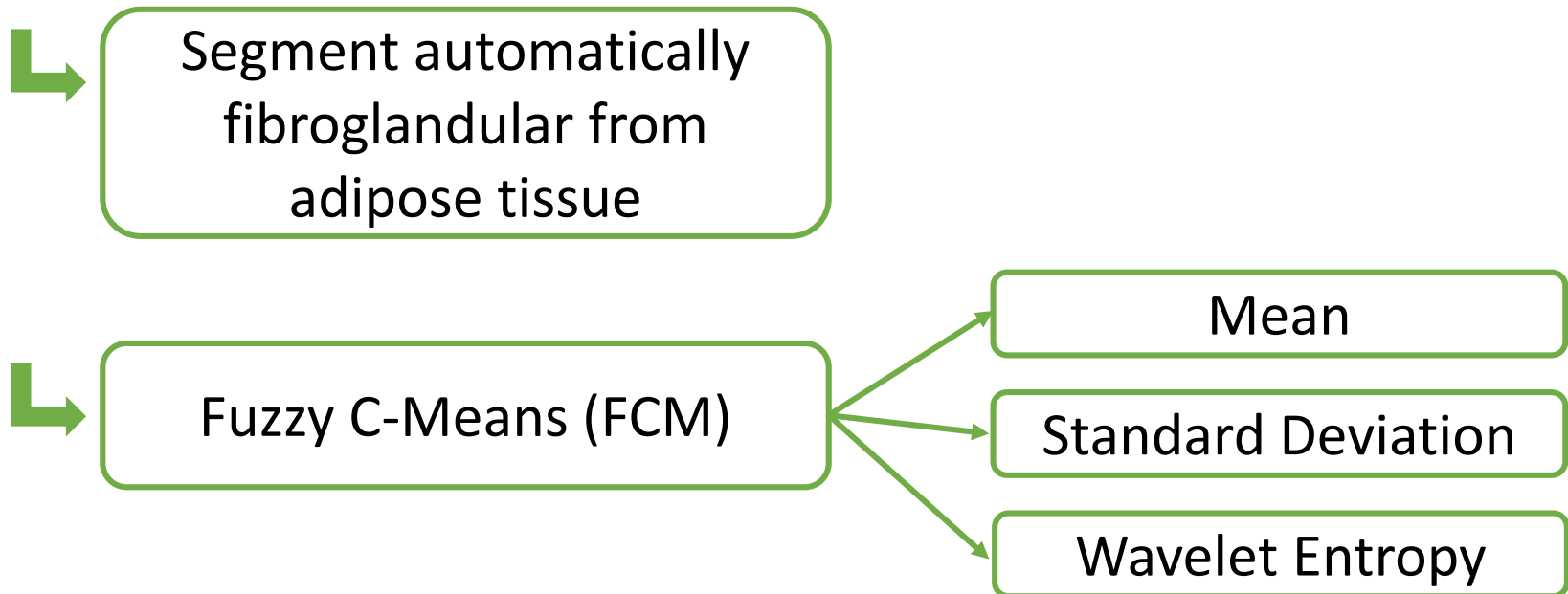
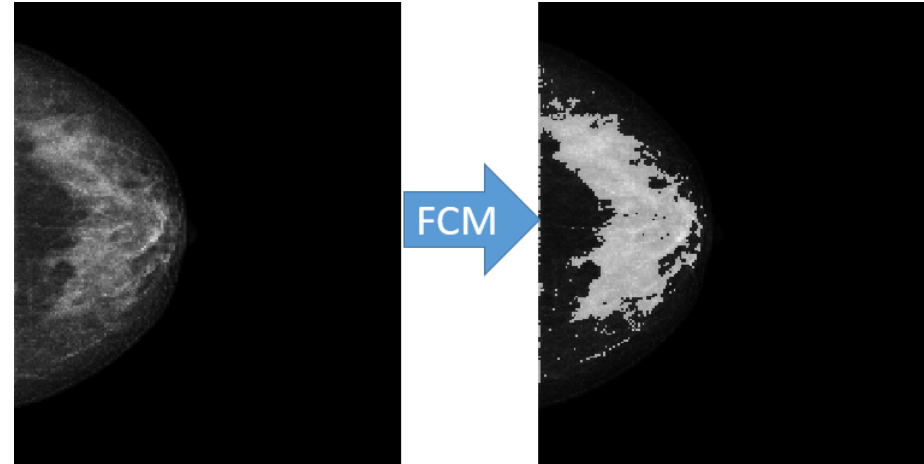


