Res50_112*112:

Epoch 1/200

97/97 [==============================] - 28s 198ms/step - loss: 0.0152 - sparse_categorical_accuracy: 0.9948 - val_loss: 2.2822 - val_sparse_categorical_accuracy: 0.6187

Epoch 2/200

97/97 [==============================] - 18s 182ms/step - loss: 0.0366 - sparse_categorical_accuracy: 0.9876 - val_loss: 2.6900 - val_sparse_categorical_accuracy: 0.5734

Epoch 3/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0178 - sparse_categorical_accuracy: 0.9938 - val_loss: 2.2755 - val_sparse_categorical_accuracy: 0.6055

Epoch 4/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0088 - sparse_categorical_accuracy: 0.9966 - val_loss: 2.5552 - val_sparse_categorical_accuracy: 0.5938

Epoch 5/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0059 - sparse_categorical_accuracy: 0.9978 - val_loss: 2.3325 - val_sparse_categorical_accuracy: 0.6430

Epoch 6/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0431 - sparse_categorical_accuracy: 0.9856 - val_loss: 29.4990 - val_sparse_categorical_accuracy: 0.2906

Epoch 7/200

97/97 [==============================] - 17s 180ms/step - loss: 0.2243 - sparse_categorical_accuracy: 0.9292 - val_loss: 2.9960 - val_sparse_categorical_accuracy: 0.5516

Epoch 8/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0428 - sparse_categorical_accuracy: 0.9861 - val_loss: 2.2024 - val_sparse_categorical_accuracy: 0.6094

Epoch 9/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0328 - sparse_categorical_accuracy: 0.9886 - val_loss: 1.8989 - val_sparse_categorical_accuracy: 0.6547

Epoch 10/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0169 - sparse_categorical_accuracy: 0.9942 - val_loss: 2.0726 - val_sparse_categorical_accuracy: 0.6398

Epoch 11/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0121 - sparse_categorical_accuracy: 0.9962 - val_loss: 5.0882 - val_sparse_categorical_accuracy: 0.3273

Epoch 12/200

97/97 [==============================] - 17s 180ms/step - loss: 0.2823 - sparse_categorical_accuracy: 0.9102 - val_loss: 3.1385 - val_sparse_categorical_accuracy: 0.4281

Epoch 13/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0636 - sparse_categorical_accuracy: 0.9778 - val_loss: 1.8403 - val_sparse_categorical_accuracy: 0.6172

Epoch 14/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0255 - sparse_categorical_accuracy: 0.9907 - val_loss: 1.8224 - val_sparse_categorical_accuracy: 0.6547

Epoch 15/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0099 - sparse_categorical_accuracy: 0.9965 - val_loss: 1.9452 - val_sparse_categorical_accuracy: 0.6734

Epoch 16/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0035 - sparse_categorical_accuracy: 0.9981 - val_loss: 2.0217 - val_sparse_categorical_accuracy: 0.6734

Epoch 17/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0027 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.0417 - val_sparse_categorical_accuracy: 0.6750

Epoch 18/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0024 - sparse_categorical_accuracy: 0.9986 - val_loss: 2.0447 - val_sparse_categorical_accuracy: 0.6734

Epoch 19/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0019 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.1395 - val_sparse_categorical_accuracy: 0.6742

Epoch 20/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9986 - val_loss: 2.1335 - val_sparse_categorical_accuracy: 0.6750

Epoch 21/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.1597 - val_sparse_categorical_accuracy: 0.6789

Epoch 22/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.2032 - val_sparse_categorical_accuracy: 0.6719

Epoch 23/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.2123 - val_sparse_categorical_accuracy: 0.6680

Epoch 24/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.1448 - val_sparse_categorical_accuracy: 0.6695

Epoch 25/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.1179 - val_sparse_categorical_accuracy: 0.6727

Epoch 26/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9986 - val_loss: 2.1301 - val_sparse_categorical_accuracy: 0.6742

Epoch 27/200

97/97 [==============================] - 17s 179ms/step - loss: 0.1295 - sparse_categorical_accuracy: 0.9683 - val_loss: 173.0711 - val_sparse_categorical_accuracy: 0.1031

Epoch 28/200

97/97 [==============================] - 17s 180ms/step - loss: 0.2202 - sparse_categorical_accuracy: 0.9286 - val_loss: 2.3640 - val_sparse_categorical_accuracy: 0.5813

