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"Auxílio ao Diagnóstico de Mamografias por Computação Visual"

In 1997 it were reported 36 thousand new cases of breast cancer in Brazil, leanding to nearly 7 thousand deaths. The official statistics estimate that, till the end of the current year, breast cancer will have killed 43,500 women only in the USA. Nevertheless, if discovered early, breast cancer may be curable. Many kinds of early diagnostics have been developed by several research institutions. Many researchers are utilizing techniques of image processing in mammographic images.

In the present work is developed a computer program to help in the diagnostic of nodules or tumors. The program is responsible for the classification and evaluation of the characteristics of the elements found in the digitized mammograms. Beginning with images of tumors with proven diagnostic it is possible to extract characteristics and methods of evaluation utilizing invariant moments and the boundary of the image. The evaluation is made by comparing the characteristics of the image to be diagnosed with the same characteristics of 52 images of tumors with proven diagnostic. The image is classified as belonging to a group of malign or benign one accordingly to the preponderancy of malign or benign characteristics.

For the implementation of the program it was necessary a significative number of analysis that were performed by using a large number of very good quality images with precise diagnostics. These images were fundamental for the work.

The program, written in C language, starts from a suspect region of a mammography, binarizes the image, extracts its charateristic vector and diagnose it by using the implemented decision rules. The efficiency of the methodology and of the developed algorithm - which gives start to this line of research in medical images in the Universidade Federal Fluminense - is ilustrated by the diagnostics of 32 mammograms. All the images tested had satisfactories results, but there are certain aspects of the system that can still be improved in the future.