OBJECTIVE:

To develop an automatic methodology to estimate the percentage of mammographic breast density using digital mammography.

METHODOLOGY:

- 30 mammograms: craniocaudal projection
- Algorithm in Matlab



METHODOLOGY:

$$\text{Breast tissue (\%)} = \frac{\text{Fibroglandular area}}{\text{Total breast area}}$$

Breast tissue (%)

vs

BIRADS

Automatic;
Objective;

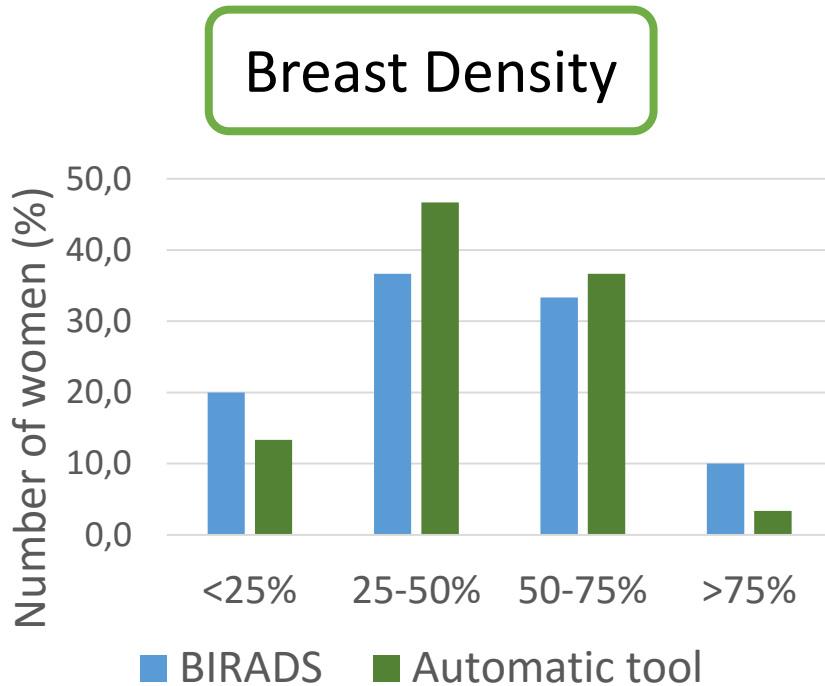
Time-consuming;
Subjective;