Epoch 29/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0374 - sparse_categorical_accuracy:

0.9882 - val_loss: 2.0722 - val_sparse_categorical_accuracy: 0.6250

Epoch 30/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0163 - sparse_categorical_accuracy: 0.9942 - val_loss: 2.2503 - val_sparse_categorical_accuracy: 0.5977

Epoch 31/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0059 - sparse_categorical_accuracy: 0.9978 - val_loss: 2.0566 - val_sparse_categorical_accuracy: 0.6656

Epoch 32/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0029 - sparse_categorical_accuracy: 0.9990 - val_loss: 1.9468 - val_sparse_categorical_accuracy: 0.6781

Epoch 33/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0020 - sparse_categorical_accuracy: 0.9987 - val_loss: 1.8577 - val_sparse_categorical_accuracy: 0.6875

Epoch 34/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0018 - sparse_categorical_accuracy: 0.9988 - val_loss: 1.8781 - val_sparse_categorical_accuracy: 0.6922

Epoch 35/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0018 - sparse_categorical_accuracy: 0.9986 - val_loss: 1.8904 - val_sparse_categorical_accuracy: 0.6906

Epoch 36/200

97/97 [==============================] - 17s 178ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 1.9090 - val_sparse_categorical_accuracy: 0.6883

Epoch 37/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9989 - val_loss: 1.9331 - val_sparse_categorical_accuracy: 0.6906

Epoch 38/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9989 - val_loss: 1.9501 - val_sparse_categorical_accuracy: 0.6930

Epoch 39/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9989 - val_loss: 1.9746 - val_sparse_categorical_accuracy: 0.6867

Epoch 40/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9989 - val_loss: 1.9825 - val_sparse_categorical_accuracy: 0.6898

Epoch 41/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.0192 - val_sparse_categorical_accuracy: 0.6898

Epoch 42/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0273 - val_sparse_categorical_accuracy: 0.6922

Epoch 43/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9990 - val_loss: 2.0334 - val_sparse_categorical_accuracy: 0.6945

Epoch 44/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9992 - val_loss: 2.0307 - val_sparse_categorical_accuracy: 0.6914

Epoch 45/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0433 - val_sparse_categorical_accuracy: 0.6922

Epoch 46/200

97/97 [==============================] - 17s 178ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.0622 - val_sparse_categorical_accuracy: 0.6898

Epoch 47/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9990 - val_loss: 2.0623 - val_sparse_categorical_accuracy: 0.6891

Epoch 48/200

97/97 [==============================] - 17s 179ms/step - loss: 0.1157 - sparse_categorical_accuracy: 0.9668 - val_loss: 5.2569 - val_sparse_categorical_accuracy: 0.3375

Epoch 49/200

97/97 [==============================] - 17s 180ms/step - loss: 0.2573 - sparse_categorical_accuracy: 0.9108 - val_loss: 2.9680 - val_sparse_categorical_accuracy: 0.5000

Epoch 50/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0638 - sparse_categorical_accuracy: 0.9778 - val_loss: 1.9372 - val_sparse_categorical_accuracy: 0.6172

Epoch 51/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0299 - sparse_categorical_accuracy: 0.9899 - val_loss: 2.6918 - val_sparse_categorical_accuracy: 0.5961

Epoch 52/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0143 - sparse_categorical_accuracy: 0.9946 - val_loss: 2.1604 - val_sparse_categorical_accuracy: 0.6398

Epoch 53/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0104 - sparse_categorical_accuracy: 0.9963 - val_loss: 3.1997 - val_sparse_categorical_accuracy: 0.5273

Epoch 54/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0200 - sparse_categorical_accuracy: 0.9932 - val_loss: 2.6935 - val_sparse_categorical_accuracy: 0.5930

Epoch 55/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0248 - sparse_categorical_accuracy: 0.9920 - val_loss: 2.7929 - val_sparse_categorical_accuracy: 0.5844

Epoch 56/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0340 - sparse_categorical_accuracy: 0.9887 - val_loss: 3.0372 - val_sparse_categorical_accuracy: 0.5477

Epoch 57/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0563 - sparse_categorical_accuracy: 0.9807 - val_loss: 2.2825 - val_sparse_categorical_accuracy: 0.5984

