Personal Project_04_v10_test1_3conv-layer_run44_advanced control 4_autorun

May 5, 2025

[1]:
```
from tensorflow.keras.callbacks import LearningRateScheduler
from sklearn.metrics import classification_report, confusion_matrix
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
import matplotlib.image as mpimg
import tensorflow as tf
import os


ACC=0.1
try_num = 1

while (ACC<0.85 and try_num<40):
    # DOE factors:
    learning_rate = 0.005
    dropout_value = 0.2
    # n-conv_layers = 4
    n_units_last_layer = 1024
    n_filters_l1 = 8
    n_filters_l2 = 64

    # other factors:
    img_size = 130
    batch_size = 32
    validation_split = 0.1  # 10% for validation
    test_split = 0.00  # 0% for testing
    shuffle_buffer_size = 1000
    seed_num = 101
    desired_accuracy = 0.99  # it should be active if EarlyStoppingCallback is␣
 ↪activated
    loss = 'binary_crossentropy'
    #optimizer = tf.keras.optimizers.RMSprop(learning_rate=learning_rate)
    optimizer = tf.keras.optimizers.Adam(learning_rate=learning_rate)
    metrics = ['accuracy']
```

```
    epochs = 25
    f_mode = 'nearest'  # fill_mode in image augmentation

    #DATA_DIR = "D:\\CS online courses\\Free DataSets\\Free Images\\Easier portrait images_GPU_03"
    DATA_DIR = "/Users/hossein/Downloads/Easier portrait images_GPU_03"

    # Subdirectories for each class
    data_dir_woman = os.path.join(DATA_DIR, 'woman')
    data_dir_man = os.path.join(DATA_DIR, 'man')
    image_size = (img_size, img_size)  # Resize images to this size

    # Load train dataset (excluding validation & test set):
    train_dataset = tf.keras.utils.image_dataset_from_directory(
        directory = DATA_DIR,
        image_size = image_size,
        batch_size = batch_size,
        label_mode='binary',
        validation_split = validation_split + test_split,  # Total split for val + test
        subset = "training",
        seed = seed_num
    )
    # Load validation dataset
    val_dataset = tf.keras.utils.image_dataset_from_directory(
        directory = DATA_DIR,
        image_size = image_size,
        batch_size = batch_size,
        label_mode='binary',
        validation_split = validation_split + test_split,
        subset = "validation",
        seed = seed_num
    )
    # Further manually split validation dataset to extract test dataset
    val_batches = tf.data.experimental.cardinality(val_dataset)
    # Compute test dataset size (number of batches)
    test_size = round(val_batches.numpy() * (test_split / (validation_split + test_split)))
    # Split validation dataset into validation and test subsets
    test_dataset = val_dataset.take(test_size)
    val_dataset = val_dataset.skip(test_size)
    # Optimize for performance
    AUTOTUNE = tf.data.AUTOTUNE
    training_dataset = train_dataset.cache().shuffle(shuffle_buffer_size).prefetch(buffer_size = AUTOTUNE)
    validation_dataset = val_dataset.cache().prefetch(buffer_size = AUTOTUNE)
    test_dataset = test_dataset.cache().prefetch(buffer_size = AUTOTUNE)
```

```
    # Get the first batch of images and labels
    for images, labels in training_dataset.take(1):
            example_batch_images = images
            example_batch_labels = labels
    max_pixel = np.max(example_batch_images)

    def scheduler(epoch, lr):
        if epoch < 10:
            if epoch % 5 == 0 and epoch > 0:
                return lr / 1
            return lr
        elif epoch < 15:
            if epoch % 5 == 0 and epoch > 0:
                return lr / 1
            return lr
        elif epoch < 30:
            if epoch % 5 == 0 and epoch > 0:
                return lr / 1
            return lr
        else:
            return lr
    lr_callback = LearningRateScheduler(scheduler)

    # augmentation_model
    def augment_model():
        augmentation_model = tf.keras.Sequential([
            # Specify the input shape.
            tf.keras.Input(shape = (img_size, img_size, 3)),

            tf.keras.layers.RandomFlip("horizontal"),
            tf.keras.layers.RandomRotation(0.1, fill_mode = f_mode),
            #tf.keras.layers.RandomTranslation(0.1, 0.1, fill_mode = f_mode),
            #tf.keras.layers.RandomZoom(0.1, fill_mode=f_mode)
            ])
        return augmentation_model

    def create_and_compile_model():
        augmentation_layers = augment_model()
        model = tf.keras.Sequential([
            # Note: the input shape is the desired size of the image: 150x150␣
↪with 3 bytes for color
            tf.keras.layers.InputLayer(shape = (img_size, img_size, 3)),
            augmentation_layers,
            tf.keras.layers.Rescaling(1./255),
            #####    CONV_LAYER_1:     #####
            tf.keras.layers.Conv2D(n_filters_l1, (4, 4), activation = 'linear'),
```

```
            tf.keras.layers.MaxPooling2D(2, 2),
            #####    CONV_LAYER_2:     #####
            tf.keras.layers.Conv2D(n_filters_12, (3, 3), activation = 'relu'),
            tf.keras.layers.MaxPooling2D(2, 2),
            #####    CONV_LAYER_3:     #####
            tf.keras.layers.Conv2D(64, (3, 3), activation = 'relu'),
            tf.keras.layers.MaxPooling2D(2, 2),
            #####    CONV_LAYER_4:     #####
            tf.keras.layers.Conv2D(64, (3, 3), activation = 'relu'),
            tf.keras.layers.MaxPooling2D(2, 2),
            tf.keras.layers.Flatten(),
            tf.keras.layers.Dropout(dropout_value),
            #####    BEFORE_LAST_LAYER:     #####
            tf.keras.layers.Dense(n_units_last_layer, activation = 'relu'),
            # It will contain a value from 0-1 where 0 for the class 'female'␣
↪and 1 for the 'male'
            tf.keras.layers.Dense(1, activation = 'sigmoid')])
        model.compile(
            loss = loss,
            optimizer = optimizer,
            metrics = metrics
        )
        return model

    # Create the compiled but untrained model
    def reset_weights(model):
        for layer in model.layers:
            if hasattr(layer, 'kernel_initializer'):
                layer.kernel.assign(layer.kernel_initializer(layer.kernel.
↪shape))
            if hasattr(layer, 'bias_initializer'):
                layer.bias.assign(layer.bias_initializer(layer.bias.shape))

    model = create_and_compile_model()
    reset_weights(model)  # Reset all layer weights
    training_history = model.fit(training_dataset,
                                 epochs=epochs,
                                 validation_data=validation_dataset,
                                 callbacks=[lr_callback],
                                 verbose=2)
    result_history = pd.DataFrame(model.history.history)
    ACC = result_history['val_accuracy'].iloc[-1]
    print(f"Current validation accuracy: {ACC}")
    model.save('trained_model_run44_advanced_control.h5')
    # Restart script
    print("Reseting all weights...")
    print(f'Current number of trials: {try_num}')
```

```
    try_num += 1
    result_history[['loss', 'val_loss']].plot(figsize=(5, 3))
    result_history[['accuracy', 'val_accuracy']].plot(figsize=(5, 3))
    plt.show()
    print(model.metrics_names)
    print(model.evaluate(validation_dataset))
    y_true = np.concatenate([y.numpy() for _, y in validation_dataset])
    y_pred_prob = model.predict(validation_dataset)
    # Convert probabilities to class labels (0:Female or 1:Male)
    y_pred = (y_pred_prob > 0.5).astype(int).flatten()
    print("Classification Report:\n", classification_report(y_true, y_pred,␣
↪target_names=['Female', 'Male']))

result_history.head(15)
```

```
Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
```

```
2025-05-05 16:57:23.137851: I tensorflow/core/framework/local_rendezvous.cc:405]
Local rendezvous is aborting with status: OUT_OF_RANGE: End of sequence
```

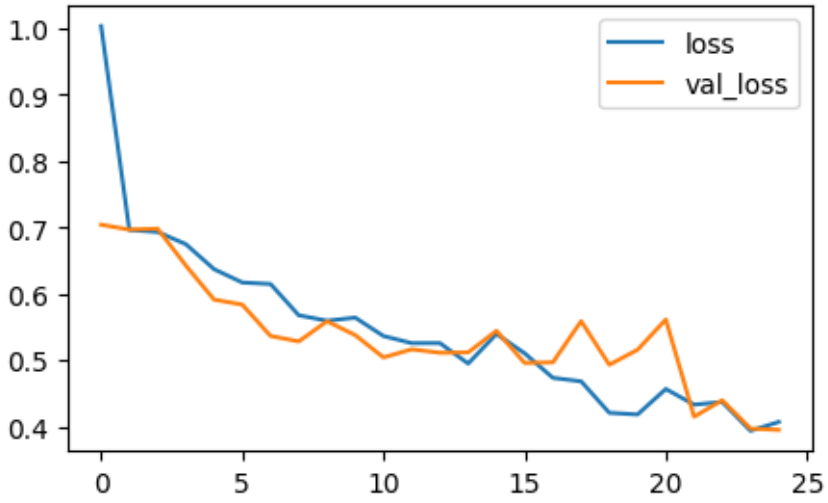
```
27/27 - 2s - 78ms/step - accuracy: 0.4982 - loss: 1.0036 - val_accuracy: 0.4362
- val_loss: 0.7044 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 52ms/step - accuracy: 0.4876 - loss: 0.6964 - val_accuracy: 0.4362
- val_loss: 0.6969 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.5183 - loss: 0.6934 - val_accuracy: 0.4362
- val_loss: 0.6983 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 52ms/step - accuracy: 0.5807 - loss: 0.6750 - val_accuracy: 0.6170
- val_loss: 0.6429 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 52ms/step - accuracy: 0.6525 - loss: 0.6373 - val_accuracy: 0.7128
- val_loss: 0.5915 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 52ms/step - accuracy: 0.6643 - loss: 0.6172 - val_accuracy: 0.7021
- val_loss: 0.5839 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 52ms/step - accuracy: 0.6726 - loss: 0.6150 - val_accuracy: 0.7660
- val_loss: 0.5367 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 52ms/step - accuracy: 0.6914 - loss: 0.5678 - val_accuracy: 0.8191
- val_loss: 0.5284 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 52ms/step - accuracy: 0.7267 - loss: 0.5596 - val_accuracy: 0.7340
```