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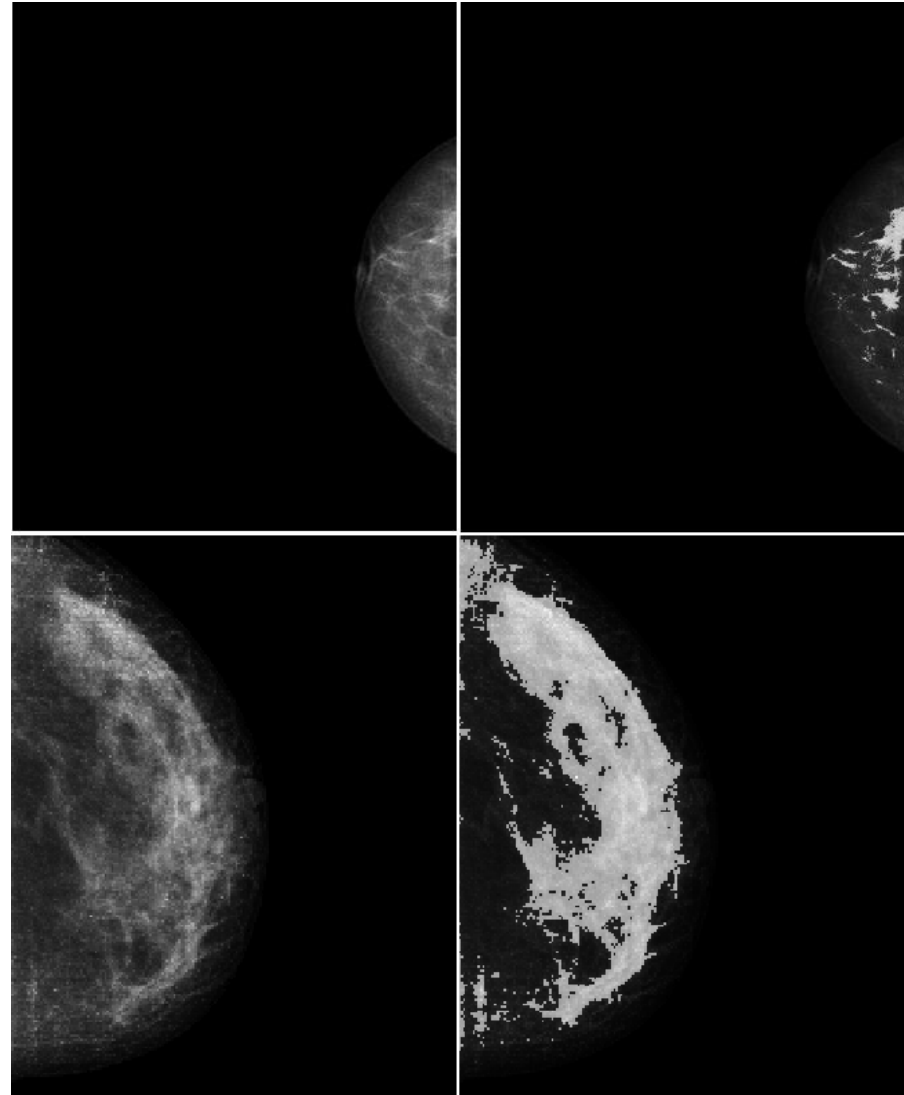
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RESULTS:

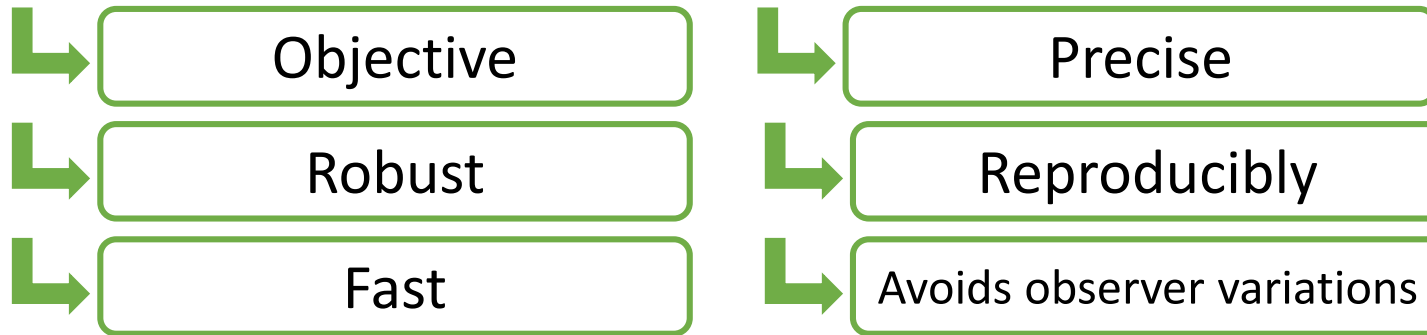


Differences are attributed to subjective visual analysis made by radiologists.



CONCLUSIONS:

- Automatic method to segment breast tissues;



- Future works:

- Estimate the volumetric breast density;
- Calculate mean glandular dose.

REFERENCES:

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