Cotton Plant Disease Prediction Using Deep Learning

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Objective:

- ➔ Determine cotton plant and leaf disease.
- ➔ Identify fresh cotton leaf , diseased cotton leaf, fresh cotton tree and diseased cotton tree by image processing.
- ➔ The problem was to predict and determine cotton plant disease.

Algorithms we used:

We used Convolutional Neural Networks (CNN).
Architecture: ResNet 50 ,VGG 16 and custom.

Custom Network:

1.Convolutional Layer - 2
Max Pooling layer - 2
Flatten and Dense layer
Input size: 64*64

2. Convolutional Layer - 4
Max Pooling layer - 3
Flatten and Dense layer
Input size: 224*224

Result and Discussion:

Our designed architecture shows highest accuracy 97% besides VGG16 shows 96% Accuracy which is pretty good. On the other hand, ResNet50 has given lower accuracy may be the reason is small dataset.Table 1 shows final result.

Architecture	Accuracy	Validation Accuracy	Loss
VGG16	96%	96%	11%
ResNet50	65%	76%	
Custom	97%	91%	7%

Table 1: Result

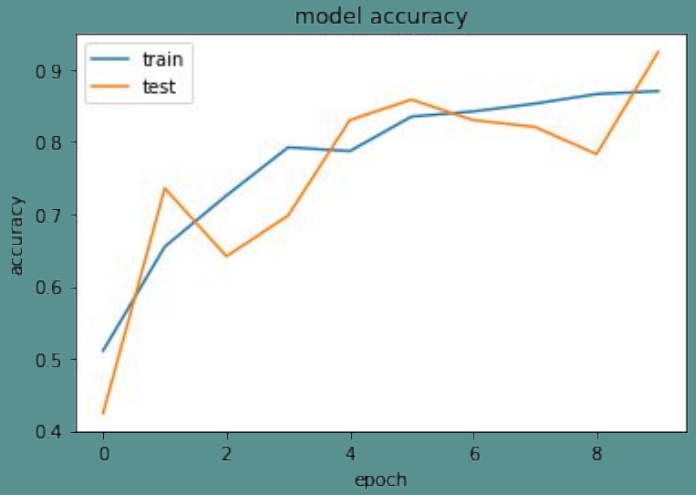

Figure 1: Model accuracy

Figure 1 shows that, train accuracy increased gradually.Test accuracy also increased gradually but the curve is not smooth.

Figure 2 shows that, train loss decreased gradually. Test loss also decreased gradually but the curve is not smooth.

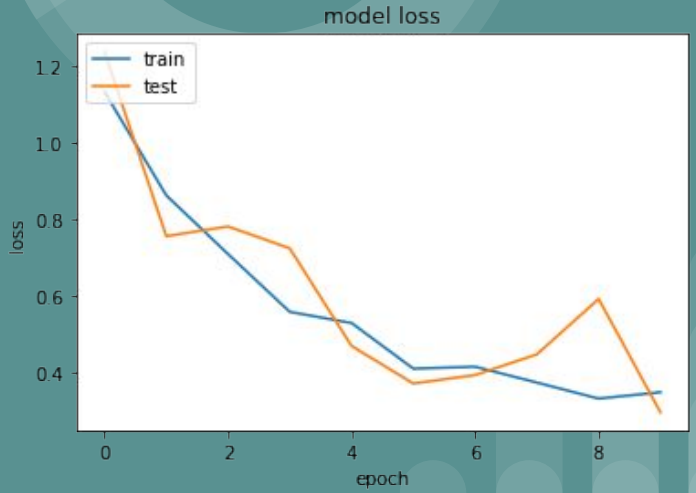

Figure 2: Model loss