

```
Entrenamiento: Imágenes con tatuajes: 27551 sin: 27551 total imágenes de train: 55102
Validación: Imágenes con tatuajes: 1149 sin: 851 total imágenes de validate: 2000
Test: Imágenes con tatuajes: 1149 sin: 851 total imágenes de test: 2000
Arquitectura MobileNetv2-ft
Model: "sequential_1"
```

Layer (type)	Output Shape	Param #
=====		
mobilenetv2_1.00_224 (Model)	(None, 7, 7, 1280)	2257984
global_average_pooling2d_1 (	(None, 1280)	0
dense_3 (Dense)	(None, 320)	409920
dropout_2 (Dropout)	(None, 320)	0
dense_4 (Dense)	(None, 320)	102720
dropout_3 (Dropout)	(None, 320)	0
dense_5 (Dense)	(None, 1)	321
=====		

```
Total params: 2,770,945
Trainable params: 2,736,833
Non-trainable params: 34,112
```

```
lr actual: tf.Tensor(0.01, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: tf.Tensor(0.01, shape=(), dtype=float32)
lr nuevo: tf.Tensor(0.01, shape=(), dtype=float32)
```

Epoch 1/24

```
1722/1722 [=====] - 259s 151ms/step - loss: 0.1678 - accuracy: 0.9354 - val_loss: 0.4743 - val_accuracy: 0.8635
```

```
lr actual: tf.Tensor(0.01, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: tf.Tensor(0.01, shape=(), dtype=float32)
lr nuevo: tf.Tensor(0.01, shape=(), dtype=float32)
```

Epoch 2/24

```
1722/1722 [=====] - 256s 149ms/step - loss: 0.0907 - accuracy: 0.9685 - val_loss: 0.2085 - val_accuracy: 0.9360
```

```
lr actual: tf.Tensor(0.01, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.008535533905932738
lr nuevo: tf.Tensor(0.008535534, shape=(), dtype=float32)
```

Epoch 3/24

```
1722/1722 [=====] - 258s 150ms/step - loss: 0.0513 - accuracy: 0.9815 - val_loss: 0.2035 - val_accuracy: 0.9505
```

```
lr actual: tf.Tensor(0.008535534, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.00691341716182545
lr nuevo: tf.Tensor(0.006913417, shape=(), dtype=float32)
```

Epoch 4/24

```
1722/1722 [=====] - 260s 151ms/step - loss: 0.0293 - accuracy: 0.9897 - val_loss: 0.1572 - val_accuracy: 0.9470
```

```
lr actual: tf.Tensor(0.006913417, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.005
lr nuevo: tf.Tensor(0.005, shape=(), dtype=float32)
```

Epoch 5/24

```
1722/1722 [=====] - 259s 150ms/step - loss: 0.0123 - accuracy: 0.9960 - val_loss: 0.1800 - val_accuracy: 0.9610
```

```
lr actual: tf.Tensor(0.005, shape=(), dtype=float32)
```

```
lr maximo: 0.01 propuesto: 0.0030865828381745515
lr nuevo: tf.Tensor(0.0030865828, shape=(), dtype=float32)
Epoch 6/24
1722/1722 [=====] - 257s 149ms/step - loss: 0.0048 - accuracy: 0.9981 - val_loss: 0.1709 - val_accuracy: 0.9565
lr actual: tf.Tensor(0.0030865828, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.0014644660940672626
lr nuevo: tf.Tensor(0.0014644661, shape=(), dtype=float32)
Epoch 7/24
1722/1722 [=====] - 259s 151ms/step - loss: 0.0018 - accuracy: 0.9995 - val_loss: 0.1553 - val_accuracy: 0.9660
lr actual: tf.Tensor(0.0014644661, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.0003806023374435663
lr nuevo: tf.Tensor(0.00038060235, shape=(), dtype=float32)
Epoch 8/24
1722/1722 [=====] - ETA: 0s - loss: 0.0011 - accuracy: 0.9997>saved snapshot /content/drive/My Drive/MAIR-Master/08MAIR-TFM/modelos/ensemble/mobilenet
1722/1722 [=====] - 260s 151ms/step - loss: 0.0011 - accuracy: 0.9997 - val_loss: 0.1436 - val_accuracy: 0.9665
lr actual: tf.Tensor(0.00038060235, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.01
lr nuevo: tf.Tensor(0.01, shape=(), dtype=float32)
Epoch 9/24
1722/1722 [=====] - 263s 152ms/step - loss: 0.0369 - accuracy: 0.9868 - val_loss: 0.3235 - val_accuracy: 0.9300
lr actual: tf.Tensor(0.01, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.009619397662556433
lr nuevo: tf.Tensor(0.009619398, shape=(), dtype=float32)
Epoch 10/24
1722/1722 [=====] - 260s 151ms/step - loss: 0.0287 - accuracy: 0.9903 - val_loss: 0.2318 - val_accuracy: 0.9365
lr actual: tf.Tensor(0.009619398, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.008535533905932738
lr nuevo: tf.Tensor(0.008535534, shape=(), dtype=float32)
Epoch 11/24
1722/1722 [=====] - 261s 152ms/step - loss: 0.0186 - accuracy: 0.9936 - val_loss: 0.2921 - val_accuracy: 0.9420
lr actual: tf.Tensor(0.008535534, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.00691341716182545
lr nuevo: tf.Tensor(0.006913417, shape=(), dtype=float32)
Epoch 12/24
1722/1722 [=====] - 260s 151ms/step - loss: 0.0101 - accuracy: 0.9967 - val_loss: 0.1953 - val_accuracy: 0.9615
lr actual: tf.Tensor(0.006913417, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.005
lr nuevo: tf.Tensor(0.005, shape=(), dtype=float32)
Epoch 13/24
1722/1722 [=====] - 259s 151ms/step - loss: 0.0046 - accuracy: 0.9985 - val_loss: 0.1700 - val_accuracy: 0.9635
lr actual: tf.Tensor(0.005, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.0030865828381745515
lr nuevo: tf.Tensor(0.0030865828, shape=(), dtype=float32)
Epoch 14/24
1722/1722 [=====] - 263s 153ms/step - loss: 9.4459e-04 - accuracy: 0.9998 - val_loss: 0.1882 - val_accuracy: 0.9650
lr actual: tf.Tensor(0.0030865828, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.0014644660940672626
lr nuevo: tf.Tensor(0.0014644661, shape=(), dtype=float32)
Epoch 15/24
1722/1722 [=====] - 261s 152ms/step - loss: 2.8248e-04 - accuracy: 1.0000 - val_loss: 0.1933 - val_accuracy: 0.9650
lr actual: tf.Tensor(0.0014644661, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.0003806023374435663
lr nuevo: tf.Tensor(0.00038060235, shape=(), dtype=float32)
```

