**5 Results**

Using the methods above we achieved a detection accuracy of 46% and classification percentage of 64%. We utilized 25 full mammograms of each type of cancer and pathology for our final validation of our cancer detector and classifier. Our best category for detection is malignant masses, we detected 16 out of 25 or 64% of this type of cancer. Our best category for classification is malignant calcifications, we properly classified 12 out or 13, or 92% of the detected cancer. Typically, improper classifications where only a change of pathology, only 4% were classified as a mass verse calcification and vice versa.

**7 Conclusion**

An initial look at our results indicate there is still plenty of work to get done before a cancer detector and classifier will be viable for real world applications. Other studies [references] have achieved solid result by limiting themselves to focusing on the detection of a single type of cancer, masses or calcifications, without classifying the pathology. Indicating focusing on detection only is the best way forward for the time being. This will yield the best results in the short term. But a deeper look at our results also, shows a strong start into building a combined detector and classifier for breast cancer. This indicates, with a solid multi-disciple team a breast cancer detector and classifier could achieve good results.

**8 Future Works**

Our works is a small step towards the detection and classification of breast cancer types and pathologies. There is still work to be done in this field. First an evaluation of different object detectors, you only look once or single shot multi-box detector, have better results. Next, an evaluation of different forms of images pre-processing and their improvement. Also, being able to directly feed the images as DICOM format could yield strong improvements. Finally, our lack of knowledge about mammograms was our biggest weakness, a multi-disciple team could not only find ways to improve the accuracy of the CNN in detection and classification of mammograms, but make a model ready for real word use.