

ABSTRACT

Object recognition is a famous problem in the field of computer vision. Many human jobs have been replaced by machines, from the dull functions to machines that have complex functions and have Artificial Intelligence systems. To keep abreast of the times, today's technology is required to become more sophisticated, one of which can recognize objects around it. Many object recognition methods have been developed, one of which is the Region-based Convolutional Neural Network (R-CNN). Many architectures have been developed to support this method. Among them are ResNet, AlexNet, CifarNet, etc. The architecture certainly has good results and is still being developed. Some performance parameters that are considered are Training Error or how well the system learns a task, then the accuracy or value of the system in performing its tasks, and computational time or how quickly the system performs the given task. Therefore, the authors conducted a trial to test the three performance parameters using the ResNet architecture. At first, the writer divides the problem into three scenarios, where scenario 1 is training error, scenario 2 accuracy, and scenario 3 is computational time. Then the writer determines the parameters to be optimized, namely the depth or depth of the layer, then the size of the kernel, and the last is the epoch or the number of times backpropagation is repeated in one iteration. In each scenario, the writer tests and analyzes the results of each combination of parameters and optimizes the system. From a system that has been optimized, the author gets the best results on training error, which is 0.118%, then on the accuracy of 90.82%, and on computation time which is 0.001169197 second.

Keywords: R-CNN, Resnet, training error, accuracy, computing time