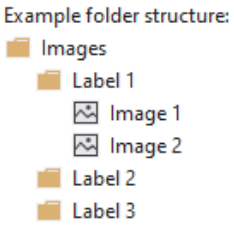
Machine learning tests with ML.NET

ML.NET: ML.NET is a new addition to .NET6. It helps us to create machine learning models with a dataset. All we have to do is, show .NET our data in a specific folder structure. Just like in this model.



After we show ML.NET our data, it will start to train itself.

Rice Diseases Image Dataset: I have made several tests with this dataset.

Test 1: In my first test I used 4 classes which were Brown spots, Healthy, Hispa and Leaf Blast. All of the classes had 50 to 110 images. ML.NET scored 54.14% accuracy in this training.

Test 2: In the second test I have used the same classes from test 1. Only difference was that for every class I have used 400 images each. ML.NET scored 60.91% it seems that when we add more images for a class ML.NET scores higher accuracy.

Test 3: In the third test I have reduced the classes to 2 which were Brown spots and Healthy and used 60 to 70 images for each class. ML.NET scored 75% accuracy in this test. When we reduce the number of classes, the accuracy of the model gets higher.

Test 4: In the fourth and final test I have used the same classes as test 1 and 2. For each class I have selected 500 to 1400 images. ML.NET scored 67,95% accuracy in this test.

Conclusion: Although it is easy to use and easy to set up ML.NET seems to have lower accuracy for a trained machine learning model. The main problem with getting lower accuracy from these tests may be from some faulty data within the dataset. These results may differ if we organise the dataset further. Here are some examples from these 4 different classes in the dataset

Brown spot Healthy Hispa Leaf blast

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