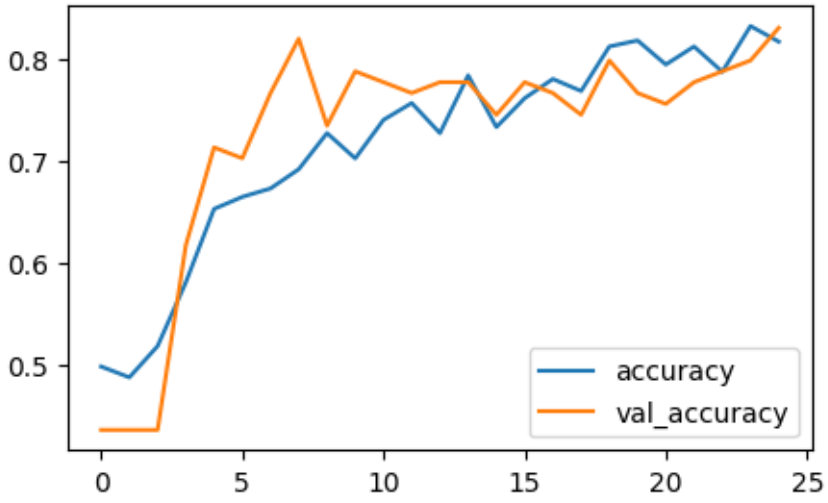
```
- val_loss: 0.5589 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 52ms/step - accuracy: 0.7020 - loss: 0.5643 - val_accuracy: 0.7872
- val_loss: 0.5379 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 52ms/step - accuracy: 0.7397 - loss: 0.5366 - val_accuracy: 0.7766
- val_loss: 0.5044 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 52ms/step - accuracy: 0.7562 - loss: 0.5258 - val_accuracy: 0.7660
- val_loss: 0.5165 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 52ms/step - accuracy: 0.7267 - loss: 0.5259 - val_accuracy: 0.7766
- val_loss: 0.5113 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 54ms/step - accuracy: 0.7833 - loss: 0.4951 - val_accuracy: 0.7766
- val_loss: 0.5119 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 52ms/step - accuracy: 0.7326 - loss: 0.5396 - val_accuracy: 0.7447
- val_loss: 0.5444 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 52ms/step - accuracy: 0.7609 - loss: 0.5106 - val_accuracy: 0.7766
- val_loss: 0.4960 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7797 - loss: 0.4736 - val_accuracy: 0.7660
- val_loss: 0.4970 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.7680 - loss: 0.4683 - val_accuracy: 0.7447
- val_loss: 0.5590 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 54ms/step - accuracy: 0.8115 - loss: 0.4209 - val_accuracy: 0.7979
- val_loss: 0.4933 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.8174 - loss: 0.4184 - val_accuracy: 0.7660
- val_loss: 0.5160 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 52ms/step - accuracy: 0.7939 - loss: 0.4568 - val_accuracy: 0.7553
- val_loss: 0.5615 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.8115 - loss: 0.4332 - val_accuracy: 0.7766
- val_loss: 0.4150 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.7868 - loss: 0.4372 - val_accuracy: 0.7872
- val_loss: 0.4398 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.8316 - loss: 0.3938 - val_accuracy: 0.7979
- val_loss: 0.3972 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.8163 - loss: 0.4071 - val_accuracy: 0.8298
```

```
- val_loss: 0.3952 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.8297872543334961
Reseting all weights…
Current number of trials: 1
```






```
['loss', 'compile_metrics']
```

```
3/3             0s 16ms/step -
accuracy: 0.8250 - loss: 0.4107
[0.39521297812461853, 0.8297872543334961]
1/3             0s 41ms/step

2025-05-05 16:57:59.460248: I tensorflow/core/framework/local_rendezvous.cc:405]
Local rendezvous is aborting with status: OUT_OF_RANGE: End of sequence

3/3             0s 28ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.78      0.85      0.81        41
        Male       0.88      0.81      0.84        53

    accuracy                           0.83        94
   macro avg       0.83      0.83      0.83        94
weighted avg       0.83      0.83      0.83        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 80ms/step - accuracy: 0.5559 - loss: 0.9858 - val_accuracy: 0.7021
- val_loss: 0.6463 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.6796 - loss: 0.6083 - val_accuracy: 0.5532
- val_loss: 0.7021 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 53ms/step - accuracy: 0.6678 - loss: 0.6143 - val_accuracy: 0.7234
- val_loss: 0.6119 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 52ms/step - accuracy: 0.6902 - loss: 0.6009 - val_accuracy: 0.4574
- val_loss: 0.7298 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 52ms/step - accuracy: 0.6726 - loss: 0.6000 - val_accuracy: 0.7340
- val_loss: 0.6551 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.7232 - loss: 0.5587 - val_accuracy: 0.7553
- val_loss: 0.5534 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 52ms/step - accuracy: 0.7420 - loss: 0.5625 - val_accuracy: 0.7340
- val_loss: 0.5386 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 52ms/step - accuracy: 0.7350 - loss: 0.5583 - val_accuracy: 0.7660
- val_loss: 0.5426 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 52ms/step - accuracy: 0.7185 - loss: 0.5476 - val_accuracy: 0.7660
```

```
- val_loss: 0.5187 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.7432 - loss: 0.5338 - val_accuracy: 0.7340
- val_loss: 0.6070 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 54ms/step - accuracy: 0.7350 - loss: 0.5460 - val_accuracy: 0.7766
- val_loss: 0.5043 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 52ms/step - accuracy: 0.7739 - loss: 0.5122 - val_accuracy: 0.7447
- val_loss: 0.5245 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 52ms/step - accuracy: 0.7633 - loss: 0.4883 - val_accuracy: 0.6489
- val_loss: 0.7041 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 52ms/step - accuracy: 0.7527 - loss: 0.5464 - val_accuracy: 0.7340
- val_loss: 0.5560 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 52ms/step - accuracy: 0.7409 - loss: 0.5598 - val_accuracy: 0.7872
- val_loss: 0.4780 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.7220 - loss: 0.5332 - val_accuracy: 0.7872
- val_loss: 0.4477 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7927 - loss: 0.4674 - val_accuracy: 0.7979
- val_loss: 0.4730 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.7833 - loss: 0.4695 - val_accuracy: 0.7872
- val_loss: 0.4499 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.7703 - loss: 0.4740 - val_accuracy: 0.7553
- val_loss: 0.4783 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.7644 - loss: 0.4967 - val_accuracy: 0.7553
- val_loss: 0.4996 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.7715 - loss: 0.5087 - val_accuracy: 0.7234
- val_loss: 0.4907 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 54ms/step - accuracy: 0.7621 - loss: 0.4992 - val_accuracy: 0.7979
- val_loss: 0.5177 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.7715 - loss: 0.4913 - val_accuracy: 0.7872
- val_loss: 0.4654 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7809 - loss: 0.4955 - val_accuracy: 0.8298
- val_loss: 0.3997 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 52ms/step - accuracy: 0.7903 - loss: 0.4485 - val_accuracy: 0.8298
```

```
- val_loss: 0.4632 - learning_rate: 0.0050

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recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.8297872543334961
Reseting all weights…
Current number of trials: 2
```
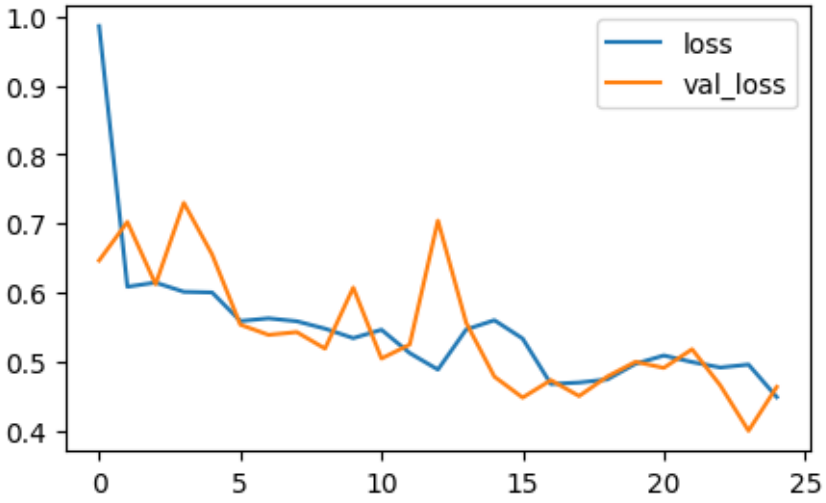
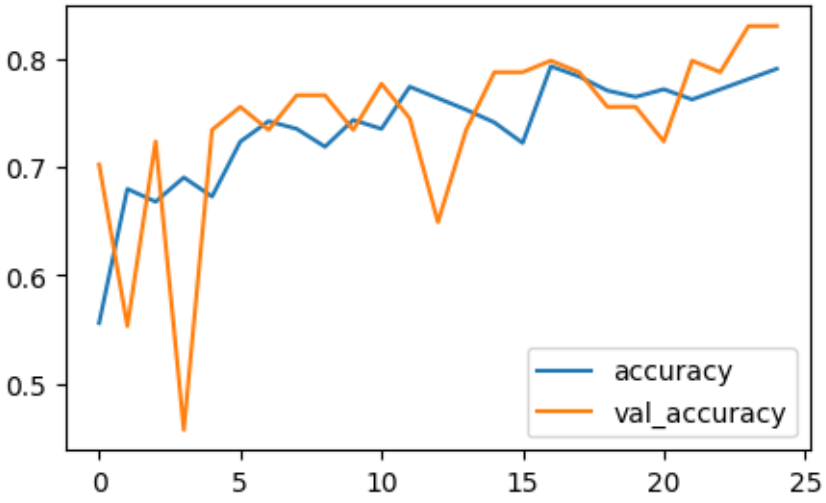



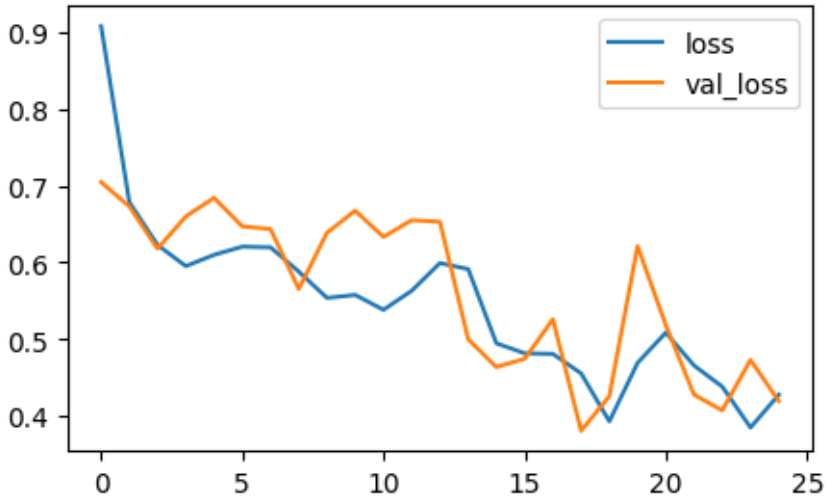


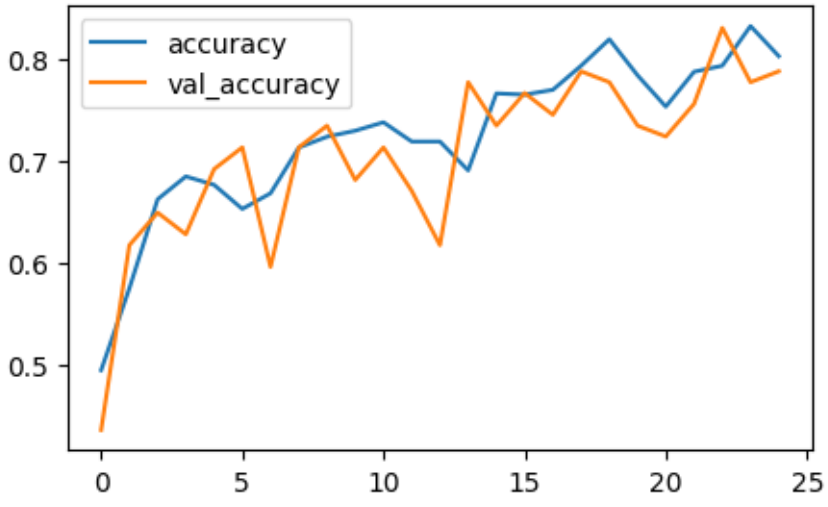

```
['loss', 'compile_metrics']
```

```
3/3             0s 15ms/step -
accuracy: 0.8211 - loss: 0.4821
[0.4631522297859192, 0.8297872543334961]
1/3             0s 36ms/step

2025-05-05 16:58:36.259414: I tensorflow/core/framework/local_rendezvous.cc:405]
Local rendezvous is aborting with status: OUT_OF_RANGE: End of sequence

3/3             0s 26ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.77      0.88      0.82        41
        Male       0.89      0.79      0.84        53

    accuracy                           0.83        94
   macro avg       0.83      0.84      0.83        94
weighted avg       0.84      0.83      0.83        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 77ms/step - accuracy: 0.4947 - loss: 0.9079 - val_accuracy: 0.4362
- val_loss: 0.7047 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.5748 - loss: 0.6785 - val_accuracy: 0.6170
- val_loss: 0.6731 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 53ms/step - accuracy: 0.6620 - loss: 0.6229 - val_accuracy: 0.6489
- val_loss: 0.6181 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.6843 - loss: 0.5954 - val_accuracy: 0.6277
- val_loss: 0.6601 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 52ms/step - accuracy: 0.6761 - loss: 0.6101 - val_accuracy: 0.6915
- val_loss: 0.6844 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.6525 - loss: 0.6207 - val_accuracy: 0.7128
- val_loss: 0.6472 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 54ms/step - accuracy: 0.6678 - loss: 0.6199 - val_accuracy: 0.5957
- val_loss: 0.6436 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 54ms/step - accuracy: 0.7126 - loss: 0.5883 - val_accuracy: 0.7128
- val_loss: 0.5657 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 53ms/step - accuracy: 0.7232 - loss: 0.5540 - val_accuracy: 0.7340
```

```
- val_loss: 0.6387 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.7291 - loss: 0.5579 - val_accuracy: 0.6809
- val_loss: 0.6676 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 53ms/step - accuracy: 0.7373 - loss: 0.5385 - val_accuracy: 0.7128
- val_loss: 0.6334 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.7185 - loss: 0.5633 - val_accuracy: 0.6702
- val_loss: 0.6553 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.7185 - loss: 0.5994 - val_accuracy: 0.6170
- val_loss: 0.6531 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.6902 - loss: 0.5916 - val_accuracy: 0.7766
- val_loss: 0.5003 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 53ms/step - accuracy: 0.7656 - loss: 0.4949 - val_accuracy: 0.7340
- val_loss: 0.4641 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.7644 - loss: 0.4819 - val_accuracy: 0.7660
- val_loss: 0.4747 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7691 - loss: 0.4811 - val_accuracy: 0.7447
- val_loss: 0.5261 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.7927 - loss: 0.4558 - val_accuracy: 0.7872
- val_loss: 0.3810 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 55ms/step - accuracy: 0.8186 - loss: 0.3933 - val_accuracy: 0.7766
- val_loss: 0.4261 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.7833 - loss: 0.4695 - val_accuracy: 0.7340
- val_loss: 0.6215 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 54ms/step - accuracy: 0.7527 - loss: 0.5088 - val_accuracy: 0.7234
- val_loss: 0.5187 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 54ms/step - accuracy: 0.7868 - loss: 0.4660 - val_accuracy: 0.7553
- val_loss: 0.4280 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 54ms/step - accuracy: 0.7927 - loss: 0.4385 - val_accuracy: 0.8298
- val_loss: 0.4076 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 54ms/step - accuracy: 0.8316 - loss: 0.3853 - val_accuracy: 0.7766
- val_loss: 0.4734 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 54ms/step - accuracy: 0.8021 - loss: 0.4280 - val_accuracy: 0.7872
```

```
- val_loss: 0.4198 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.7872340679168701
Reseting all weights…
Current number of trials: 3
```