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Epoch 16/24
1722/1722 [=====] - ETA: 0s - loss: 4.0720e-04 - accuracy: 0.9999>saved snapshot /content/drive/My Drive/MAIR-Master/08MAIR-TFM/modelos/ensemble/mobi
1722/1722 [=====] - 261s 152ms/step - loss: 4.0720e-04 - accuracy: 0.9999 - val_loss: 0.1900 - val_accuracy: 0.9655
lr actual: tf.Tensor(0.00038060235, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.01
lr nuevo: tf.Tensor(0.01, shape=(), dtype=float32)
Epoch 17/24
1722/1722 [=====] - 262s 152ms/step - loss: 0.0175 - accuracy: 0.9942 - val_loss: 0.2386 - val_accuracy: 0.9455
lr actual: tf.Tensor(0.01, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.009619397662556433
lr nuevo: tf.Tensor(0.009619398, shape=(), dtype=float32)
Epoch 18/24
1722/1722 [=====] - 261s 152ms/step - loss: 0.0165 - accuracy: 0.9943 - val_loss: 0.2011 - val_accuracy: 0.9515
lr actual: tf.Tensor(0.009619398, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.008535533905932738
lr nuevo: tf.Tensor(0.008535534, shape=(), dtype=float32)
Epoch 19/24
1722/1722 [=====] - 260s 151ms/step - loss: 0.0114 - accuracy: 0.9959 - val_loss: 0.2550 - val_accuracy: 0.9420
lr actual: tf.Tensor(0.008535534, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.00691341716182545
lr nuevo: tf.Tensor(0.006913417, shape=(), dtype=float32)
Epoch 20/24
1722/1722 [=====] - 258s 150ms/step - loss: 0.0058 - accuracy: 0.9980 - val_loss: 0.2338 - val_accuracy: 0.9525
lr actual: tf.Tensor(0.006913417, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.005
lr nuevo: tf.Tensor(0.005, shape=(), dtype=float32)
Epoch 21/24
1722/1722 [=====] - 262s 152ms/step - loss: 0.0024 - accuracy: 0.9992 - val_loss: 0.2125 - val_accuracy: 0.9605
lr actual: tf.Tensor(0.005, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.0030865828381745515
lr nuevo: tf.Tensor(0.0030865828, shape=(), dtype=float32)
Epoch 22/24
1722/1722 [=====] - 260s 151ms/step - loss: 0.0012 - accuracy: 0.9996 - val_loss: 0.2016 - val_accuracy: 0.9650
lr actual: tf.Tensor(0.0030865828, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.0014644660940672626
lr nuevo: tf.Tensor(0.0014644661, shape=(), dtype=float32)
Epoch 23/24
1722/1722 [=====] - 262s 152ms/step - loss: 3.6268e-04 - accuracy: 0.9999 - val_loss: 0.1949 - val_accuracy: 0.9665
lr actual: tf.Tensor(0.0014644661, shape=(), dtype=float32)
lr maximo: 0.01 propuesto: 0.0003806023374435663
lr nuevo: tf.Tensor(0.00038060235, shape=(), dtype=float32)
Epoch 24/24
1722/1722 [=====] - ETA: 0s - loss: 3.5349e-04 - accuracy: 0.9999>saved snapshot /content/drive/My Drive/MAIR-Master/08MAIR-TFM/modelos/ensemble/mobi
1722/1722 [=====] - 261s 152ms/step - loss: 3.5349e-04 - accuracy: 0.9999 - val_loss: 0.1950 - val_accuracy: 0.9645
Train: 1.000, Test: 0.965
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