

Project Development Phase Model Performance Test

Date	14 September 2022
Team ID	EXT2023TMID592333
Project Name	Microbe Mapper: Visual Recognition Of Micro-Organisms
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No	Parameter	Values	Screenshot
1.	Model Summary	<p>Total params: 23851784 (90.99 MB)</p> <p>Trainable params: 23817352 (90.86 MB)</p> <p>Non-trainable params: 34432 (134.50 KB)</p>	<p>Summary of the Model</p> <pre> model.summary() Model: "inception_v3" Layer (type) Output Shape Param # Connected to ----- input_2 (InputLayer) [(None, 299, 299, 3)] 0 [] conv2d_94 (Conv2D) (None, 149, 149, 32) 864 ['input_2[0][0]'] batch_normalization_94 (Ba (None, 149, 149, 32) 96 ['conv2d_94[0][0]'] tchNormalization) activation_94 (Activation) (None, 149, 149, 32) 0 ['batch_normalization_94[0][0]'] conv2d_95 (Conv2D) (None, 147, 147, 32) 9216 ['activation_94[0][0]'] batch_normalization_95 (Ba (None, 147, 147, 32) 96 ['conv2d_95[0][0]'] tchNormalization) activation_95 (Activation) (None, 147, 147, 32) 0 ['batch_normalization_95[0][0]'] conv2d_96 (Conv2D) (None, 147, 147, 64) 18432 ['activation_95[0][0]'] batch_normalization_96 (Ba (None, 147, 147, 64) 192 ['conv2d_96[0][0]'] tchNormalization) activation_96 (Activation) (None, 147, 147, 64) 0 ['batch_normalization_96[0][0]'] batch_normalization_187 (B (None, 8, 8, 192) 576 ['conv2d_187[0][0]'] atchNormalization) activation_179 (Activation) (None, 8, 8, 320) 0 ['batch_normalization_179[0][0]'] mixed9_1 (Concatenate) (None, 8, 8, 768) 0 ['activation_181[0][0]', 'activation_182[0][0]'] concatenate_3 (Concatenate (None, 8, 8, 768) 0 ['activation_185[0][0]', 'activation_186[0][0]']) activation_187 (Activation) (None, 8, 8, 192) 0 ['batch_normalization_187[0][0]'] mixed10 (Concatenate) (None, 8, 8, 2048) 0 ['activation_179[0][0]', 'mixed9_1[0][0]', 'concatenate_3[0][0]', 'activation_187[0][0]'] avg_pool (GlobalAveragePoo (None, 2048) 0 ['mixed10[0][0]'] ling2D) predictions (Dense) (None, 1000) 2049000 ['avg_pool[0][0]'] Total params: 23851784 (90.99 MB) Trainable params: 23817352 (90.86 MB) Non-trainable params: 34432 (134.50 KB) </pre>

2.	Accuracy	Training Accuracy - 88.94 Validation Accuracy - 73.00	<pre>----- Epoch 4/50 6/6 [=====] - 144s 23s/step - loss: 1.0861 - accuracy: 0.6275 - val_loss: 1.1117 - val_accuracy: 0.6267 Epoch 5/50 6/6 [=====] - 150s 24s/step - loss: 0.9556 - accuracy: 0.6793 - val_loss: 1.0727 - val_accuracy: 0.6667 Epoch 6/50 6/6 [=====] - 151s 26s/step - loss: 0.8529 - accuracy: 0.7353 - val_loss: 1.0097 - val_accuracy: 0.6800 Epoch 7/50 6/6 [=====] - 144s 23s/step - loss: 0.7460 - accuracy: 0.7689 - val_loss: 0.9195 - val_accuracy: 0.7067 Epoch 8/50 6/6 [=====] - 151s 24s/step - loss: 0.6453 - accuracy: 0.7955 - val_loss: 0.9761 - val_accuracy: 0.6667 Epoch 9/50 6/6 [=====] - 151s 24s/step - loss: 0.6187 - accuracy: 0.7969 - val_loss: 0.9032 - val_accuracy: 0.7067 Epoch 10/50 6/6 [=====] - 150s 24s/step - loss: 0.5671 - accuracy: 0.8347 - val_loss: 0.9420 - val_accuracy: 0.7600 Epoch 11/50 6/6 [=====] - 145s 23s/step - loss: 0.5512 - accuracy: 0.8347 - val_loss: 0.8842 - val_accuracy: 0.7333 Epoch 12/50 6/6 [=====] - 158s 26s/step - loss: 0.4840 - accuracy: 0.8571 - val_loss: 0.9960 - val_accuracy: 0.7067 Epoch 13/50 6/6 [=====] - 149s 24s/step - loss: 0.4451 - accuracy: 0.8613 - val_loss: 0.9542 - val_accuracy: 0.6933 Epoch 14/50 6/6 [=====] - 144s 23s/step - loss: 0.3890 - accuracy: 0.8894 - val_loss: 0.9249 - val_accuracy: 0.7333 -----</pre>
3.	Confidence Score (Only Yolo Projects)	Class Detected - NA Confidence Score - NA	Not Applicable