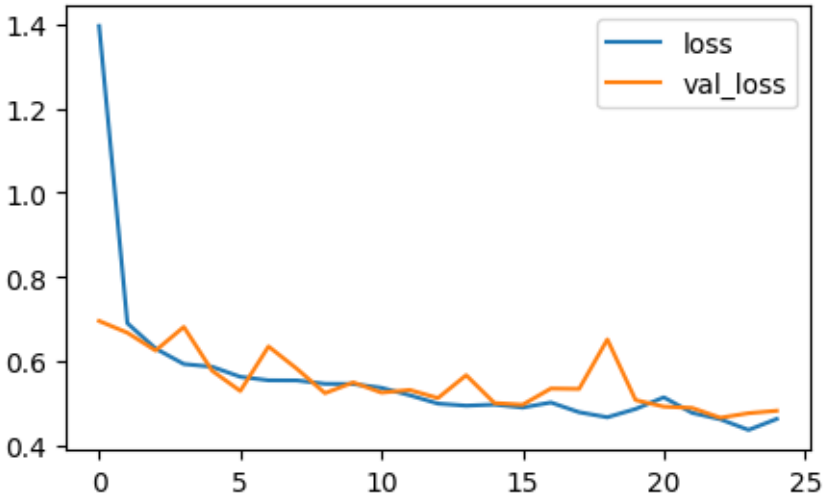

```
['loss', 'compile_metrics']
```

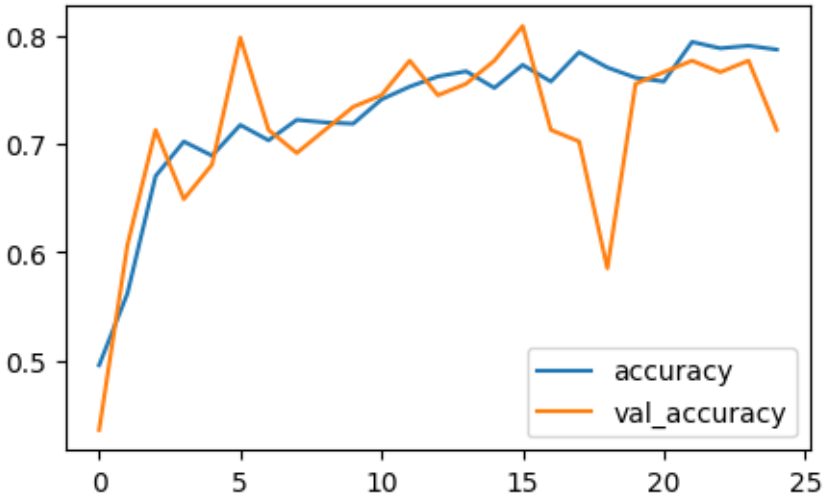
```
3/3             0s 15ms/step -
accuracy: 0.7569 - loss: 0.4428
[0.4197849929332733, 0.7872340679168701]
WARNING:tensorflow:5 out of the last 7 calls to <function
TensorFlowTrainer.make_predict_function.<locals>.one_step_on_data_distributed at
0x177a7c860> triggered tf.function retracing. Tracing is expensive and the
excessive number of tracings could be due to (1) creating @tf.function
repeatedly in a loop, (2) passing tensors with different shapes, (3) passing
Python objects instead of tensors. For (1), please define your @tf.function
outside of the loop. For (2), @tf.function has reduce_retracing=True option that
can avoid unnecessary retracing. For (3), please refer to
https://www.tensorflow.org/guide/function#controlling_retracing and
https://www.tensorflow.org/api_docs/python/tf/function for  more details.

WARNING:tensorflow:5 out of the last 7 calls to <function
TensorFlowTrainer.make_predict_function.<locals>.one_step_on_data_distributed at
0x177a7c860> triggered tf.function retracing. Tracing is expensive and the
excessive number of tracings could be due to (1) creating @tf.function
repeatedly in a loop, (2) passing tensors with different shapes, (3) passing
Python objects instead of tensors. For (1), please define your @tf.function
outside of the loop. For (2), @tf.function has reduce_retracing=True option that
can avoid unnecessary retracing. For (3), please refer to
https://www.tensorflow.org/guide/function#controlling_retracing and
https://www.tensorflow.org/api_docs/python/tf/function for  more details.

1/3             0s
39ms/stepWARNING:tensorflow:6 out of the last 9 calls to <function
TensorFlowTrainer.make_predict_function.<locals>.one_step_on_data_distributed at
0x177a7c860> triggered tf.function retracing. Tracing is expensive and the
excessive number of tracings could be due to (1) creating @tf.function
repeatedly in a loop, (2) passing tensors with different shapes, (3) passing
Python objects instead of tensors. For (1), please define your @tf.function
outside of the loop. For (2), @tf.function has reduce_retracing=True option that
can avoid unnecessary retracing. For (3), please refer to
https://www.tensorflow.org/guide/function#controlling_retracing and
https://www.tensorflow.org/api_docs/python/tf/function for  more details.

WARNING:tensorflow:6 out of the last 9 calls to <function
TensorFlowTrainer.make_predict_function.<locals>.one_step_on_data_distributed at
0x177a7c860> triggered tf.function retracing. Tracing is expensive and the
excessive number of tracings could be due to (1) creating @tf.function
repeatedly in a loop, (2) passing tensors with different shapes, (3) passing
Python objects instead of tensors. For (1), please define your @tf.function
outside of the loop. For (2), @tf.function has reduce_retracing=True option that
can avoid unnecessary retracing. For (3), please refer to
https://www.tensorflow.org/guide/function#controlling_retracing and
https://www.tensorflow.org/api_docs/python/tf/function for  more details.

3/3             0s 27ms/step
Classification Report:
```

```
              precision    recall  f1-score   support

      Female       0.72      0.83      0.77        41
        Male       0.85      0.75      0.80        53

    accuracy                           0.79        94
   macro avg       0.79      0.79      0.79        94
weighted avg       0.80      0.79      0.79        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 77ms/step - accuracy: 0.4959 - loss: 1.3949 - val_accuracy: 0.4362
- val_loss: 0.6961 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.5618 - loss: 0.6908 - val_accuracy: 0.6064
- val_loss: 0.6683 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.6702 - loss: 0.6308 - val_accuracy: 0.7128
- val_loss: 0.6260 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 55ms/step - accuracy: 0.7020 - loss: 0.5941 - val_accuracy: 0.6489
- val_loss: 0.6820 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.6890 - loss: 0.5876 - val_accuracy: 0.6809
- val_loss: 0.5783 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.7173 - loss: 0.5638 - val_accuracy: 0.7979
- val_loss: 0.5303 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 54ms/step - accuracy: 0.7032 - loss: 0.5555 - val_accuracy: 0.7128
- val_loss: 0.6357 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 54ms/step - accuracy: 0.7220 - loss: 0.5552 - val_accuracy: 0.6915
- val_loss: 0.5831 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 54ms/step - accuracy: 0.7197 - loss: 0.5473 - val_accuracy: 0.7128
- val_loss: 0.5251 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 54ms/step - accuracy: 0.7185 - loss: 0.5468 - val_accuracy: 0.7340
- val_loss: 0.5506 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 54ms/step - accuracy: 0.7409 - loss: 0.5378 - val_accuracy: 0.7447
- val_loss: 0.5264 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.7527 - loss: 0.5202 - val_accuracy: 0.7766
```

```
- val_loss: 0.5327 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 54ms/step - accuracy: 0.7621 - loss: 0.5003 - val_accuracy: 0.7447
- val_loss: 0.5135 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 54ms/step - accuracy: 0.7668 - loss: 0.4955 - val_accuracy: 0.7553
- val_loss: 0.5677 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 55ms/step - accuracy: 0.7515 - loss: 0.4980 - val_accuracy: 0.7766
- val_loss: 0.5016 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.7727 - loss: 0.4911 - val_accuracy: 0.8085
- val_loss: 0.4977 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 54ms/step - accuracy: 0.7574 - loss: 0.5030 - val_accuracy: 0.7128
- val_loss: 0.5361 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 54ms/step - accuracy: 0.7845 - loss: 0.4799 - val_accuracy: 0.7021
- val_loss: 0.5352 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 54ms/step - accuracy: 0.7703 - loss: 0.4680 - val_accuracy: 0.5851
- val_loss: 0.6523 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.7609 - loss: 0.4877 - val_accuracy: 0.7553
- val_loss: 0.5087 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.7574 - loss: 0.5152 - val_accuracy: 0.7660
- val_loss: 0.4932 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 54ms/step - accuracy: 0.7939 - loss: 0.4785 - val_accuracy: 0.7766
- val_loss: 0.4902 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.7880 - loss: 0.4632 - val_accuracy: 0.7660
- val_loss: 0.4668 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7903 - loss: 0.4380 - val_accuracy: 0.7766
- val_loss: 0.4776 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 54ms/step - accuracy: 0.7868 - loss: 0.4640 - val_accuracy: 0.7128
- val_loss: 0.4834 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.7127659320831299
Reseting all weights…
```

```
Current number of trials: 4
```



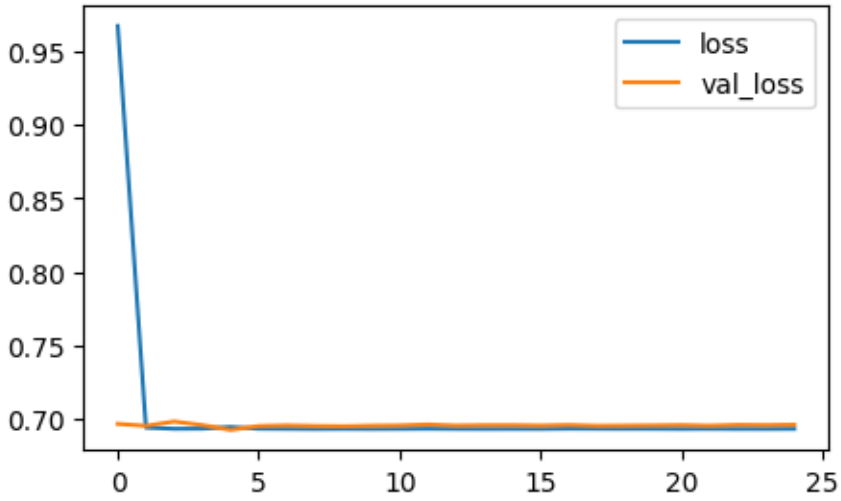


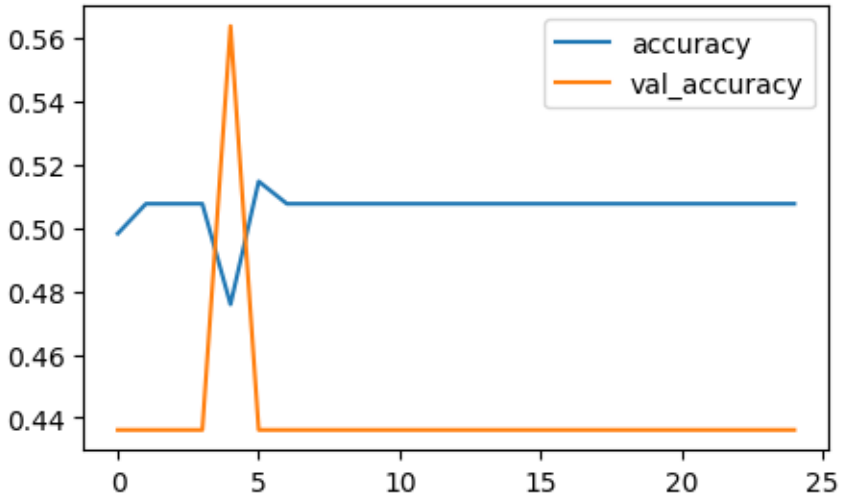

```
['loss', 'compile_metrics']
3/3             0s 15ms/step -
accuracy: 0.7079 - loss: 0.4882
[0.4833977520465851, 0.7127659320831299]
1/3             0s 37ms/step

2025-05-05 16:59:50.780460: I tensorflow/core/framework/local_rendezvous.cc:405]
Local rendezvous is aborting with status: OUT_OF_RANGE: End of sequence

3/3             0s 27ms/step
Classification Report:
```

```
              precision    recall  f1-score   support

      Female       0.64      0.78      0.70        41
        Male       0.80      0.66      0.72        53

    accuracy                           0.71        94
   macro avg       0.72      0.72      0.71        94
weighted avg       0.73      0.71      0.71        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 83ms/step - accuracy: 0.4982 - loss: 0.9672 - val_accuracy: 0.4362
- val_loss: 0.6966 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6940 - val_accuracy: 0.4362
- val_loss: 0.6952 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6981 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 54ms/step - accuracy: 0.4759 - loss: 0.6944 - val_accuracy: 0.5638
- val_loss: 0.6924 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 55ms/step - accuracy: 0.5147 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6951 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6955 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6951 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6949 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6955 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
```

```
- val_loss: 0.6961 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6954 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6954 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6958 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6952 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6954 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6955 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 22/25
27/27 - 2s - 56ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6959 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6960 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.43617022037506104
Reseting all weights…
```

```
Current number of trials: 5
```



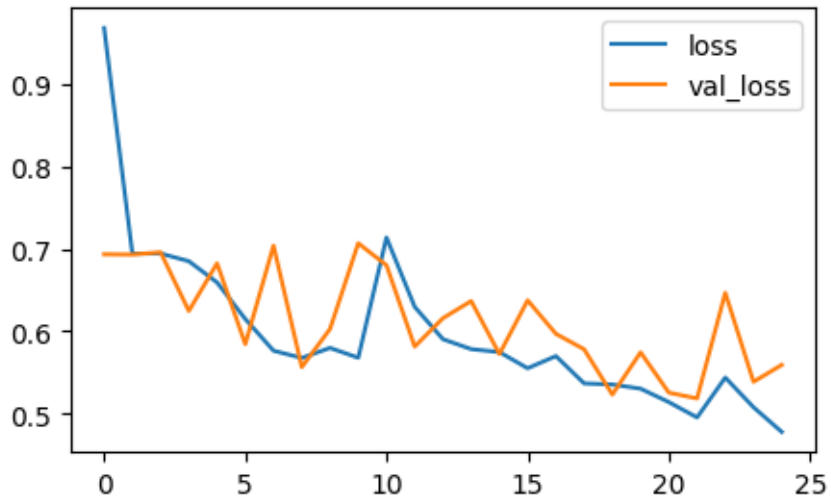



```
['loss', 'compile_metrics']
3/3             0s 15ms/step -
accuracy: 0.4603 - loss: 0.6950
[0.6960007548332214, 0.43617022037506104]
3/3             0s 26ms/step
Classification Report:
              precision    recall  f1-score   support

      Female       0.44      1.00      0.61        41
        Male       0.00      0.00      0.00        53
```

```
    accuracy                           0.44        94
   macro avg       0.22      0.50      0.30        94
weighted avg       0.19      0.44      0.26        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.

/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))

Epoch 1/25
27/27 - 2s - 77ms/step - accuracy: 0.4912 - loss: 0.9676 - val_accuracy: 0.4468
- val_loss: 0.6933 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6941 - val_accuracy: 0.4362
- val_loss: 0.6930 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 53ms/step - accuracy: 0.5277 - loss: 0.6943 - val_accuracy: 0.4362
- val_loss: 0.6958 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.5371 - loss: 0.6849 - val_accuracy: 0.6383
- val_loss: 0.6246 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.5984 - loss: 0.6592 - val_accuracy: 0.5638
- val_loss: 0.6823 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.6773 - loss: 0.6148 - val_accuracy: 0.6489
- val_loss: 0.5844 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 54ms/step - accuracy: 0.7220 - loss: 0.5764 - val_accuracy: 0.6596
- val_loss: 0.7038 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 53ms/step - accuracy: 0.7114 - loss: 0.5676 - val_accuracy: 0.7660
```

```
- val_loss: 0.5565 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 53ms/step - accuracy: 0.6996 - loss: 0.5798 - val_accuracy: 0.6064
- val_loss: 0.6027 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.6820 - loss: 0.5679 - val_accuracy: 0.6489
- val_loss: 0.7067 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 52ms/step - accuracy: 0.5819 - loss: 0.7137 - val_accuracy: 0.6596
- val_loss: 0.6800 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 52ms/step - accuracy: 0.6572 - loss: 0.6295 - val_accuracy: 0.6809
- val_loss: 0.5814 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.6667 - loss: 0.5904 - val_accuracy: 0.6809
- val_loss: 0.6158 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.7055 - loss: 0.5783 - val_accuracy: 0.6915
- val_loss: 0.6367 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 53ms/step - accuracy: 0.7161 - loss: 0.5748 - val_accuracy: 0.7660
- val_loss: 0.5723 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.6961 - loss: 0.5551 - val_accuracy: 0.6596
- val_loss: 0.6375 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7185 - loss: 0.5699 - val_accuracy: 0.7234
- val_loss: 0.5969 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 54ms/step - accuracy: 0.7303 - loss: 0.5368 - val_accuracy: 0.7340
- val_loss: 0.5781 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.7385 - loss: 0.5354 - val_accuracy: 0.7660
- val_loss: 0.5232 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 52ms/step - accuracy: 0.7256 - loss: 0.5304 - val_accuracy: 0.7340
- val_loss: 0.5744 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 52ms/step - accuracy: 0.7432 - loss: 0.5141 - val_accuracy: 0.7660
- val_loss: 0.5256 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 52ms/step - accuracy: 0.7668 - loss: 0.4955 - val_accuracy: 0.7553
- val_loss: 0.5186 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.7420 - loss: 0.5439 - val_accuracy: 0.6915
- val_loss: 0.6466 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7574 - loss: 0.5079 - val_accuracy: 0.7234
```