Epoch 58/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0398 - sparse_categorical_accuracy: 0.9855 - val_loss: 4.0380 - val_sparse_categorical_accuracy: 0.4602

Epoch 59/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0484 - sparse_categorical_accuracy: 0.9836 - val_loss: 2.2656 - val_sparse_categorical_accuracy: 0.6328

Epoch 60/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0169 - sparse_categorical_accuracy: 0.9931 - val_loss: 3.0013 - val_sparse_categorical_accuracy: 0.5273

Epoch 61/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0075 - sparse_categorical_accuracy: 0.9973 - val_loss: 2.3591 - val_sparse_categorical_accuracy: 0.6273

Epoch 62/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0051 - sparse_categorical_accuracy: 0.9975 - val_loss: 2.4582 - val_sparse_categorical_accuracy: 0.6359

Epoch 63/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0029 - sparse_categorical_accuracy: 0.9986 - val_loss: 2.3952 - val_sparse_categorical_accuracy: 0.6594

Epoch 64/200

97/97 [==============================] - 17s 178ms/step - loss: 0.0034 - sparse_categorical_accuracy: 0.9981 - val_loss: 2.2780 - val_sparse_categorical_accuracy: 0.6664

Epoch 65/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0021 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.2399 - val_sparse_categorical_accuracy: 0.6687

Epoch 66/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0242 - sparse_categorical_accuracy: 0.9915 - val_loss: 2.7480 - val_sparse_categorical_accuracy: 0.6055

Epoch 67/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0641 - sparse_categorical_accuracy: 0.9788 - val_loss: 3.3298 - val_sparse_categorical_accuracy: 0.5422

Epoch 68/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0329 - sparse_categorical_accuracy: 0.9887 - val_loss: 2.7297 - val_sparse_categorical_accuracy: 0.5945

Epoch 69/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0219 - sparse_categorical_accuracy: 0.9927 - val_loss: 2.4636 - val_sparse_categorical_accuracy: 0.6148

Epoch 70/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0134 - sparse_categorical_accuracy: 0.9950 - val_loss: 2.5925 - val_sparse_categorical_accuracy: 0.6078

Epoch 71/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0123 - sparse_categorical_accuracy: 0.9947 - val_loss: 2.5381 - val_sparse_categorical_accuracy: 0.6352

Epoch 72/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0123 - sparse_categorical_accuracy: 0.9954 - val_loss: 2.3939 - val_sparse_categorical_accuracy: 0.6352

Epoch 73/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0081 - sparse_categorical_accuracy:

0.9968 - val_loss: 3.6449 - val_sparse_categorical_accuracy: 0.5383

Epoch 74/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0134 - sparse_categorical_accuracy: 0.9953 - val_loss: 2.5809 - val_sparse_categorical_accuracy: 0.6195

Epoch 75/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0260 - sparse_categorical_accuracy: 0.9912 - val_loss: 3.0402 - val_sparse_categorical_accuracy: 0.5680

Epoch 76/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0301 - sparse_categorical_accuracy: 0.9902 - val_loss: 2.5188 - val_sparse_categorical_accuracy: 0.6148

Epoch 77/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0354 - sparse_categorical_accuracy: 0.9874 - val_loss: 2.5778 - val_sparse_categorical_accuracy: 0.5898

Epoch 78/200

97/97 [==============================] - 17s 178ms/step - loss: 0.0177 - sparse_categorical_accuracy: 0.9933 - val_loss: 2.6606 - val_sparse_categorical_accuracy: 0.6039

Epoch 79/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0133 - sparse_categorical_accuracy: 0.9948 - val_loss: 2.4523 - val_sparse_categorical_accuracy: 0.6383

Epoch 80/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0087 - sparse_categorical_accuracy: 0.9961 - val_loss: 2.7725 - val_sparse_categorical_accuracy: 0.5867

Epoch 81/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0139 - sparse_categorical_accuracy: 0.9940 - val_loss: 2.9956 - val_sparse_categorical_accuracy: 0.6141

Epoch 82/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0199 - sparse_categorical_accuracy: 0.9926 - val_loss: 2.7131 - val_sparse_categorical_accuracy: 0.5953

Epoch 83/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0449 - sparse_categorical_accuracy: 0.9845 - val_loss: 2.5256 - val_sparse_categorical_accuracy: 0.6078

