HW6 – Report

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1. Implementing the VGG16 to estimate age

The training was done on the VGG16 model where the batch size was 32 and the number of epochs was 20. The VGG16 was changed to accept the modified data in the shape of 48*48*3. To the VGG16 model the final output was flattened and a linear layer of 256 and 128 neurons was applied. We used the adam optimized. The final layer is a single output. The entire model was retrained from scratch, but the initial weights started from the Imagenet weights. The RMSE error at end of training was 10.599 years.

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Epoch 7/20
169/169 [==============================] - 14s 84ms/step - loss: 10.9760 - accuracy: 0.0055 - val_loss: 11.1825 - val_accuracy: 0.0033

Epoch 00007: val_loss improved from 12.62225 to 11.18254, saving model to final_model.weights.best.hdf5
Epoch 8/20
169/169 [==============================] - 14s 84ms/step - loss: 10.7681 - accuracy: 0.0048 - val_loss: 11.1388 - val_accuracy: 0.0033

Epoch 00008: val_loss improved from 11.18254 to 11.13877, saving model to final_model.weights.best.hdf5
Epoch 9/20
169/169 [==============================] - 14s 84ms/step - loss: 9.8249 - accuracy: 0.0045 - val_loss: 12.6827 - val_accuracy: 0.0033

Epoch 00009: val_loss did not improve from 11.13877
Epoch 10/20
169/169 [==============================] - 14s 83ms/step - loss: 9.6423 - accuracy: 0.0045 - val_loss: 11.0176 - val_accuracy: 0.0033

Epoch 00010: val_loss improved from 11.13877 to 11.01755, saving model to final_model.weights.best.hdf5
Epoch 11/20
169/169 [==============================] - 14s 84ms/step - loss: 8.8784 - accuracy: 0.0045 - val_loss: 10.6103 - val_accuracy: 0.0033

Epoch 00011: val_loss improved from 11.01755 to 10.61029, saving model to final_model.weights.best.hdf5
Epoch 12/20
169/169 [==============================] - 14s 84ms/step - loss: 8.1948 - accuracy: 0.0057 - val_loss: 11.5625 - val_accuracy: 0.0033

Epoch 00012: val_loss did not improve from 10.61029
Epoch 13/20
169/169 [==============================] - 14s 84ms/step - loss: 7.3800 - accuracy: 0.0053 - val_loss: 11.6954 - val_accuracy: 0.0033

Epoch 00013: val_loss did not improve from 10.61029
Epoch 14/20
169/169 [==============================] - 14s 84ms/step - loss: 7.0486 - accuracy: 0.0033 - val_loss: 10.8443 - val_accuracy: 0.0033

Epoch 00014: val_loss did not improve from 10.61029
Epoch 15/20
169/169 [==============================] - 14s 84ms/step - loss: 6.2510 - accuracy: 0.0053 - val_loss: 10.9686 - val_accuracy: 0.0033

Epoch 00015: val_loss did not improve from 10.61029
Epoch 16/20
169/169 [==============================] - 14s 83ms/step - loss: 6.0122 - accuracy: 0.0038 - val_loss: 10.6737 - val_accuracy: 0.0033

Epoch 00016: val_loss did not improve from 10.61029
Epoch 17/20
169/169 [==============================] - 14s 84ms/step - loss: 5.4867 - accuracy: 0.0051 - val_loss: 10.6217 - val_accuracy: 0.0033

Epoch 00017: val_loss did not improve from 10.61029
Epoch 18/20
169/169 [==============================] - 14s 84ms/step - loss: 4.9409 - accuracy: 0.0041 - val_loss: 11.1350 - val_accuracy: 0.0033

Epoch 00018: val_loss did not improve from 10.61029
Epoch 19/20
169/169 [==============================] - 14s 84ms/step - loss: 4.7607 - accuracy: 0.0038 - val_loss: 10.7515 - val_accuracy: 0.0033

Epoch 00019: val_loss did not improve from 10.61029
Epoch 20/20
169/169 [==============================] - 14s 84ms/step - loss: 4.4271 - accuracy: 0.0045 - val_loss: 11.9021 - val_accuracy: 0.0033

Epoch 00020: val_loss did not improve from 10.61029
[10.599335670471191, 0.006000000052154064]
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