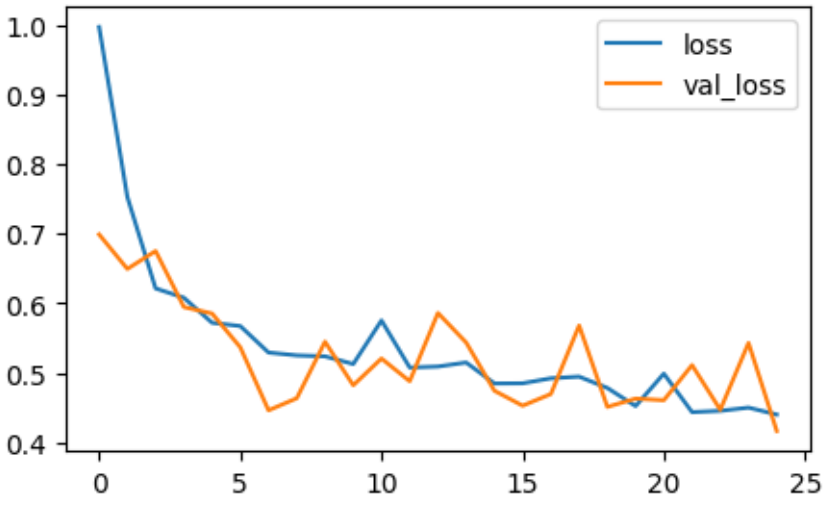
```
- val_loss: 0.5387 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 52ms/step - accuracy: 0.7880 - loss: 0.4779 - val_accuracy: 0.7553
- val_loss: 0.5592 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.7553191781044006
Reseting all weights…
Current number of trials: 6
```

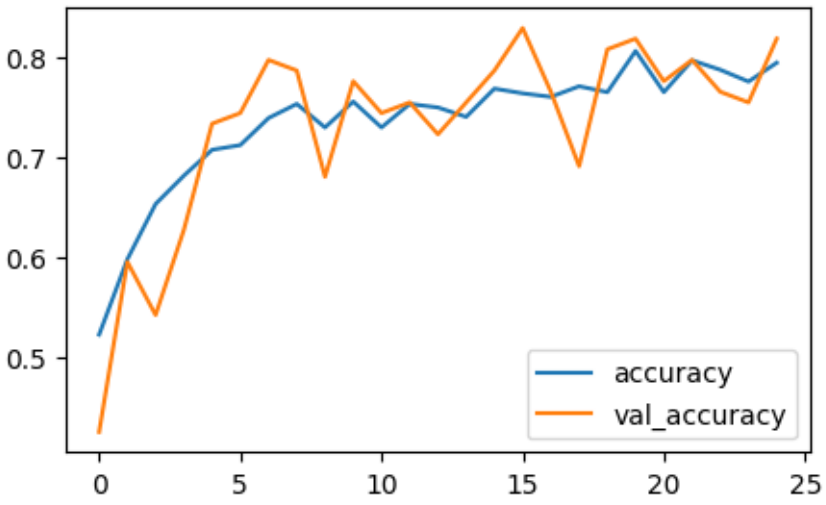


```
['loss', 'compile_metrics']
3/3             0s 15ms/step -
accuracy: 0.7527 - loss: 0.5628
[0.5592289566993713, 0.7553191781044006]
3/3             0s 26ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.67      0.88      0.76        41
        Male       0.88      0.66      0.75        53

    accuracy                           0.76        94
   macro avg       0.77      0.77      0.76        94
weighted avg       0.78      0.76      0.75        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 78ms/step - accuracy: 0.5230 - loss: 0.9967 - val_accuracy: 0.4255
- val_loss: 0.6990 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 54ms/step - accuracy: 0.5984 - loss: 0.7527 - val_accuracy: 0.5957
- val_loss: 0.6495 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.6537 - loss: 0.6215 - val_accuracy: 0.5426
- val_loss: 0.6752 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 55ms/step - accuracy: 0.6820 - loss: 0.6082 - val_accuracy: 0.6277
- val_loss: 0.5948 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 54ms/step - accuracy: 0.7079 - loss: 0.5722 - val_accuracy: 0.7340
- val_loss: 0.5855 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 54ms/step - accuracy: 0.7126 - loss: 0.5675 - val_accuracy: 0.7447
- val_loss: 0.5370 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.7397 - loss: 0.5295 - val_accuracy: 0.7979
- val_loss: 0.4466 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 54ms/step - accuracy: 0.7538 - loss: 0.5254 - val_accuracy: 0.7872
- val_loss: 0.4639 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 53ms/step - accuracy: 0.7303 - loss: 0.5240 - val_accuracy: 0.6809
- val_loss: 0.5450 - learning_rate: 0.0050
```

```
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.7562 - loss: 0.5130 - val_accuracy: 0.7766
- val_loss: 0.4825 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 53ms/step - accuracy: 0.7303 - loss: 0.5755 - val_accuracy: 0.7447
- val_loss: 0.5209 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.7538 - loss: 0.5079 - val_accuracy: 0.7553
- val_loss: 0.4883 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.7503 - loss: 0.5094 - val_accuracy: 0.7234
- val_loss: 0.5862 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.7409 - loss: 0.5152 - val_accuracy: 0.7553
- val_loss: 0.5439 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 54ms/step - accuracy: 0.7691 - loss: 0.4851 - val_accuracy: 0.7872
- val_loss: 0.4747 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.7644 - loss: 0.4853 - val_accuracy: 0.8298
- val_loss: 0.4532 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7609 - loss: 0.4925 - val_accuracy: 0.7660
- val_loss: 0.4700 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.7715 - loss: 0.4949 - val_accuracy: 0.6915
- val_loss: 0.5682 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.7656 - loss: 0.4786 - val_accuracy: 0.8085
- val_loss: 0.4515 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.8068 - loss: 0.4526 - val_accuracy: 0.8191
- val_loss: 0.4633 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.7656 - loss: 0.4992 - val_accuracy: 0.7766
- val_loss: 0.4611 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.7974 - loss: 0.4440 - val_accuracy: 0.7979
- val_loss: 0.5114 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.7880 - loss: 0.4458 - val_accuracy: 0.7660
- val_loss: 0.4473 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7762 - loss: 0.4505 - val_accuracy: 0.7553
- val_loss: 0.5433 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.7951 - loss: 0.4405 - val_accuracy: 0.8191
- val_loss: 0.4170 - learning_rate: 0.0050
```

```
WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.8191489577293396
Reseting all weights…
Current number of trials: 7
```



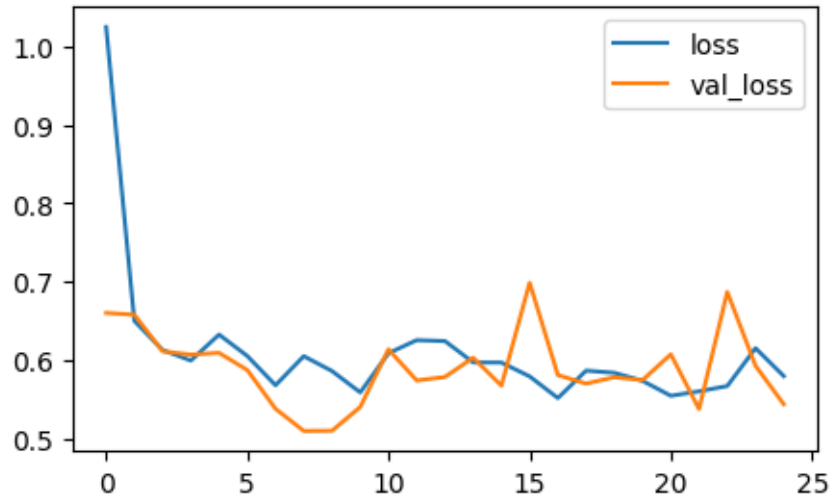


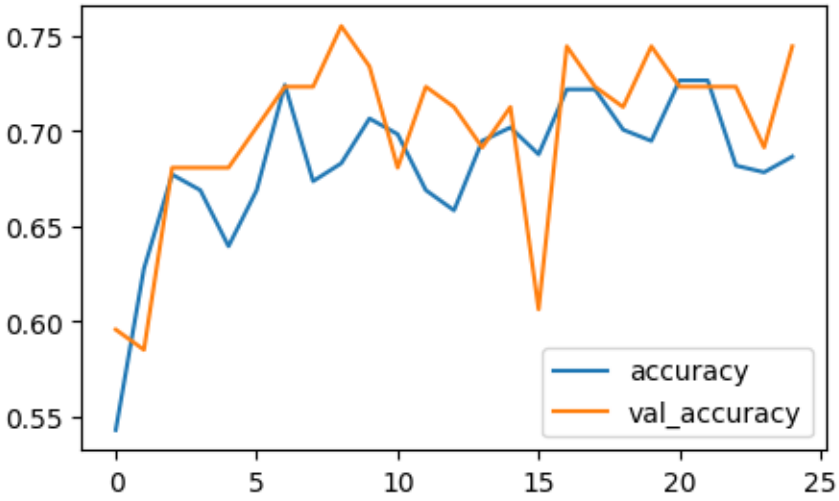

```
['loss', 'compile_metrics']
3/3             0s 15ms/step -
accuracy: 0.8041 - loss: 0.4264
```

```
[0.41696178913116455, 0.8191489577293396]
3/3             0s 26ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.77      0.83      0.80        41
        Male       0.86      0.81      0.83        53

    accuracy                           0.82        94
   macro avg       0.82      0.82      0.82        94
weighted avg       0.82      0.82      0.82        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 78ms/step - accuracy: 0.5430 - loss: 1.0244 - val_accuracy: 0.5957
- val_loss: 0.6604 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 54ms/step - accuracy: 0.6278 - loss: 0.6503 - val_accuracy: 0.5851
- val_loss: 0.6581 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.6773 - loss: 0.6132 - val_accuracy: 0.6809
- val_loss: 0.6115 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.6690 - loss: 0.5997 - val_accuracy: 0.6809
- val_loss: 0.6073 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.6396 - loss: 0.6328 - val_accuracy: 0.6809
- val_loss: 0.6095 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 52ms/step - accuracy: 0.6690 - loss: 0.6056 - val_accuracy: 0.7021
- val_loss: 0.5877 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.7244 - loss: 0.5683 - val_accuracy: 0.7234
- val_loss: 0.5384 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 54ms/step - accuracy: 0.6737 - loss: 0.6054 - val_accuracy: 0.7234
- val_loss: 0.5102 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 53ms/step - accuracy: 0.6832 - loss: 0.5864 - val_accuracy: 0.7553
- val_loss: 0.5104 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 54ms/step - accuracy: 0.7067 - loss: 0.5592 - val_accuracy: 0.7340
- val_loss: 0.5406 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 54ms/step - accuracy: 0.6985 - loss: 0.6091 - val_accuracy: 0.6809
```

```
- val_loss: 0.6141 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 54ms/step - accuracy: 0.6690 - loss: 0.6257 - val_accuracy: 0.7234
- val_loss: 0.5744 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.6584 - loss: 0.6246 - val_accuracy: 0.7128
- val_loss: 0.5789 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.6949 - loss: 0.5974 - val_accuracy: 0.6915
- val_loss: 0.6034 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 53ms/step - accuracy: 0.7020 - loss: 0.5972 - val_accuracy: 0.7128
- val_loss: 0.5678 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.6879 - loss: 0.5796 - val_accuracy: 0.6064
- val_loss: 0.6989 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7220 - loss: 0.5520 - val_accuracy: 0.7447
- val_loss: 0.5813 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 52ms/step - accuracy: 0.7220 - loss: 0.5870 - val_accuracy: 0.7234
- val_loss: 0.5705 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.7008 - loss: 0.5841 - val_accuracy: 0.7128
- val_loss: 0.5786 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 52ms/step - accuracy: 0.6949 - loss: 0.5739 - val_accuracy: 0.7447
- val_loss: 0.5749 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 52ms/step - accuracy: 0.7267 - loss: 0.5549 - val_accuracy: 0.7234
- val_loss: 0.6078 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.7267 - loss: 0.5606 - val_accuracy: 0.7234
- val_loss: 0.5379 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.6820 - loss: 0.5674 - val_accuracy: 0.7234
- val_loss: 0.6872 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 52ms/step - accuracy: 0.6784 - loss: 0.6156 - val_accuracy: 0.6915
- val_loss: 0.5931 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 52ms/step - accuracy: 0.6867 - loss: 0.5801 - val_accuracy: 0.7447
- val_loss: 0.5442 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
```

```
'my_model.keras')`.

Current validation accuracy: 0.7446808218955994
Reseting all weights…
Current number of trials: 8
```