Epoch 84/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0205 - sparse_categorical_accuracy: 0.9922 - val_loss: 2.3685 - val_sparse_categorical_accuracy: 0.6383

Epoch 85/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0108 - sparse_categorical_accuracy: 0.9956 - val_loss: 2.3221 - val_sparse_categorical_accuracy: 0.6516

Epoch 86/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0043 - sparse_categorical_accuracy: 0.9979 - val_loss: 2.4588 - val_sparse_categorical_accuracy: 0.6547

Epoch 87/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0042 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.4891 - val_sparse_categorical_accuracy: 0.6313

Epoch 88/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0052 - sparse_categorical_accuracy: 0.9972 - val_loss: 2.8960 - val_sparse_categorical_accuracy: 0.6117

Epoch 89/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0035 - sparse_categorical_accuracy: 0.9983 - val_loss: 2.2810 - val_sparse_categorical_accuracy: 0.6789

Epoch 90/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0056 - sparse_categorical_accuracy: 0.9976 - val_loss: 3.2838 - val_sparse_categorical_accuracy: 0.5906

Epoch 91/200

97/97 [==============================] - 17s 180ms/step - loss: 0.1081 - sparse_categorical_accuracy: 0.9673 - val_loss: 3.4639 - val_sparse_categorical_accuracy: 0.5594

Epoch 92/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0222 - sparse_categorical_accuracy: 0.9914 - val_loss: 2.5806 - val_sparse_categorical_accuracy: 0.6156

Epoch 93/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0106 - sparse_categorical_accuracy: 0.9965 - val_loss: 2.1446 - val_sparse_categorical_accuracy: 0.6562

Epoch 94/200

97/97 [==============================] - 18s 182ms/step - loss: 0.0041 - sparse_categorical_accuracy: 0.9982 - val_loss: 2.3762 - val_sparse_categorical_accuracy: 0.6469

Epoch 95/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0023 - sparse_categorical_accuracy: 0.9986 - val_loss: 2.1915 - val_sparse_categorical_accuracy: 0.6812

Epoch 96/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9990 - val_loss: 2.1530 - val_sparse_categorical_accuracy: 0.6852

Epoch 97/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9990 - val_loss: 2.1571 - val_sparse_categorical_accuracy: 0.6820

Epoch 98/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.1744 - val_sparse_categorical_accuracy: 0.6891

Epoch 99/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.1925 - val_sparse_categorical_accuracy: 0.6891

Epoch 100/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.1996 - val_sparse_categorical_accuracy: 0.6875

Epoch 101/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.2094 - val_sparse_categorical_accuracy: 0.6898

Epoch 102/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9991 - val_loss: 2.2081 - val_sparse_categorical_accuracy: 0.6914

Epoch 103/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.2245 - val_sparse_categorical_accuracy: 0.6883

Epoch 104/200

97/97 [==============================] - 17s 178ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.2385 - val_sparse_categorical_accuracy: 0.6812

Epoch 105/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0436 - sparse_categorical_accuracy: 0.9855 - val_loss: 3.9721 - val_sparse_categorical_accuracy: 0.5094

Epoch 106/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0971 - sparse_categorical_accuracy: 0.9669 - val_loss: 2.4260 - val_sparse_categorical_accuracy: 0.6195

Epoch 107/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0411 - sparse_categorical_accuracy: 0.9860 - val_loss: 2.1966 - val_sparse_categorical_accuracy: 0.6391

Epoch 108/200

97/97 [==============================] - 17s 178ms/step - loss: 0.0178 - sparse_categorical_accuracy: 0.9938 - val_loss: 2.3729 - val_sparse_categorical_accuracy: 0.6328

Epoch 109/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0088 - sparse_categorical_accuracy: 0.9963 - val_loss: 2.2145 - val_sparse_categorical_accuracy: 0.6711

Epoch 110/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0030 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.4963 - val_sparse_categorical_accuracy: 0.6461

Epoch 111/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0027 - sparse_categorical_accuracy: 0.9987 - val_loss: 1.9596 - val_sparse_categorical_accuracy: 0.6914

Epoch 112/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0018 - val_sparse_categorical_accuracy: 0.6898

Epoch 113/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9991 - val_loss: 1.9940 - val_sparse_categorical_accuracy: 0.6984

