

Accentuating the positives in breast cancer detection

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The presence of tiny deposits of calcified tissue in the breast remains an important indicator of early breast cancer. However, the standard diagnostic, the X-ray mammogram, cannot always distinguish between

benign tissue artifacts and such microcalcifications because there is a great diversity in the shape, size, and distributions of these deposits. Moreover, there is only very low contrast between malignant, cancerous areas and the surrounding bright structures in the mammogram.

Writing in the *International Journal of Biomedical Engineering and Technology*, a team from Algeria explain how they have devised an effective approach based on mathematical morphology for detection of microcalcifications in digitized [mammograms](#). The approach first extracts the breast area from the image, removes unwanted artifacts and then boosts contrast and eliminates noise from the image.

The team has now tested their approach on 22 mammograms with a known outcome. They successfully compared the "diagnoses" they obtained with their [technology](#) with a radiological expert manual examination of the mammograms. The team says that their approach is quick and very effective, especially in terms of sensitivity. They suggest that a digital analysis of this sort could be used to complement conventional examination of mammograms by a radiologist and perhaps help to reduce the number of false positives and [false negatives](#) that occur with X-ray mammography.

More information: Marcin Ciecholewski. Microcalcification Segmentation from Mammograms: A Morphological Approach, *Journal of Digital Imaging* (2016). [DOI: 10.1007/s10278-016-9923-8](https://doi.org/10.1007/s10278-016-9923-8)

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