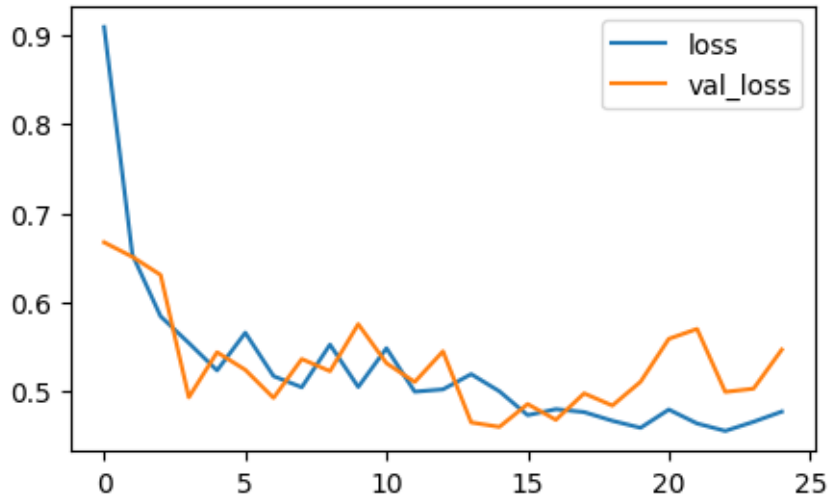


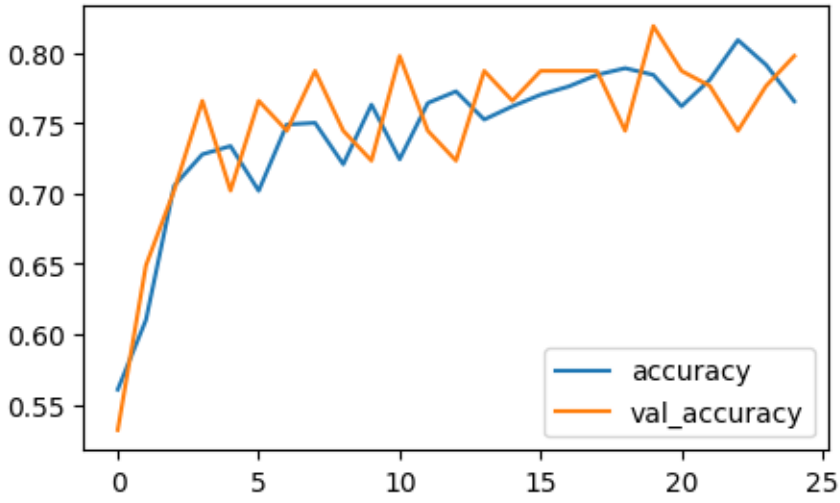

```
['loss', 'compile_metrics']
3/3             0s 14ms/step -
accuracy: 0.7473 - loss: 0.5586
[0.5441914200782776, 0.7446808218955994]
1/3             0s 36ms/step

2025-05-05 17:02:19.748314: I tensorflow/core/framework/local_rendezvous.cc:405]
```

```
Local rendezvous is aborting with status: OUT_OF_RANGE: End of sequence
3/3             0s 26ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.67      0.80      0.73        41
        Male       0.82      0.70      0.76        53

    accuracy                           0.74        94
   macro avg       0.75      0.75      0.74        94
weighted avg       0.76      0.74      0.75        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 82ms/step - accuracy: 0.5607 - loss: 0.9088 - val_accuracy: 0.5319
- val_loss: 0.6673 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.6101 - loss: 0.6535 - val_accuracy: 0.6489
- val_loss: 0.6510 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 53ms/step - accuracy: 0.7055 - loss: 0.5842 - val_accuracy: 0.7021
- val_loss: 0.6307 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.7279 - loss: 0.5544 - val_accuracy: 0.7660
- val_loss: 0.4934 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.7338 - loss: 0.5235 - val_accuracy: 0.7021
- val_loss: 0.5440 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.7020 - loss: 0.5659 - val_accuracy: 0.7660
- val_loss: 0.5242 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.7491 - loss: 0.5172 - val_accuracy: 0.7447
- val_loss: 0.4928 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 54ms/step - accuracy: 0.7503 - loss: 0.5047 - val_accuracy: 0.7872
- val_loss: 0.5364 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 53ms/step - accuracy: 0.7208 - loss: 0.5525 - val_accuracy: 0.7447
- val_loss: 0.5227 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.7633 - loss: 0.5050 - val_accuracy: 0.7234
- val_loss: 0.5755 - learning_rate: 0.0050
Epoch 11/25
```

```
27/27 - 1s - 53ms/step - accuracy: 0.7244 - loss: 0.5485 - val_accuracy: 0.7979
- val_loss: 0.5317 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 52ms/step - accuracy: 0.7644 - loss: 0.4997 - val_accuracy: 0.7447
- val_loss: 0.5106 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.7727 - loss: 0.5023 - val_accuracy: 0.7234
- val_loss: 0.5450 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 52ms/step - accuracy: 0.7527 - loss: 0.5194 - val_accuracy: 0.7872
- val_loss: 0.4652 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 53ms/step - accuracy: 0.7621 - loss: 0.5002 - val_accuracy: 0.7660
- val_loss: 0.4603 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 52ms/step - accuracy: 0.7703 - loss: 0.4734 - val_accuracy: 0.7872
- val_loss: 0.4859 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7762 - loss: 0.4801 - val_accuracy: 0.7872
- val_loss: 0.4682 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.7845 - loss: 0.4768 - val_accuracy: 0.7872
- val_loss: 0.4979 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 54ms/step - accuracy: 0.7892 - loss: 0.4671 - val_accuracy: 0.7447
- val_loss: 0.4842 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.7845 - loss: 0.4592 - val_accuracy: 0.8191
- val_loss: 0.5109 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 52ms/step - accuracy: 0.7621 - loss: 0.4797 - val_accuracy: 0.7872
- val_loss: 0.5590 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.7809 - loss: 0.4641 - val_accuracy: 0.7766
- val_loss: 0.5701 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.8092 - loss: 0.4557 - val_accuracy: 0.7447
- val_loss: 0.4995 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 52ms/step - accuracy: 0.7915 - loss: 0.4660 - val_accuracy: 0.7766
- val_loss: 0.5031 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.7656 - loss: 0.4774 - val_accuracy: 0.7979
- val_loss: 0.5469 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
```

```
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.7978723645210266
Reseting all weights…
Current number of trials: 9
```



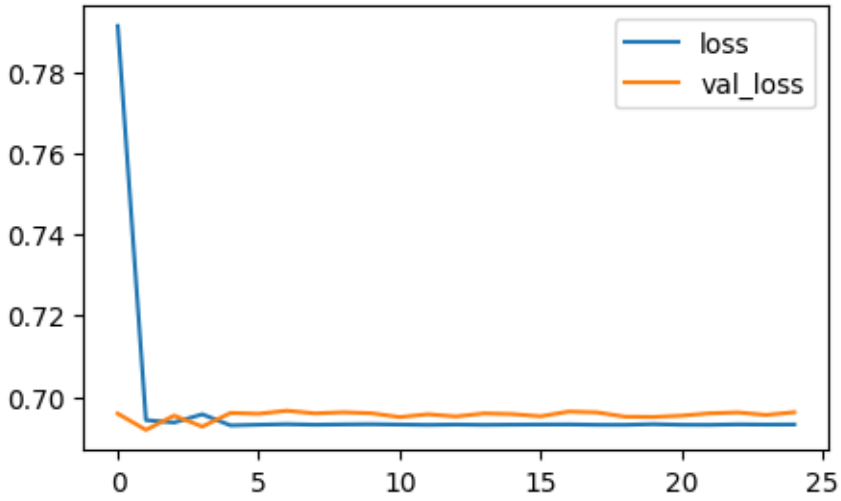


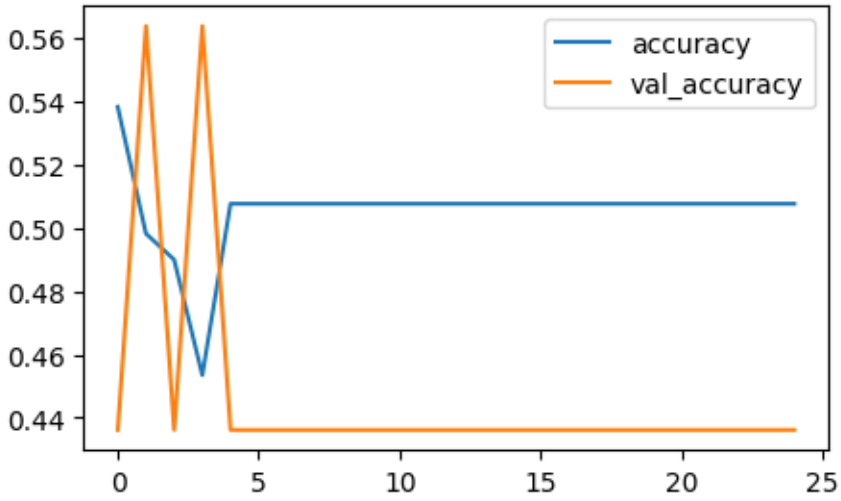

```
['loss', 'compile_metrics']
3/3             0s 14ms/step -
accuracy: 0.7857 - loss: 0.5685
[0.5468873381614685, 0.7978723645210266]
3/3             0s 26ms/step
Classification Report:
```

```
              precision    recall  f1-score   support

      Female       0.75      0.80      0.78        41
        Male       0.84      0.79      0.82        53

    accuracy                           0.80        94
   macro avg       0.79      0.80      0.80        94
weighted avg       0.80      0.80      0.80        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 77ms/step - accuracy: 0.5383 - loss: 0.7912 - val_accuracy: 0.4362
- val_loss: 0.6959 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 54ms/step - accuracy: 0.4982 - loss: 0.6943 - val_accuracy: 0.5638
- val_loss: 0.6918 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.4900 - loss: 0.6937 - val_accuracy: 0.4362
- val_loss: 0.6954 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 55ms/step - accuracy: 0.4535 - loss: 0.6957 - val_accuracy: 0.5638
- val_loss: 0.6927 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6930 - val_accuracy: 0.4362
- val_loss: 0.6960 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6958 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6966 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6959 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6962 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6959 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6950 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
```

```
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6952 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6959 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6952 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6964 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6961 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6951 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6950 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 52ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6959 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6961 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6955 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6962 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.43617022037506104
Reseting all weights…
```

```
Current number of trials: 10
```



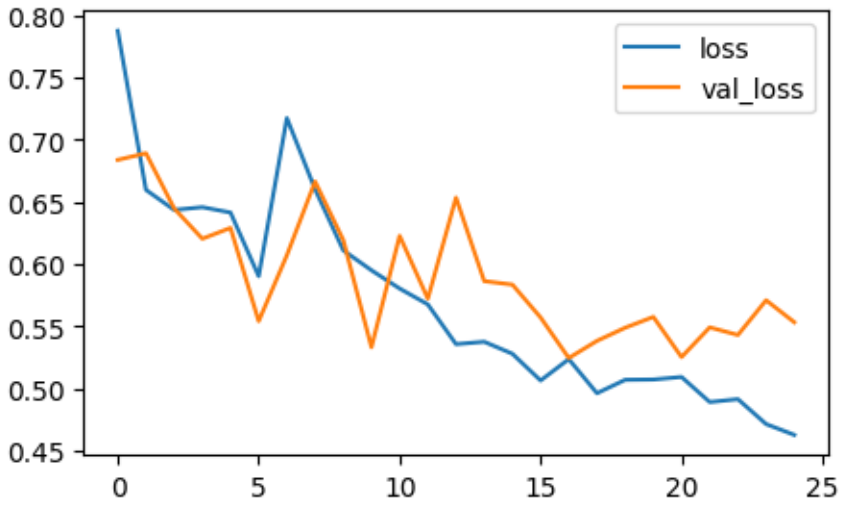


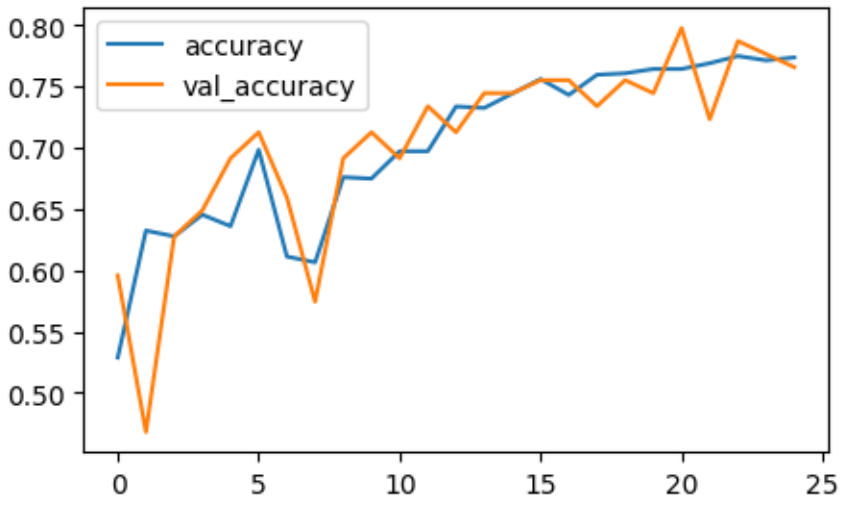

```
['loss', 'compile_metrics']
3/3             0s 15ms/step -
accuracy: 0.4603 - loss: 0.6951
[0.6961911916732788, 0.43617022037506104]
3/3             0s 26ms/step
Classification Report:
              precision    recall  f1-score   support

      Female       0.44      1.00      0.61        41
        Male       0.00      0.00      0.00        53
```

```
    accuracy                           0.44        94
   macro avg       0.22      0.50      0.30        94
weighted avg       0.19      0.44      0.26        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.

/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))

Epoch 1/25
27/27 - 2s - 79ms/step - accuracy: 0.5289 - loss: 0.7876 - val_accuracy: 0.5957
- val_loss: 0.6838 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.6325 - loss: 0.6597 - val_accuracy: 0.4681
- val_loss: 0.6891 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 53ms/step - accuracy: 0.6278 - loss: 0.6435 - val_accuracy: 0.6277
- val_loss: 0.6448 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 52ms/step - accuracy: 0.6455 - loss: 0.6457 - val_accuracy: 0.6489
- val_loss: 0.6204 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.6360 - loss: 0.6414 - val_accuracy: 0.6915
- val_loss: 0.6290 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.6985 - loss: 0.5902 - val_accuracy: 0.7128
- val_loss: 0.5541 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.6113 - loss: 0.7174 - val_accuracy: 0.6596
- val_loss: 0.6071 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 53ms/step - accuracy: 0.6066 - loss: 0.6601 - val_accuracy: 0.5745
```

```
- val_loss: 0.6664 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 53ms/step - accuracy: 0.6761 - loss: 0.6110 - val_accuracy: 0.6915
- val_loss: 0.6193 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.6749 - loss: 0.5950 - val_accuracy: 0.7128
- val_loss: 0.5331 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 53ms/step - accuracy: 0.6973 - loss: 0.5803 - val_accuracy: 0.6915
- val_loss: 0.6227 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 54ms/step - accuracy: 0.6973 - loss: 0.5675 - val_accuracy: 0.7340
- val_loss: 0.5721 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.7338 - loss: 0.5356 - val_accuracy: 0.7128
- val_loss: 0.6534 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.7326 - loss: 0.5375 - val_accuracy: 0.7447
- val_loss: 0.5863 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 53ms/step - accuracy: 0.7444 - loss: 0.5278 - val_accuracy: 0.7447
- val_loss: 0.5835 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 54ms/step - accuracy: 0.7562 - loss: 0.5063 - val_accuracy: 0.7553
- val_loss: 0.5570 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7432 - loss: 0.5235 - val_accuracy: 0.7553
- val_loss: 0.5244 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.7597 - loss: 0.4961 - val_accuracy: 0.7340
- val_loss: 0.5382 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.7609 - loss: 0.5069 - val_accuracy: 0.7553
- val_loss: 0.5488 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.7644 - loss: 0.5071 - val_accuracy: 0.7447
- val_loss: 0.5575 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 52ms/step - accuracy: 0.7644 - loss: 0.5092 - val_accuracy: 0.7979
- val_loss: 0.5252 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.7691 - loss: 0.4890 - val_accuracy: 0.7234
- val_loss: 0.5491 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 54ms/step - accuracy: 0.7750 - loss: 0.4913 - val_accuracy: 0.7872
- val_loss: 0.5430 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7715 - loss: 0.4713 - val_accuracy: 0.7766
```

```
- val_loss: 0.5709 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.7739 - loss: 0.4626 - val_accuracy: 0.7660
- val_loss: 0.5532 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.7659574747085571
Reseting all weights…
Current number of trials: 11
```