Epoch 114/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.0056 - val_sparse_categorical_accuracy: 0.6961

Epoch 115/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.0296 - val_sparse_categorical_accuracy: 0.7039

Epoch 116/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9991 - val_loss: 2.0362 - val_sparse_categorical_accuracy: 0.6961

Epoch 117/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy:

0.9989 - val_loss: 2.0462 - val_sparse_categorical_accuracy: 0.6969

Epoch 118/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.0845 - val_sparse_categorical_accuracy: 0.6992

Epoch 119/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.1973 - val_sparse_categorical_accuracy: 0.6938

Epoch 120/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0056 - sparse_categorical_accuracy: 0.9977 - val_loss: 2.8575 - val_sparse_categorical_accuracy: 0.6031

Epoch 121/200

97/97 [==============================] - 18s 181ms/step - loss: 0.1202 - sparse_categorical_accuracy: 0.9627 - val_loss: 3.3811 - val_sparse_categorical_accuracy: 0.4945

Epoch 122/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0593 - sparse_categorical_accuracy: 0.9795 - val_loss: 2.2394 - val_sparse_categorical_accuracy: 0.6016

Epoch 123/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0353 - sparse_categorical_accuracy: 0.9881 - val_loss: 4.5132 - val_sparse_categorical_accuracy: 0.4984

Epoch 124/200

97/97 [==============================] - 18s 182ms/step - loss: 0.0251 - sparse_categorical_accuracy: 0.9912 - val_loss: 2.0918 - val_sparse_categorical_accuracy: 0.6484

Epoch 125/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0073 - sparse_categorical_accuracy: 0.9972 - val_loss: 1.9926 - val_sparse_categorical_accuracy: 0.6617

Epoch 126/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0025 - sparse_categorical_accuracy: 0.9986 - val_loss: 1.9584 - val_sparse_categorical_accuracy: 0.6844

Epoch 127/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0020 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0897 - val_sparse_categorical_accuracy: 0.6727

Epoch 128/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0018 - sparse_categorical_accuracy: 0.9985 - val_loss: 1.9797 - val_sparse_categorical_accuracy: 0.6914

Epoch 129/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0052 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.4380 - val_sparse_categorical_accuracy: 0.6211

Epoch 130/200

97/97 [==============================] - 18s 181ms/step - loss: 0.3115 - sparse_categorical_accuracy: 0.9124 - val_loss: 2.6548 - val_sparse_categorical_accuracy: 0.5328

Epoch 131/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0179 - sparse_categorical_accuracy: 0.9950 - val_loss: 1.8728 - val_sparse_categorical_accuracy: 0.6398

Epoch 132/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0045 - sparse_categorical_accuracy: 0.9985 - val_loss: 1.8340 - val_sparse_categorical_accuracy: 0.6781

Epoch 133/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0027 - sparse_categorical_accuracy: 0.9985 - val_loss: 1.8962 - val_sparse_categorical_accuracy: 0.6789

Epoch 134/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0021 - sparse_categorical_accuracy: 0.9989 - val_loss: 1.9343 - val_sparse_categorical_accuracy: 0.6727

Epoch 135/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0020 - sparse_categorical_accuracy: 0.9988 - val_loss: 1.9604 - val_sparse_categorical_accuracy: 0.6805

Epoch 136/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0019 - sparse_categorical_accuracy: 0.9987 - val_loss: 1.9842 - val_sparse_categorical_accuracy: 0.6820

Epoch 137/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0018 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0007 - val_sparse_categorical_accuracy: 0.6789

Epoch 138/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0295 - val_sparse_categorical_accuracy: 0.6719

Epoch 139/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0467 - val_sparse_categorical_accuracy: 0.6734

Epoch 140/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0652 - val_sparse_categorical_accuracy: 0.6781

Epoch 141/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.0834 - val_sparse_categorical_accuracy: 0.6766

Epoch 142/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9990 - val_loss: 2.0939 - val_sparse_categorical_accuracy: 0.6789

Epoch 143/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.1060 - val_sparse_categorical_accuracy: 0.6781

Epoch 144/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.1458 - val_sparse_categorical_accuracy: 0.6695

Epoch 145/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.1474 - val_sparse_categorical_accuracy: 0.6719

Epoch 146/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.1809 - val_sparse_categorical_accuracy: 0.6695

