Abstract

Communication is a shape of interaction between individuals and other individuals, between individuals and groups, or between groups and other groups. Communication is a shape of expression of their mind. But person with the disabilities find theirself difficult in communication. And we often find ourself difficult to understand what the person with a disability communicate to us. If we find a deaf person, it is difficult for us to make them understand what we are talking about, especially if the deaf person cannot use sign language. If we do communication with the mute person, it is difficult for the mute person to make us understand about what they are going to convey, the situation will be even more difficult if we don't know anything about sign language. Therefore, in this final task we build a sistem that can recognize the sign language using CNN with Efficient-Net B4 architecture. The sistem has been tested to ASL Alphabets Dataset wich consists of 87000 image divided into 29 classes. The dataset is splitted so that 70% training set, 15% validation set, 15% testing set. The best-skenario testing is done using Cyclical Learning Rate (CLR) which makes the learning rate value in training process used dynamically(fluctuative) in a certain range and using the smaller input size, 64x64x3 so it can decrease the complexity. The Evaluation results with the best skenario achieve 99,81% in accuracy and need 0,056 s to recognize a hand gesture.

Keywords: Communication, hand gesture, sign language, CNN, EfficientNetB4, Cyclical Learning Rate