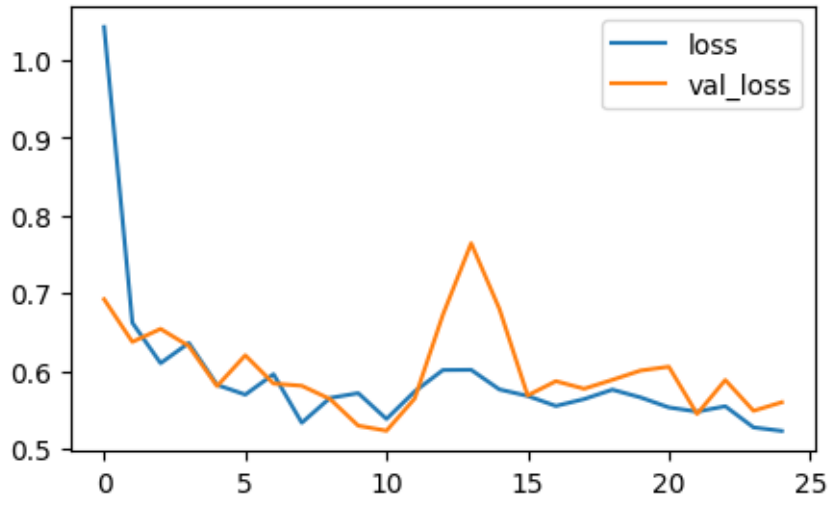


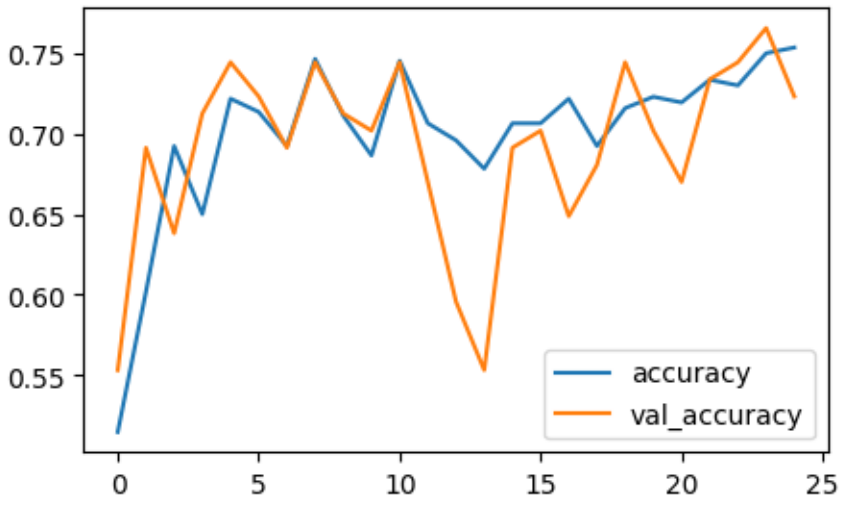


```
['loss', 'compile_metrics']
3/3             0s 14ms/step -
accuracy: 0.7541 - loss: 0.5776
[0.5531900525093079, 0.7659574747085571]
3/3             0s 26ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.77      0.66      0.71        41
        Male       0.76      0.85      0.80        53

    accuracy                           0.77        94
   macro avg       0.77      0.75      0.76        94
weighted avg       0.77      0.77      0.76        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 77ms/step - accuracy: 0.5147 - loss: 1.0424 - val_accuracy: 0.5532
- val_loss: 0.6921 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.6019 - loss: 0.6619 - val_accuracy: 0.6915
- val_loss: 0.6373 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 53ms/step - accuracy: 0.6926 - loss: 0.6099 - val_accuracy: 0.6383
- val_loss: 0.6540 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.6502 - loss: 0.6358 - val_accuracy: 0.7128
- val_loss: 0.6319 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.7220 - loss: 0.5820 - val_accuracy: 0.7447
- val_loss: 0.5803 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.7138 - loss: 0.5694 - val_accuracy: 0.7234
- val_loss: 0.6200 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.6926 - loss: 0.5957 - val_accuracy: 0.6915
- val_loss: 0.5836 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 53ms/step - accuracy: 0.7468 - loss: 0.5332 - val_accuracy: 0.7447
- val_loss: 0.5808 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 54ms/step - accuracy: 0.7114 - loss: 0.5651 - val_accuracy: 0.7128
- val_loss: 0.5638 - learning_rate: 0.0050
```

```
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.6867 - loss: 0.5713 - val_accuracy: 0.7021
- val_loss: 0.5295 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 53ms/step - accuracy: 0.7456 - loss: 0.5381 - val_accuracy: 0.7447
- val_loss: 0.5229 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.7067 - loss: 0.5735 - val_accuracy: 0.6702
- val_loss: 0.5644 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.6961 - loss: 0.6011 - val_accuracy: 0.5957
- val_loss: 0.6723 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.6784 - loss: 0.6013 - val_accuracy: 0.5532
- val_loss: 0.7641 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 52ms/step - accuracy: 0.7067 - loss: 0.5761 - val_accuracy: 0.6915
- val_loss: 0.6797 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.7067 - loss: 0.5677 - val_accuracy: 0.7021
- val_loss: 0.5684 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7220 - loss: 0.5548 - val_accuracy: 0.6489
- val_loss: 0.5867 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.6926 - loss: 0.5637 - val_accuracy: 0.6809
- val_loss: 0.5770 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.7161 - loss: 0.5758 - val_accuracy: 0.7447
- val_loss: 0.5884 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.7232 - loss: 0.5658 - val_accuracy: 0.7021
- val_loss: 0.6004 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.7197 - loss: 0.5529 - val_accuracy: 0.6702
- val_loss: 0.6053 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.7338 - loss: 0.5475 - val_accuracy: 0.7340
- val_loss: 0.5445 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.7303 - loss: 0.5544 - val_accuracy: 0.7447
- val_loss: 0.5882 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7503 - loss: 0.5272 - val_accuracy: 0.7660
- val_loss: 0.5486 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.7538 - loss: 0.5227 - val_accuracy: 0.7234
- val_loss: 0.5596 - learning_rate: 0.0050
```

```
WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.7234042286872864
Reseting all weights…
Current number of trials: 12
```



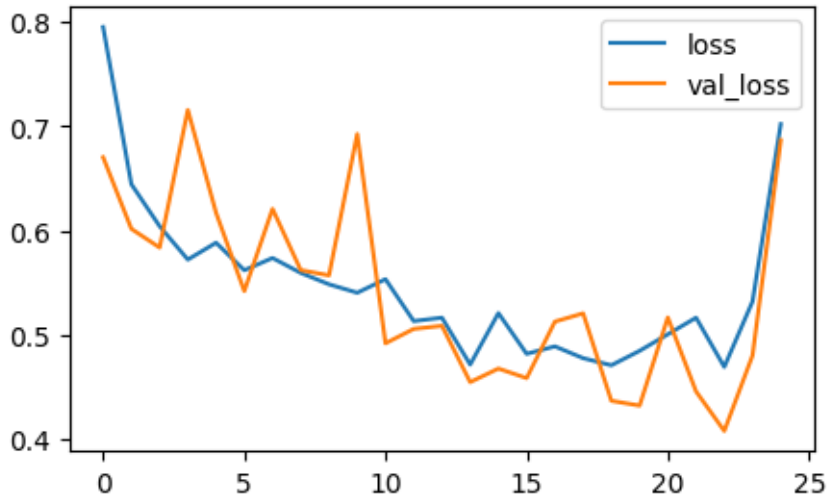


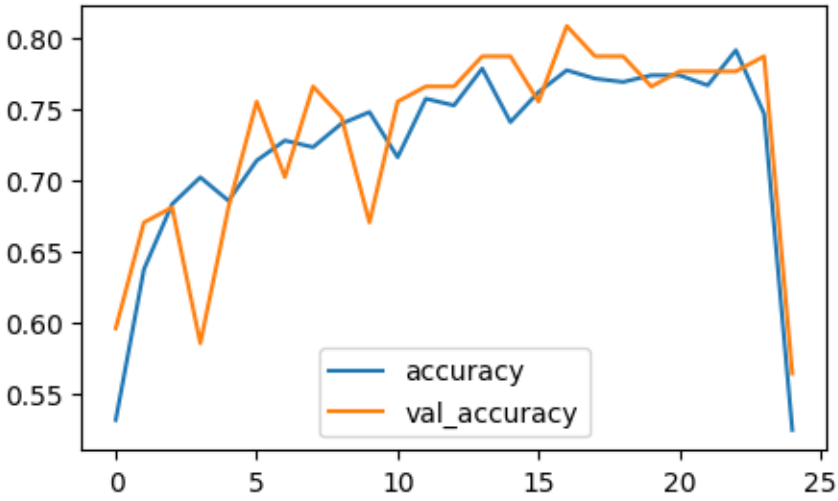

```
['loss', 'compile_metrics']
3/3             0s 15ms/step -
accuracy: 0.7094 - loss: 0.5730
```

```
[0.5595529079437256, 0.7234042286872864]
3/3             0s 26ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.63      0.90      0.74        41
        Male       0.89      0.58      0.70        53

    accuracy                           0.72        94
   macro avg       0.76      0.74      0.72        94
weighted avg       0.77      0.72      0.72        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 78ms/step - accuracy: 0.5312 - loss: 0.7954 - val_accuracy: 0.5957
- val_loss: 0.6703 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.6372 - loss: 0.6444 - val_accuracy: 0.6702
- val_loss: 0.6016 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.6832 - loss: 0.6041 - val_accuracy: 0.6809
- val_loss: 0.5836 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.7020 - loss: 0.5720 - val_accuracy: 0.5851
- val_loss: 0.7158 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 54ms/step - accuracy: 0.6855 - loss: 0.5882 - val_accuracy: 0.6809
- val_loss: 0.6170 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.7138 - loss: 0.5618 - val_accuracy: 0.7553
- val_loss: 0.5418 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.7279 - loss: 0.5735 - val_accuracy: 0.7021
- val_loss: 0.6207 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 53ms/step - accuracy: 0.7232 - loss: 0.5592 - val_accuracy: 0.7660
- val_loss: 0.5619 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 53ms/step - accuracy: 0.7397 - loss: 0.5483 - val_accuracy: 0.7447
- val_loss: 0.5569 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 54ms/step - accuracy: 0.7479 - loss: 0.5402 - val_accuracy: 0.6702
- val_loss: 0.6926 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 53ms/step - accuracy: 0.7161 - loss: 0.5532 - val_accuracy: 0.7553
```

```
- val_loss: 0.4916 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.7574 - loss: 0.5130 - val_accuracy: 0.7660
- val_loss: 0.5054 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.7527 - loss: 0.5162 - val_accuracy: 0.7660
- val_loss: 0.5084 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.7786 - loss: 0.4712 - val_accuracy: 0.7872
- val_loss: 0.4543 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 53ms/step - accuracy: 0.7409 - loss: 0.5206 - val_accuracy: 0.7872
- val_loss: 0.4673 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 55ms/step - accuracy: 0.7621 - loss: 0.4815 - val_accuracy: 0.7553
- val_loss: 0.4582 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7774 - loss: 0.4887 - val_accuracy: 0.8085
- val_loss: 0.5124 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.7715 - loss: 0.4774 - val_accuracy: 0.7872
- val_loss: 0.5204 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.7691 - loss: 0.4705 - val_accuracy: 0.7872
- val_loss: 0.4364 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 53ms/step - accuracy: 0.7739 - loss: 0.4844 - val_accuracy: 0.7660
- val_loss: 0.4318 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.7739 - loss: 0.5003 - val_accuracy: 0.7766
- val_loss: 0.5164 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.7668 - loss: 0.5162 - val_accuracy: 0.7766
- val_loss: 0.4454 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.7915 - loss: 0.4690 - val_accuracy: 0.7766
- val_loss: 0.4075 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7468 - loss: 0.5318 - val_accuracy: 0.7872
- val_loss: 0.4799 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 52ms/step - accuracy: 0.5241 - loss: 0.7021 - val_accuracy: 0.5638
- val_loss: 0.6867 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
```

```
'my_model.keras')`.

Current validation accuracy: 0.563829779624939
Reseting all weights…
Current number of trials: 13
```



