Comparing Full Field Digital Mammography and Digitized Film
on Selected Features for Classification

   Since Full Field Digital Mammography and digitized sceen/film mammography have different image receptors and methods of digital formation, different image qualities, such as image resolution, contrast and noise will result, which will cause differences in the precision and accuracy of segmentation and extracted features for microcalcification detection and diagnosis.
   We obtained digital images of the same patients from digitized film and a TREX whole breast mammography unit with same mean glandular doses. We also obtained a diagnosis from six radiologists and biopsy result for patients with BIRADS 4 or 5 diagnosis. The features are extracted from two domains: Morphological measurements and texture features extracted from the co-occurance matrix. Preliminary tests were done on 6 patients(12 digitized images, and 12 full field digital images) with the biopsy results ranging from benign to malignant. Based on the radiologists' diagnosis, we manually choose the Region of Interest as 256*256 with the calcifications at the center. Then the microcalcifications are segmented, and after elimination of the false positive on the segmentation results, morphological measurements are taken. Then the co-ocurance matrix is calculated from the ROI with the microcalcifications removed, and 13 texture features are calculated from it.
   The initial results show that the differences in digitization methods affect the morphological measurements much more than the features extracted from co-occurance matrix. Whether these difference will affect the classification result still needs further investigation.