**ABSTRACT**

This paper describes a computer-aided detection and diagnosis system for breast cancer, the most common form of cancer among women, using mammography. The system relies on the Multiple-Instance Learning (MIL) paradigm, which has been proven useful for medical decision support in previous works. In the proposed framework, the initial step is Partitioning; breasts are first partitioned adaptively into regions. The Grey level cooccurrence Matrix (GLCM) Features are extracted from wavelet sub bands. Then, features derived from the appearance of textural features as well as detection of lesions (masses and micro calcifications) are extracted from each region and combined in order to classify it into examinations of mammography as “normal” or “abnormal”. Whenever an abnormal examination record is detected, the regions that induced the automated diagnosis can be highlighted. There arise two strategies to define this anomaly detector. In a first scenario, manual segmentations of lesions are used to train an NN that assigns an anomaly index to each region; local anomaly indices are then combined into a global anomaly index.