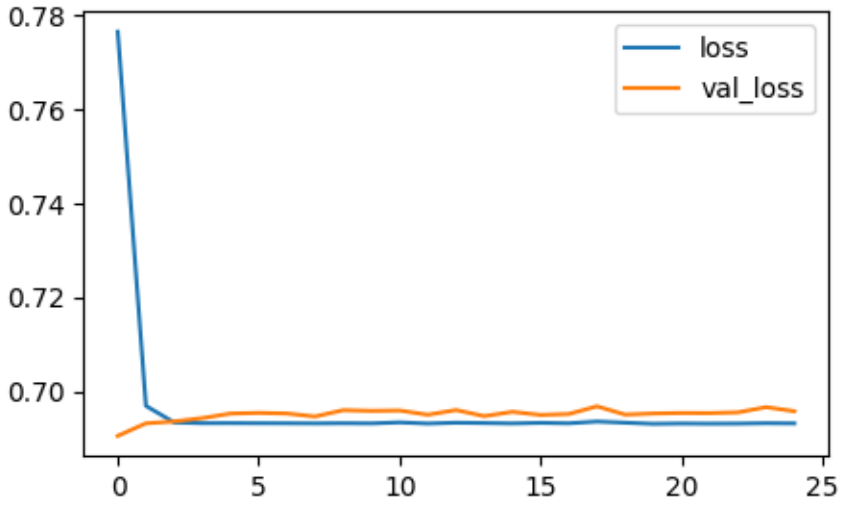


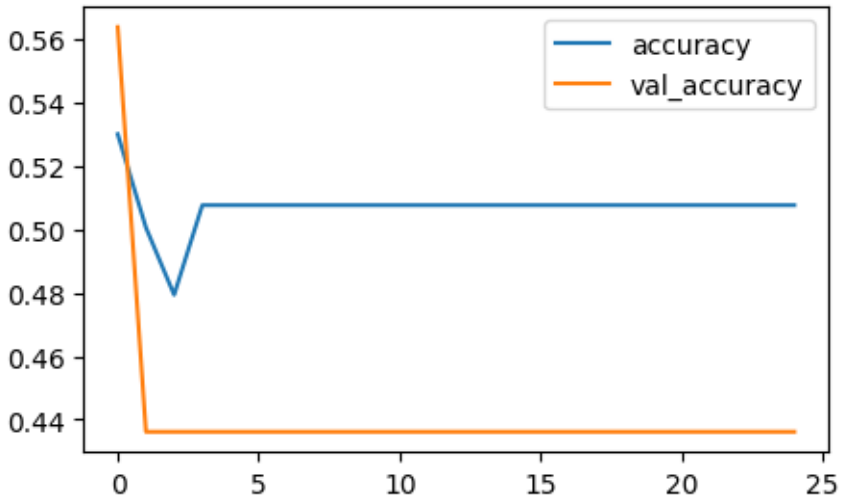

```
['loss', 'compile_metrics']
3/3             0s 14ms/step -
accuracy: 0.5397 - loss: 0.6957
[0.6866695880889893, 0.563829779624939]
3/3             0s 25ms/step
Classification Report:
               precision    recall  f1-score   support
```

```
      Female       0.00      0.00      0.00        41
        Male       0.56      1.00      0.72        53

    accuracy                           0.56        94
   macro avg       0.28      0.50      0.36        94
weighted avg       0.32      0.56      0.41        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.

/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))

Epoch 1/25
27/27 - 2s - 78ms/step - accuracy: 0.5300 - loss: 0.7765 - val_accuracy: 0.5638
- val_loss: 0.6905 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 55ms/step - accuracy: 0.5006 - loss: 0.6969 - val_accuracy: 0.4362
- val_loss: 0.6932 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.4794 - loss: 0.6934 - val_accuracy: 0.4362
- val_loss: 0.6936 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6943 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6952 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6954 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
```

```
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6946 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6960 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6958 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6934 - val_accuracy: 0.4362
- val_loss: 0.6959 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6950 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6960 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6947 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6956 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6950 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6951 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6935 - val_accuracy: 0.4362
- val_loss: 0.6968 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6950 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6954 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
```

```
- val_loss: 0.6955 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6966 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.43617022037506104
Reseting all weights…
Current number of trials: 14
```






```
['loss', 'compile_metrics']
3/3             0s 15ms/step -
accuracy: 0.4603 - loss: 0.6948
[0.6957453489303589, 0.43617022037506104]
3/3             0s 25ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.44      1.00      0.61        41
        Male       0.00      0.00      0.00        53

    accuracy                           0.44        94
   macro avg       0.22      0.50      0.30        94
weighted avg       0.19      0.44      0.26        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.

/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
```

```
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
```

```
Epoch 1/25
27/27 - 2s - 77ms/step - accuracy: 0.5218 - loss: 1.0025 - val_accuracy: 0.4362
- val_loss: 0.7446 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 53ms/step - accuracy: 0.5984 - loss: 0.6512 - val_accuracy: 0.6383
- val_loss: 0.6650 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 53ms/step - accuracy: 0.7020 - loss: 0.6046 - val_accuracy: 0.5957
- val_loss: 0.6556 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.7032 - loss: 0.5825 - val_accuracy: 0.6915
- val_loss: 0.6083 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 53ms/step - accuracy: 0.7291 - loss: 0.5546 - val_accuracy: 0.6170
- val_loss: 0.6246 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.7102 - loss: 0.5596 - val_accuracy: 0.6702
- val_loss: 0.6252 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.7114 - loss: 0.5550 - val_accuracy: 0.6915
- val_loss: 0.5560 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 53ms/step - accuracy: 0.7173 - loss: 0.5524 - val_accuracy: 0.7021
- val_loss: 0.5569 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 54ms/step - accuracy: 0.7291 - loss: 0.5583 - val_accuracy: 0.7021
- val_loss: 0.5592 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.7527 - loss: 0.5138 - val_accuracy: 0.7447
- val_loss: 0.5179 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 53ms/step - accuracy: 0.7597 - loss: 0.4942 - val_accuracy: 0.7234
- val_loss: 0.5660 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 52ms/step - accuracy: 0.7574 - loss: 0.5122 - val_accuracy: 0.7021
- val_loss: 0.5347 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.7515 - loss: 0.5258 - val_accuracy: 0.7553
- val_loss: 0.5247 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.7703 - loss: 0.4793 - val_accuracy: 0.7340
- val_loss: 0.4987 - learning_rate: 0.0050
```

```
Epoch 15/25
27/27 - 1s - 53ms/step - accuracy: 0.7727 - loss: 0.4642 - val_accuracy: 0.7447
- val_loss: 0.5093 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.7644 - loss: 0.4725 - val_accuracy: 0.6702
- val_loss: 0.6200 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 52ms/step - accuracy: 0.7633 - loss: 0.4915 - val_accuracy: 0.7234
- val_loss: 0.5376 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 54ms/step - accuracy: 0.7998 - loss: 0.4564 - val_accuracy: 0.7340
- val_loss: 0.5530 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.7633 - loss: 0.4616 - val_accuracy: 0.7553
- val_loss: 0.5057 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 54ms/step - accuracy: 0.8045 - loss: 0.4425 - val_accuracy: 0.7766
- val_loss: 0.4943 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.7656 - loss: 0.4756 - val_accuracy: 0.7340
- val_loss: 0.5527 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.7527 - loss: 0.5017 - val_accuracy: 0.7553
- val_loss: 0.4642 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 53ms/step - accuracy: 0.7962 - loss: 0.4500 - val_accuracy: 0.7766
- val_loss: 0.4317 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7691 - loss: 0.4816 - val_accuracy: 0.7660
- val_loss: 0.4248 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.7939 - loss: 0.4527 - val_accuracy: 0.7872
- val_loss: 0.5183 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
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recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.7872340679168701
Reseting all weights…
Current number of trials: 15
```
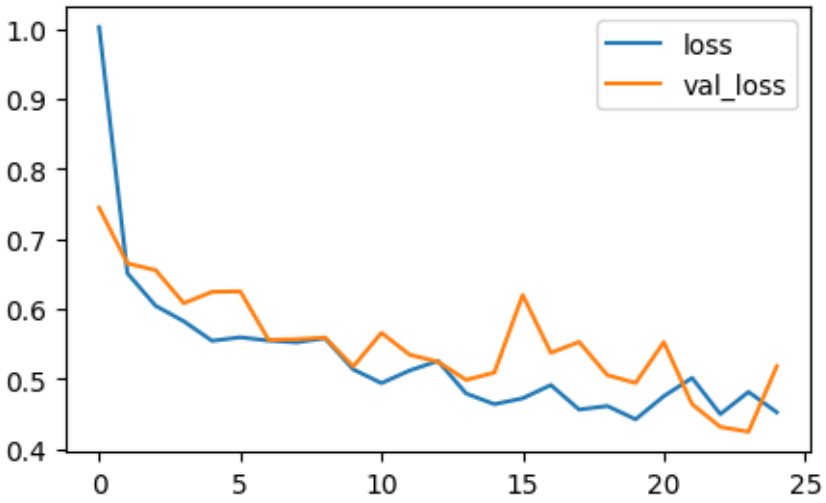
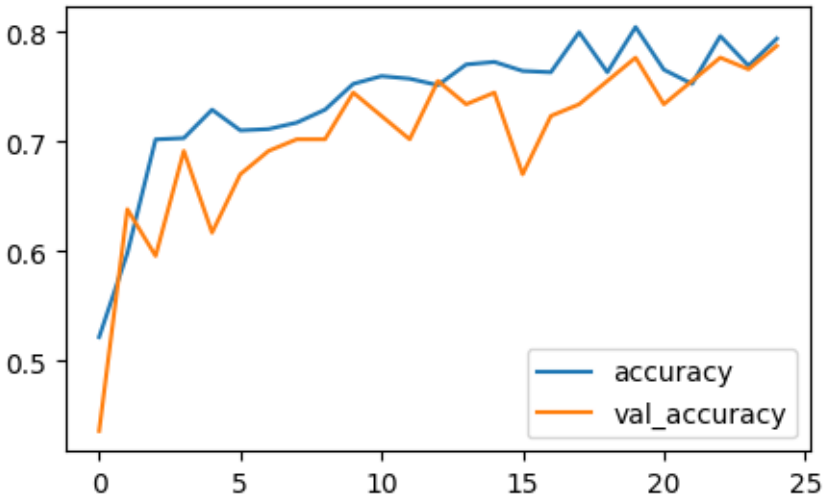
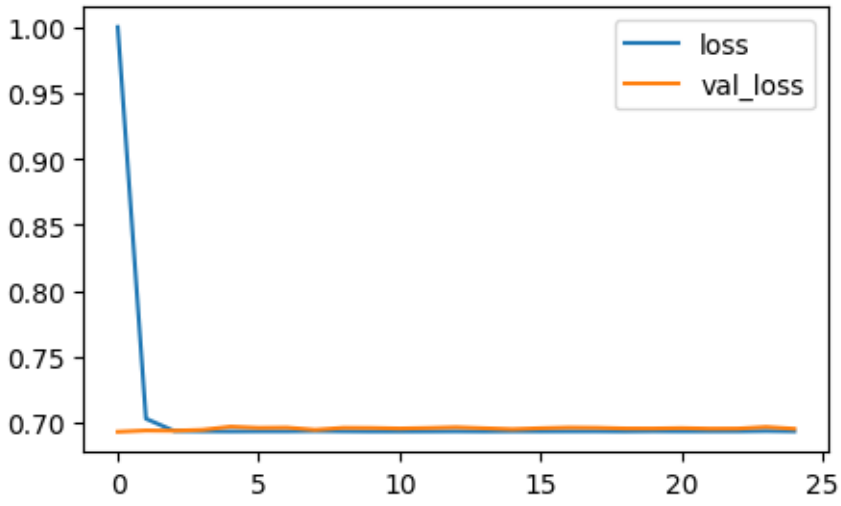



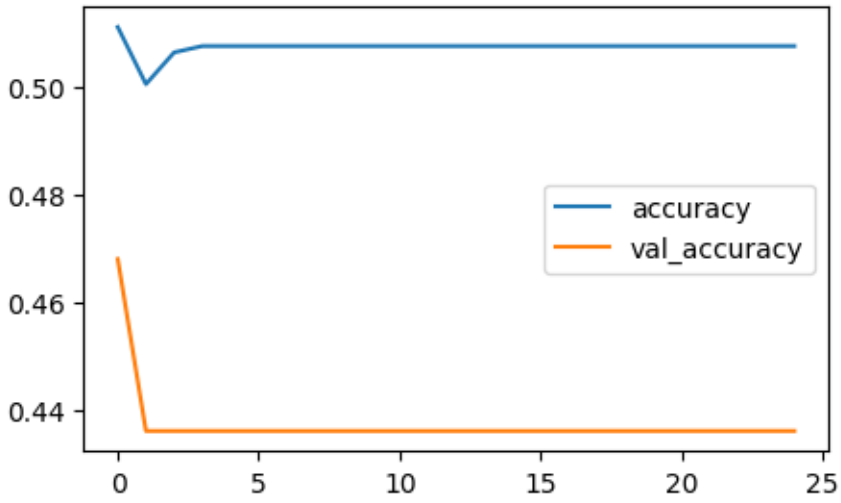



```
['loss', 'compile_metrics']
3/3             0s 14ms/step -
accuracy: 0.7452 - loss: 0.5434
[0.5182861685752869, 0.7872340679168701]
3/3             0s 26ms/step
Classification Report:
              precision    recall  f1-score   support

      Female       0.68      0.95      0.80        41
        Male       0.95      0.66      0.78        53

    accuracy                           0.79        94
```

```
   macro avg       0.82      0.81      0.79        94
weighted avg       0.83      0.79      0.79        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 78ms/step - accuracy: 0.5112 - loss: 1.0004 - val_accuracy: 0.4681
- val_loss: 0.6928 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 55ms/step - accuracy: 0.5006 - loss: 0.7028 - val_accuracy: 0.4362
- val_loss: 0.6938 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.5065 - loss: 0.6935 - val_accuracy: 0.4362
- val_loss: 0.6936 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6943 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6967 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6958 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6960 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6934 - val_accuracy: 0.4362
- val_loss: 0.6943 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6958 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6957 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6963 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
```

```
- val_loss: 0.6955 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6948 - learning_rate: 0.0050
Epoch 16/25
27/27 - 2s - 56ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6955 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6960 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6959 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6931 - val_accuracy: 0.4362
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6933 - val_accuracy: 0.4362
- val_loss: 0.6953 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6956 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 55ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6952 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6952 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6934 - val_accuracy: 0.4362
- val_loss: 0.6965 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 54ms/step - accuracy: 0.5077 - loss: 0.6932 - val_accuracy: 0.4362
- val_loss: 0.6951 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.43617022037506104
Reseting all weights…
Current number of trials: 16
```