Epoch 147/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.1801 - val_sparse_categorical_accuracy: 0.6711

Epoch 148/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0018 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.2253 - val_sparse_categorical_accuracy: 0.6687

Epoch 149/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0323 - sparse_categorical_accuracy: 0.9894 - val_loss: 2.4869 - val_sparse_categorical_accuracy: 0.6227

Epoch 150/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0154 - sparse_categorical_accuracy: 0.9945 - val_loss: 2.5028 - val_sparse_categorical_accuracy: 0.6336

Epoch 151/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0149 - sparse_categorical_accuracy: 0.9956 - val_loss: 2.4636 - val_sparse_categorical_accuracy: 0.6516

Epoch 152/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0123 - sparse_categorical_accuracy: 0.9951 - val_loss: 2.4770 - val_sparse_categorical_accuracy: 0.6445

Epoch 153/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0055 - sparse_categorical_accuracy: 0.9976 - val_loss: 2.4619 - val_sparse_categorical_accuracy: 0.6586

Epoch 154/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0063 - sparse_categorical_accuracy: 0.9977 - val_loss: 2.6022 - val_sparse_categorical_accuracy: 0.6430

Epoch 155/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0143 - sparse_categorical_accuracy: 0.9953 - val_loss: 3.8313 - val_sparse_categorical_accuracy: 0.5914

Epoch 156/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0450 - sparse_categorical_accuracy: 0.9858 - val_loss: 2.6829 - val_sparse_categorical_accuracy: 0.6406

Epoch 157/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0325 - sparse_categorical_accuracy: 0.9889 - val_loss: 3.0992 - val_sparse_categorical_accuracy: 0.5641

Epoch 158/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0098 - sparse_categorical_accuracy: 0.9958 - val_loss: 2.6679 - val_sparse_categorical_accuracy: 0.6250

Epoch 159/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0039 - sparse_categorical_accuracy: 0.9981 - val_loss: 2.4147 - val_sparse_categorical_accuracy: 0.6617

Epoch 160/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0030 - sparse_categorical_accuracy: 0.9986 - val_loss: 3.6699 - val_sparse_categorical_accuracy: 0.5055

Epoch 161/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0956 - sparse_categorical_accuracy:

0.9693 - val_loss: 2.8469 - val_sparse_categorical_accuracy: 0.5828

Epoch 162/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0119 - sparse_categorical_accuracy: 0.9955 - val_loss: 2.2558 - val_sparse_categorical_accuracy: 0.6422

Epoch 163/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0045 - sparse_categorical_accuracy: 0.9981 - val_loss: 2.1360 - val_sparse_categorical_accuracy: 0.6617

Epoch 164/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0021 - sparse_categorical_accuracy: 0.9986 - val_loss: 2.0816 - val_sparse_categorical_accuracy: 0.6797

Epoch 165/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0158 - sparse_categorical_accuracy: 0.9963 - val_loss: 2.5761 - val_sparse_categorical_accuracy: 0.6352

Epoch 166/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0099 - sparse_categorical_accuracy: 0.9965 - val_loss: 2.5882 - val_sparse_categorical_accuracy: 0.6297

Epoch 167/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0155 - sparse_categorical_accuracy: 0.9944 - val_loss: 2.6947 - val_sparse_categorical_accuracy: 0.6242

Epoch 168/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0067 - sparse_categorical_accuracy: 0.9973 - val_loss: 2.4799 - val_sparse_categorical_accuracy: 0.6523

Epoch 169/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0025 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.1959 - val_sparse_categorical_accuracy: 0.6945

Epoch 170/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.2046 - val_sparse_categorical_accuracy: 0.6867

Epoch 171/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0527 - sparse_categorical_accuracy: 0.9833 - val_loss: 3.5513 - val_sparse_categorical_accuracy: 0.5883

Epoch 172/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0275 - sparse_categorical_accuracy: 0.9908 - val_loss: 3.4515 - val_sparse_categorical_accuracy: 0.5508

Epoch 173/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0267 - sparse_categorical_accuracy: 0.9904 - val_loss: 2.1448 - val_sparse_categorical_accuracy: 0.6734

Epoch 174/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0038 - sparse_categorical_accuracy: 0.9984 - val_loss: 2.2031 - val_sparse_categorical_accuracy: 0.6656

