Cassava leaf classification

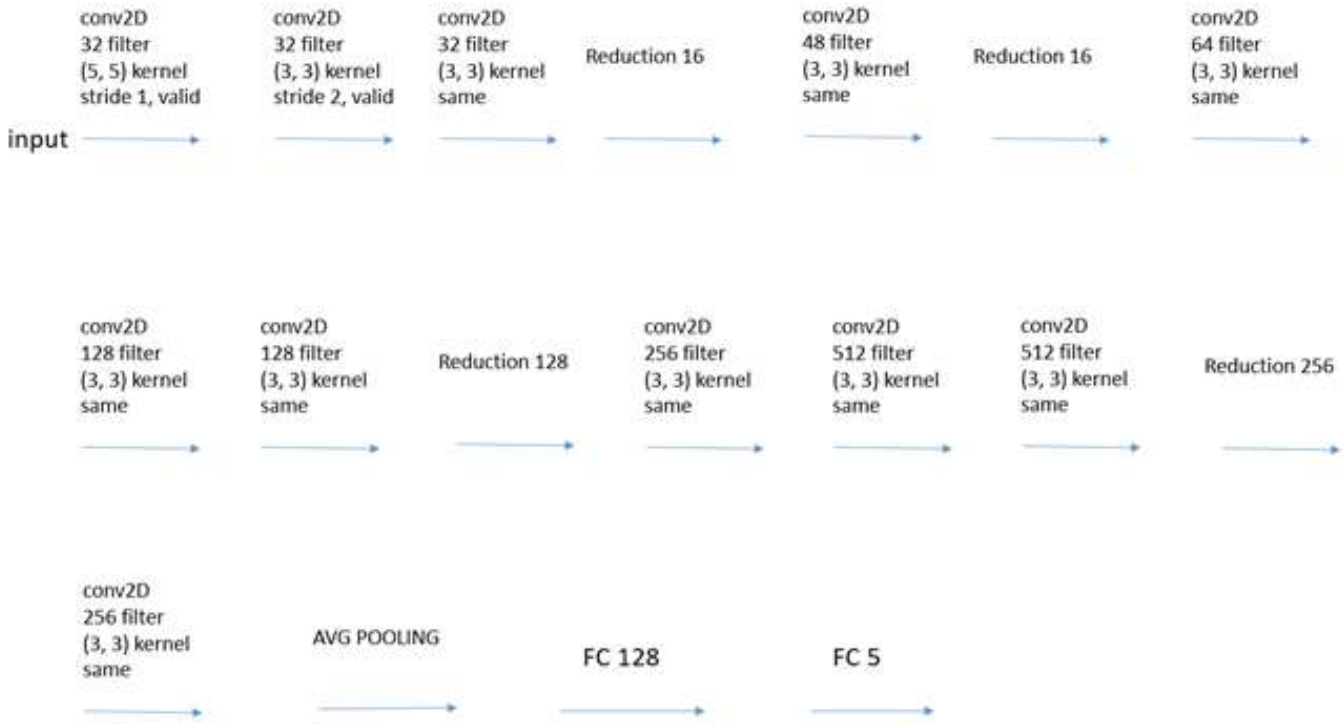
Experimented structures for this competition are:

1- resNet. Accuracy = 64%
2- googleNet v4. Accuracy = 66%
3- testNet1. Accuracy = 68%
4- ResNet101v2. Accuracy = 73%
5- testNet2. Accuracy = 73%
6- testNet3. Accuracy = 77.33%

“testNets” are some networks which structured by myself using “googleNet v4” and “alexNet” ideas.

I used “googleNet v4” idea in order to reduce the dimension which means reducing the dimension not just with pooling layers but with both pooling layers and convolutional layers. We can see this part in the picture below named “reduction”.

And using another idea of “googleNet”s which is “seperable convolution” in order to reduce number of parameters by using two 3*1 and 1*3 together instead of one 3*3 filter which reduce parameters from 3*3= 9 to 1*3+3*1= 6 and that’s removing 1/3 of parameters.



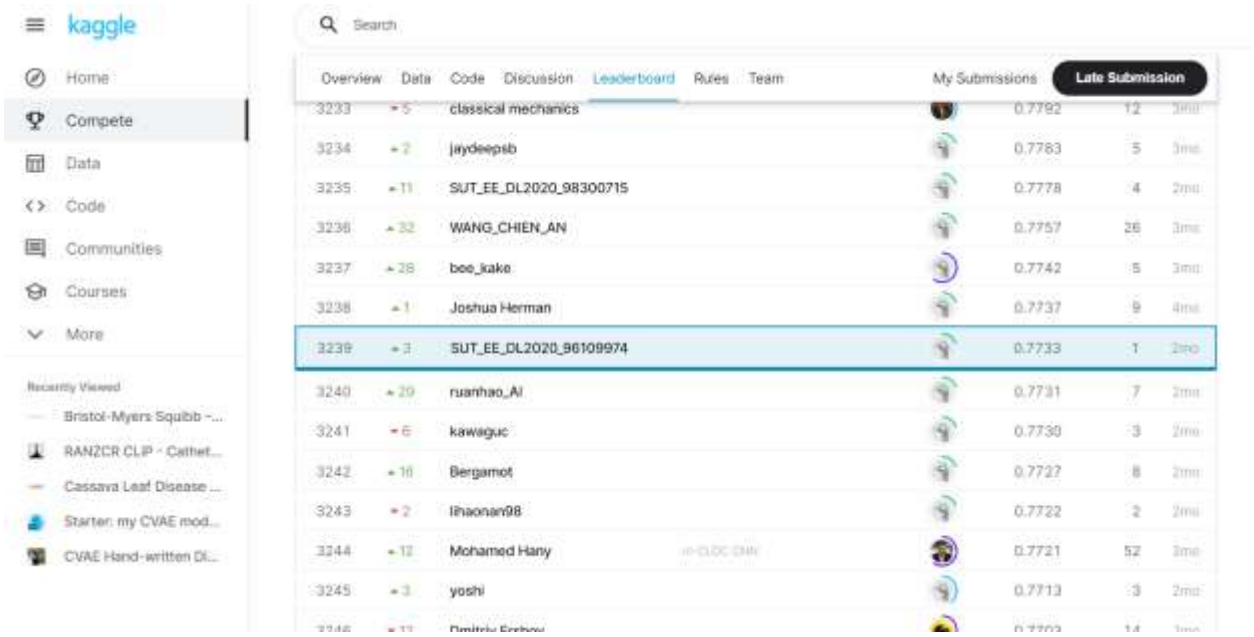
Other features:

Loss function: categorical cross entropy

Optimizer: Adam, learning rate $= 0.00001 = 10^{-5}$

Data: augmentation

Regularization terms: dropout and batch normalization.



Competition results