

# ***GYNAS - Gynaecology Analysis System***

## **Digital Image Processing for the Detection of Micro-Calcium Deposits in Very Early Forms of Breast Cancer with an Artificial Intelligence Approach**

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### **Abstract**

There is consensus among gynaecologists that breast cancer is advancing at an alarming rate. With the capability of detecting very early forms of breast cancer, an added dimension for diagnosis can be reached.

This paper discusses image processing applications for the detection of very early forms of breast cancer through micro-calcifications from mammography X-ray films or digital radiography. The films are scanned into digital values at high spatial resolution and then processed with special image processing techniques taken from astronomy as well as general digital image processing techniques. Instead of scanning film, digital radiography is recommended for its considerably lower radiation dose and already digital information content.

The results show that digital image processing techniques can detect much smaller micro-calcium deposits than the human eye can see.

Interpretation of these finds is suggested via an artificial intelligence engine in order to present the data to the gynaecologist in degrees of varying probability for breast cancer.