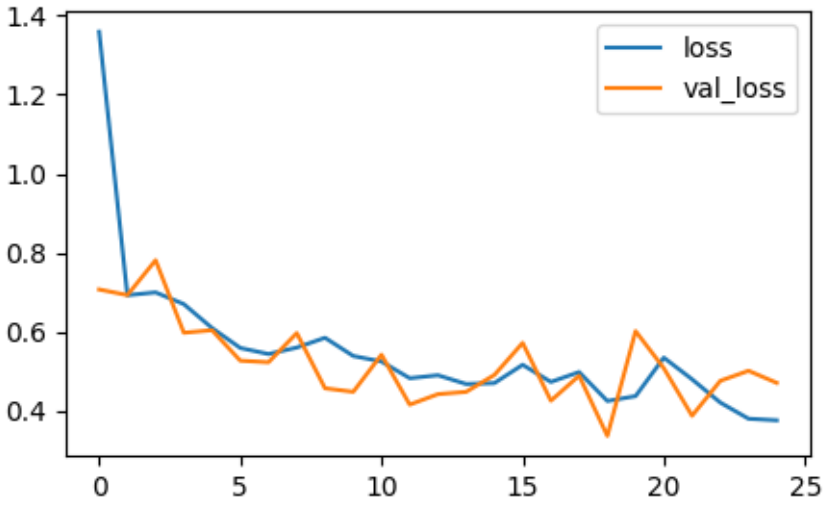


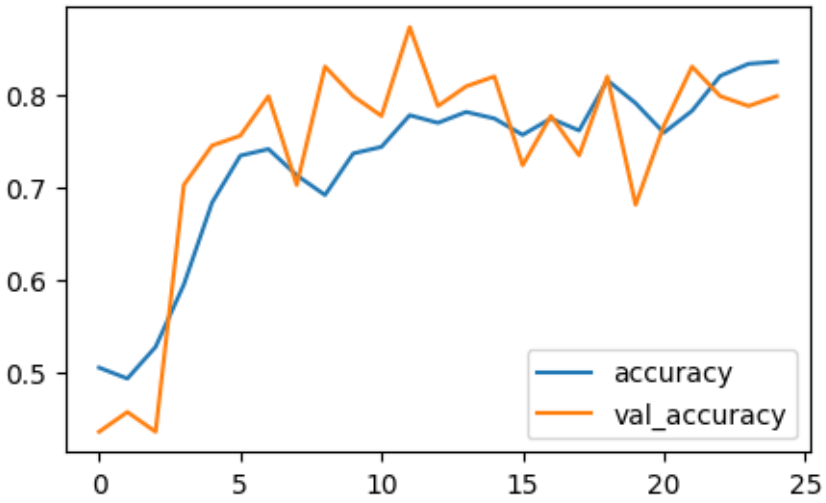

```
['loss', 'compile_metrics']
3/3             0s 15ms/step -
accuracy: 0.4603 - loss: 0.6944
[0.695110023021698, 0.43617022037506104]
1/3             0s 37ms/step

2025-05-05 17:07:16.945080: I tensorflow/core/framework/local_rendezvous.cc:405]
Local rendezvous is aborting with status: OUT_OF_RANGE: End of sequence

3/3             0s 26ms/step
Classification Report:
              precision    recall  f1-score   support
```

```
      Female       0.44      1.00      0.61        41
        Male       0.00      0.00      0.00        53

    accuracy                           0.44        94
   macro avg       0.22      0.50      0.30        94
weighted avg       0.19      0.44      0.26        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.

/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
/opt/anaconda3/envs/mytfenv/lib/python3.12/site-
packages/sklearn/metrics/_classification.py:1565: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))

Epoch 1/25
27/27 - 2s - 78ms/step - accuracy: 0.5053 - loss: 1.3591 - val_accuracy: 0.4362
- val_loss: 0.7072 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 54ms/step - accuracy: 0.4935 - loss: 0.6927 - val_accuracy: 0.4574
- val_loss: 0.6929 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 53ms/step - accuracy: 0.5277 - loss: 0.6998 - val_accuracy: 0.4362
- val_loss: 0.7811 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 53ms/step - accuracy: 0.5948 - loss: 0.6701 - val_accuracy: 0.7021
- val_loss: 0.5977 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 52ms/step - accuracy: 0.6832 - loss: 0.6095 - val_accuracy: 0.7447
- val_loss: 0.6041 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 52ms/step - accuracy: 0.7338 - loss: 0.5591 - val_accuracy: 0.7553
- val_loss: 0.5270 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.7409 - loss: 0.5438 - val_accuracy: 0.7979
- val_loss: 0.5230 - learning_rate: 0.0050
```

```
Epoch 8/25
27/27 - 1s - 53ms/step - accuracy: 0.7126 - loss: 0.5601 - val_accuracy: 0.7021
- val_loss: 0.5968 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 52ms/step - accuracy: 0.6914 - loss: 0.5849 - val_accuracy: 0.8298
- val_loss: 0.4572 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 52ms/step - accuracy: 0.7362 - loss: 0.5389 - val_accuracy: 0.7979
- val_loss: 0.4483 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 52ms/step - accuracy: 0.7432 - loss: 0.5248 - val_accuracy: 0.7766
- val_loss: 0.5421 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.7774 - loss: 0.4826 - val_accuracy: 0.8723
- val_loss: 0.4157 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 54ms/step - accuracy: 0.7691 - loss: 0.4902 - val_accuracy: 0.7872
- val_loss: 0.4423 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 52ms/step - accuracy: 0.7809 - loss: 0.4679 - val_accuracy: 0.8085
- val_loss: 0.4481 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 52ms/step - accuracy: 0.7739 - loss: 0.4703 - val_accuracy: 0.8191
- val_loss: 0.4909 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.7562 - loss: 0.5166 - val_accuracy: 0.7234
- val_loss: 0.5719 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 52ms/step - accuracy: 0.7739 - loss: 0.4732 - val_accuracy: 0.7766
- val_loss: 0.4257 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 52ms/step - accuracy: 0.7609 - loss: 0.4982 - val_accuracy: 0.7340
- val_loss: 0.4890 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 53ms/step - accuracy: 0.8151 - loss: 0.4250 - val_accuracy: 0.8191
- val_loss: 0.3367 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 52ms/step - accuracy: 0.7903 - loss: 0.4373 - val_accuracy: 0.6809
- val_loss: 0.6018 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 52ms/step - accuracy: 0.7585 - loss: 0.5347 - val_accuracy: 0.7660
- val_loss: 0.5080 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 52ms/step - accuracy: 0.7821 - loss: 0.4799 - val_accuracy: 0.8298
- val_loss: 0.3876 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 52ms/step - accuracy: 0.8198 - loss: 0.4211 - val_accuracy: 0.7979
- val_loss: 0.4760 - learning_rate: 0.0050
```

```
Epoch 24/25
27/27 - 1s - 54ms/step - accuracy: 0.8327 - loss: 0.3802 - val_accuracy: 0.7872
- val_loss: 0.5014 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 52ms/step - accuracy: 0.8351 - loss: 0.3762 - val_accuracy: 0.7979
- val_loss: 0.4708 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.7978723645210266
Reseting all weights…
Current number of trials: 17
```

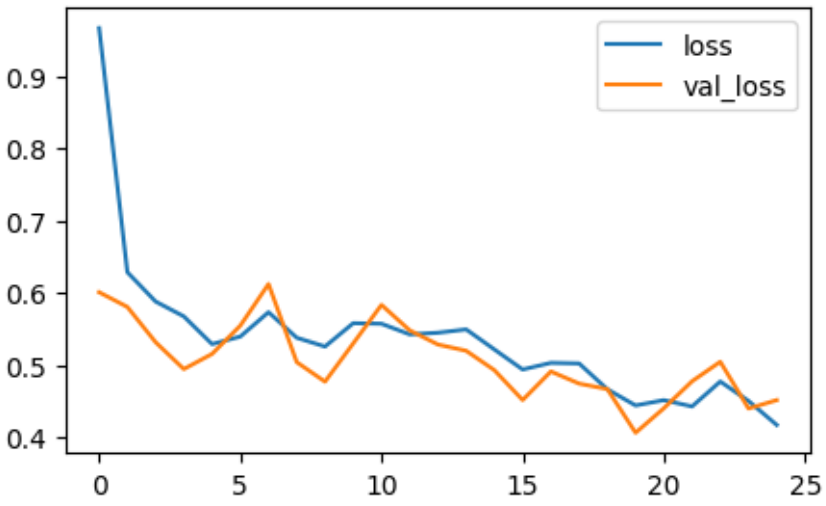





```
['loss', 'compile_metrics']
3/3             0s 14ms/step -
accuracy: 0.7974 - loss: 0.4749
[0.4708462059497833, 0.7978723645210266]
3/3             0s 26ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.73      0.85      0.79        41
        Male       0.87      0.75      0.81        53

    accuracy                           0.80        94
   macro avg       0.80      0.80      0.80        94
weighted avg       0.81      0.80      0.80        94

Found 943 files belonging to 2 classes.
Using 849 files for training.
Found 943 files belonging to 2 classes.
Using 94 files for validation.
Epoch 1/25
27/27 - 2s - 77ms/step - accuracy: 0.5206 - loss: 0.9661 - val_accuracy: 0.6915
- val_loss: 0.6006 - learning_rate: 0.0050
Epoch 2/25
27/27 - 1s - 54ms/step - accuracy: 0.6349 - loss: 0.6283 - val_accuracy: 0.6809
- val_loss: 0.5802 - learning_rate: 0.0050
Epoch 3/25
27/27 - 1s - 54ms/step - accuracy: 0.6961 - loss: 0.5877 - val_accuracy: 0.7234
- val_loss: 0.5315 - learning_rate: 0.0050
Epoch 4/25
27/27 - 1s - 54ms/step - accuracy: 0.7102 - loss: 0.5672 - val_accuracy: 0.7766
```

```
- val_loss: 0.4942 - learning_rate: 0.0050
Epoch 5/25
27/27 - 1s - 54ms/step - accuracy: 0.7409 - loss: 0.5288 - val_accuracy: 0.7553
- val_loss: 0.5152 - learning_rate: 0.0050
Epoch 6/25
27/27 - 1s - 53ms/step - accuracy: 0.7161 - loss: 0.5392 - val_accuracy: 0.7553
- val_loss: 0.5544 - learning_rate: 0.0050
Epoch 7/25
27/27 - 1s - 53ms/step - accuracy: 0.6949 - loss: 0.5730 - val_accuracy: 0.6915
- val_loss: 0.6119 - learning_rate: 0.0050
Epoch 8/25
27/27 - 1s - 53ms/step - accuracy: 0.7338 - loss: 0.5376 - val_accuracy: 0.7340
- val_loss: 0.5038 - learning_rate: 0.0050
Epoch 9/25
27/27 - 1s - 54ms/step - accuracy: 0.7420 - loss: 0.5254 - val_accuracy: 0.7979
- val_loss: 0.4769 - learning_rate: 0.0050
Epoch 10/25
27/27 - 1s - 53ms/step - accuracy: 0.7197 - loss: 0.5578 - val_accuracy: 0.7872
- val_loss: 0.5298 - learning_rate: 0.0050
Epoch 11/25
27/27 - 1s - 53ms/step - accuracy: 0.7314 - loss: 0.5570 - val_accuracy: 0.7128
- val_loss: 0.5831 - learning_rate: 0.0050
Epoch 12/25
27/27 - 1s - 53ms/step - accuracy: 0.7350 - loss: 0.5422 - val_accuracy: 0.7234
- val_loss: 0.5478 - learning_rate: 0.0050
Epoch 13/25
27/27 - 1s - 53ms/step - accuracy: 0.7314 - loss: 0.5445 - val_accuracy: 0.7553
- val_loss: 0.5282 - learning_rate: 0.0050
Epoch 14/25
27/27 - 1s - 53ms/step - accuracy: 0.7279 - loss: 0.5492 - val_accuracy: 0.7234
- val_loss: 0.5196 - learning_rate: 0.0050
Epoch 15/25
27/27 - 1s - 53ms/step - accuracy: 0.7468 - loss: 0.5214 - val_accuracy: 0.7872
- val_loss: 0.4927 - learning_rate: 0.0050
Epoch 16/25
27/27 - 1s - 53ms/step - accuracy: 0.7468 - loss: 0.4937 - val_accuracy: 0.8191
- val_loss: 0.4514 - learning_rate: 0.0050
Epoch 17/25
27/27 - 1s - 53ms/step - accuracy: 0.7550 - loss: 0.5028 - val_accuracy: 0.8191
- val_loss: 0.4909 - learning_rate: 0.0050
Epoch 18/25
27/27 - 1s - 53ms/step - accuracy: 0.7680 - loss: 0.5020 - val_accuracy: 0.7872
- val_loss: 0.4742 - learning_rate: 0.0050
Epoch 19/25
27/27 - 1s - 52ms/step - accuracy: 0.7868 - loss: 0.4663 - val_accuracy: 0.8085
- val_loss: 0.4666 - learning_rate: 0.0050
Epoch 20/25
27/27 - 1s - 54ms/step - accuracy: 0.7927 - loss: 0.4439 - val_accuracy: 0.8298
```

```
- val_loss: 0.4061 - learning_rate: 0.0050
Epoch 21/25
27/27 - 1s - 53ms/step - accuracy: 0.7903 - loss: 0.4513 - val_accuracy: 0.7872
- val_loss: 0.4400 - learning_rate: 0.0050
Epoch 22/25
27/27 - 1s - 53ms/step - accuracy: 0.7986 - loss: 0.4426 - val_accuracy: 0.7872
- val_loss: 0.4774 - learning_rate: 0.0050
Epoch 23/25
27/27 - 1s - 52ms/step - accuracy: 0.7939 - loss: 0.4770 - val_accuracy: 0.8298
- val_loss: 0.5044 - learning_rate: 0.0050
Epoch 24/25
27/27 - 1s - 53ms/step - accuracy: 0.7903 - loss: 0.4501 - val_accuracy: 0.8085
- val_loss: 0.4397 - learning_rate: 0.0050
Epoch 25/25
27/27 - 1s - 53ms/step - accuracy: 0.8163 - loss: 0.4169 - val_accuracy: 0.8617
- val_loss: 0.4513 - learning_rate: 0.0050

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

Current validation accuracy: 0.8617021441459656
Reseting all weights…
Current number of trials: 18
```




```
['loss', 'compile_metrics']
3/3             0s 14ms/step -
accuracy: 0.8605 - loss: 0.4509
[0.4513137638568878, 0.8617021441459656]
3/3             0s 25ms/step
Classification Report:
               precision    recall  f1-score   support

      Female       0.85      0.83      0.84        41
        Male       0.87      0.89      0.88        53

    accuracy                           0.86        94
   macro avg       0.86      0.86      0.86        94
weighted avg       0.86      0.86      0.86        94
```

[1]:

	accuracy	loss	val_accuracy	val_loss	learning_rate
0	0.520612	0.966061	0.691489	0.600592	0.005
1	0.634865	0.628318	0.680851	0.580231	0.005
2	0.696113	0.587736	0.723404	0.531458	0.005
3	0.710247	0.567159	0.776596	0.494234	0.005
4	0.740872	0.528822	0.755319	0.515234	0.005
5	0.716137	0.539237	0.755319	0.554363	0.005
6	0.694935	0.572978	0.691489	0.611943	0.005
7	0.733804	0.537589	0.734043	0.503800	0.005
8	0.742049	0.525442	0.797872	0.476855	0.005
9	0.719670	0.557759	0.787234	0.529817	0.005
10	0.731449	0.557008	0.712766	0.583071	0.005
11	0.734982	0.542232	0.723404	0.547846	0.005
12	0.731449	0.544536	0.755319	0.528226	0.005

```
13  0.727915  0.549172      0.723404  0.519594          0.005
14  0.746761  0.521386      0.787234  0.492710          0.005
```

[13]:

[ ]:

[ ]:

[ ]: