

### **Abstract**

Breast cancer is one of the most dangerous type of cancer, especially for women. In 2015, it became the deadliest cancer after lung cancer in America. Some studies found that both self-detection and prevention are important factors in dealing with this cancer. The process of diagnosing breast cancer traditionally takes a long time, moreover pathologists are not 100% sure of the results of their diagnosis. Therefore, in this study a computer-aided system is created to help doctors to classify cell types based on histopathological images. In this research, a method based on convolutional neural networks with Residual Neural Network (ResNet) architecture is proposed to distinguish histopathological images into some classes of breast cancers. Testing on the BreakHis dataset shows that the best performance of the proposed method gives average accuracies of 99.3% and 94.6% for binary and eight-class classifications, respectively. These results are comparable to state-of-the-art result in the recent study.

**Keywords:** classification, convolutional neural network, deep learning, medical image processing, Resnet