Epoch 175/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0023 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.1172 - val_sparse_categorical_accuracy: 0.6883

Epoch 176/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0019 - sparse_categorical_accuracy: 0.9990 - val_loss: 2.1536 - val_sparse_categorical_accuracy: 0.6953

Epoch 177/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.1974 - val_sparse_categorical_accuracy: 0.6938

Epoch 178/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.2238 - val_sparse_categorical_accuracy: 0.7000

Epoch 179/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.2324 - val_sparse_categorical_accuracy: 0.6992

Epoch 180/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.2321 - val_sparse_categorical_accuracy: 0.6992

Epoch 181/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9986 - val_loss: 2.2853 - val_sparse_categorical_accuracy: 0.6977

Epoch 182/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.2739 - val_sparse_categorical_accuracy: 0.7000

Epoch 183/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9991 - val_loss: 2.2682 - val_sparse_categorical_accuracy: 0.6992

Epoch 184/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9990 - val_loss: 2.2806 - val_sparse_categorical_accuracy: 0.7008

Epoch 185/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0019 - sparse_categorical_accuracy: 0.9985 - val_loss: 3.3259 - val_sparse_categorical_accuracy: 0.6187

Epoch 186/200

97/97 [==============================] - 17s 180ms/step - loss: 0.1211 - sparse_categorical_accuracy: 0.9627 - val_loss: 2.2977 - val_sparse_categorical_accuracy: 0.6172

Epoch 187/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0181 - sparse_categorical_accuracy: 0.9935 - val_loss: 2.0919 - val_sparse_categorical_accuracy: 0.6656

Epoch 188/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0057 - sparse_categorical_accuracy: 0.9975 - val_loss: 2.3197 - val_sparse_categorical_accuracy: 0.6445

Epoch 189/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0025 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.0501 - val_sparse_categorical_accuracy: 0.6891

Epoch 190/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0017 - sparse_categorical_accuracy: 0.9989 - val_loss: 2.0897 - val_sparse_categorical_accuracy: 0.6992

Epoch 191/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.1390 - val_sparse_categorical_accuracy: 0.6922

Epoch 192/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0016 - sparse_categorical_accuracy: 0.9985 - val_loss: 2.1469 - val_sparse_categorical_accuracy: 0.6969

Epoch 193/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9988 - val_loss: 2.1513 - val_sparse_categorical_accuracy: 0.6969

Epoch 194/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0015 - sparse_categorical_accuracy: 0.9987 - val_loss: 2.1626 - val_sparse_categorical_accuracy: 0.6992

Epoch 195/200

97/97 [==============================] - 18s 180ms/step - loss: 0.0028 - sparse_categorical_accuracy: 0.9986 - val_loss: 2.1600 - val_sparse_categorical_accuracy: 0.6977

Epoch 196/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0729 - sparse_categorical_accuracy: 0.9784 - val_loss: 2.6136 - val_sparse_categorical_accuracy: 0.6477

Epoch 197/200

97/97 [==============================] - 18s 181ms/step - loss: 0.0282 - sparse_categorical_accuracy: 0.9894 - val_loss: 2.5570 - val_sparse_categorical_accuracy: 0.6227

Epoch 198/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0066 - sparse_categorical_accuracy: 0.9974 - val_loss: 2.1550 - val_sparse_categorical_accuracy: 0.6703

Epoch 199/200

97/97 [==============================] - 17s 180ms/step - loss: 0.0054 - sparse_categorical_accuracy: 0.9980 - val_loss: 2.2144 - val_sparse_categorical_accuracy: 0.6531

Epoch 200/200

97/97 [==============================] - 17s 179ms/step - loss: 0.0029 - sparse_categorical_accuracy: 0.9984 - val_loss: 2.7858 - val_sparse_categorical_accuracy: 0.6313

Model: "deep__res"

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Layer (type)	Output Shape	Param #
conv2d_92 (Conv2D)	multiple	9472
batch_normalization_90 (Batc	multiple	256
activation_84 (Activation)	multiple	0
max_pooling2d_17 (MaxPooling	multiple	0
sequential_2 (Sequential)	(None, 4, 4, 2048)	23577984

global_average_pooling2d_2 (multiple   0

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dense_14 (Dense)   multiple   20490

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Total params: 23,608,202

Trainable params: 23,555,082

Non-trainable params: 53,120

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