Screenshot:

Model Summary

```
0.6400
Epoch 4/50
6/6 [=====] - 144s 23s/step - loss: 1.0861 - accuracy: 0.6275 - val_loss: 1.1117 - val_accuracy:
0.6267
Epoch 5/50
6/6 [=====] - 150s 24s/step - loss: 0.9556 - accuracy: 0.6793 - val_loss: 1.0727 - val_accuracy:
0.6667
Epoch 6/50
6/6 [=====] - 151s 26s/step - loss: 0.8529 - accuracy: 0.7353 - val_loss: 1.0097 - val_accuracy:
0.6800
Epoch 7/50
6/6 [=====] - 144s 23s/step - loss: 0.7460 - accuracy: 0.7689 - val_loss: 0.9195 - val_accuracy:
0.7067
Epoch 8/50
6/6 [=====] - 151s 24s/step - loss: 0.6453 - accuracy: 0.7955 - val_loss: 0.9761 - val_accuracy:
0.6667
Epoch 9/50
6/6 [=====] - 151s 24s/step - loss: 0.6187 - accuracy: 0.7969 - val_loss: 0.9032 - val_accuracy:
0.7067
Epoch 10/50
6/6 [=====] - 150s 24s/step - loss: 0.5671 - accuracy: 0.8347 - val_loss: 0.9420 - val_accuracy:
0.7600
Epoch 11/50
6/6 [=====] - 145s 23s/step - loss: 0.5512 - accuracy: 0.8347 - val_loss: 0.8842 - val_accuracy:
0.7333
Epoch 12/50
6/6 [=====] - 158s 26s/step - loss: 0.4840 - accuracy: 0.8571 - val_loss: 0.9960 - val_accuracy:
0.7067
Epoch 13/50
6/6 [=====] - 149s 24s/step - loss: 0.4451 - accuracy: 0.8613 - val_loss: 0.9542 - val_accuracy:
0.6933
Epoch 14/50
6/6 [=====] - 144s 23s/step - loss: 0.3890 - accuracy: 0.8894 - val_loss: 0.9249 - val_accuracy:
0.7333

In [ ]: nd.DataFrame(historv.history).nlott(f'accuracy(%.5f)')
```

Accuracy

```
0.6400
Epoch 4/50
6/6 [=====] - 144s 23s/step - loss: 1.0861 - accuracy: 0.6275 - val_loss: 1.1117 - val_accuracy:
0.6267
Epoch 5/50
6/6 [=====] - 150s 24s/step - loss: 0.9556 - accuracy: 0.6793 - val_loss: 1.0727 - val_accuracy:
0.6667
Epoch 6/50
6/6 [=====] - 151s 26s/step - loss: 0.8529 - accuracy: 0.7353 - val_loss: 1.0097 - val_accuracy:
0.6800
Epoch 7/50
6/6 [=====] - 144s 23s/step - loss: 0.7460 - accuracy: 0.7689 - val_loss: 0.9195 - val_accuracy:
0.7067
Epoch 8/50
6/6 [=====] - 151s 24s/step - loss: 0.6453 - accuracy: 0.7955 - val_loss: 0.9761 - val_accuracy:
0.6667
Epoch 9/50
6/6 [=====] - 151s 24s/step - loss: 0.6107 - accuracy: 0.7969 - val_loss: 0.9032 - val_accuracy:
0.7067
Epoch 10/50
6/6 [=====] - 150s 24s/step - loss: 0.5671 - accuracy: 0.8347 - val_loss: 0.9420 - val_accuracy:
0.7600
Epoch 11/50
6/6 [=====] - 145s 23s/step - loss: 0.5512 - accuracy: 0.8347 - val_loss: 0.8842 - val_accuracy:
0.7333
Epoch 12/50
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0.7067
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0.6933
Epoch 14/50
6/6 [=====] - 144s 23s/step - loss: 0.3890 - accuracy: 0.8894 - val_loss: 0.9249 - val_accuracy:
0.7333

In [ ]: nd.DataFrame(history.history).nlst(f'accuracy({R.S})')
```