Abstract
Breast cancer is a type of cancer with the highest occurrence in women in Indonesia. Mammographic screening is a common method for detecting breast cancer at an early stage to reduce the risk of death. The drawback of mammography is the interpretation that is done manually by a radiologist which resulted in high false negative numbers. Since the introduction of AlexNet in 2012, Convolutional Neural Network (CNN) has become the state-of-the-art method in classifying mammogram images to improve the performance of mammographic screening. However, most of the research that has been done can only classify abnormalities in mammogram images that have been determined manually by a radiologist. This final project aims to build a system that can classify breast cancer in mammogram images without the need for intervention by a radiologist by training CNN models using mammogram patches, the trained models are then fine-tuned on mammogram images. CNN models are trained and tested using the INbreast dataset which contains 410 Full-Field Digital Mammography (FFDM) images, with 310 non-malignant FFDM images and 100 malignant FFDM images. Our results show that the best CNN model with InceptionV3 architecture is capable of producing an Area Under the Receiver Operating Characteristic curve of 0,952.

Keywords: breast cancer, mammogram, Convolutional Neural Network (CNN).