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"Abordagens Difuso-Neurais para Análise de Mamogramas"

Breast cancer is the leading cause of death among Brazilian women, and an early diagnosis is still the best way for its prevention. Aiming at the development of computational systems capable of automatic interpretation of digital mammograms, our work investigated two techniques of computational intelligence: Fuzzy Logic and Artificial Neural Networks. We have implemented five classifiers, the first employing fuzzy logic, the second consisting of a multilayer perceptron network, and the others incorporating fuzzy logic to neural nets, in three different hybrid systems. For lesion identification and the acquisition of classification attributes (compactness and first invariant moment), we have also developed a segmentation module, based on adaptive thresholding and Markov random fields. In our implementations, the hybrid approaches taking fuzzy vectors as neural net inputs yielded the best overall results.