Abstract

Clouds are one of important component on weather forecasting. Because clouds affect the hydrological cycle, the balance of earth's radiation, and climate change. Therefore this final project discusses about ground-based cloud classification. Classification is done in six class namely clear sky, patterned cloud, thin white cloud, thick white cloud, thick dark cloud, veil cloud. The result of this classification can be one of the consideration on weather forecasting. The method used is Convolutional Neural Network with Resnet-50 architecture. This architecture has 50 layers convolution and adapt residual *learning*. The number of this layer is more than the previous research which only has 13 layers and 5 layers convolution. The system performance results achive an accuracy of 99% with *recall* 97%, precision 97%, specificity 99%, NPV 99%, f1-score 97%. Parameters used in this system is Cyclical *Learning Rate* with limitation 10^{-4} – 10^{0}. Therefore the system built can classify and recognize the six classes of ground based cloud well, because it has high accuracy, recall, and model precision.

Keywords: Convolutional Neural Network (CNN), Ground-Based Cloud, ResNet-50, Residual Learning