

DATA

Which dataset do you want to use?



Ratio of training to test data: 50%



Noise: 0

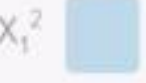


Batch size: 10

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FEATURES

Which properties do you want to feed in?



+

-

6 HIDDEN LAYERS

+

-

+

-

+

-

+

-

+

-

+

-

4 neurons

4 neurons

4 neurons

4 neurons

4 neurons

4 neurons

X_1

X_2

X_1^2

X_2^2

X_1X_2

$\sin(X_1)$

$\sin(X_2)$

This is the output from one neuron

The outputs are mixed with varying weights, shown

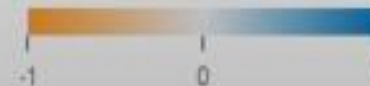
OUTPUT

Test loss 0.016

Training loss 0.014



Colors shows data, neuron and weight values.



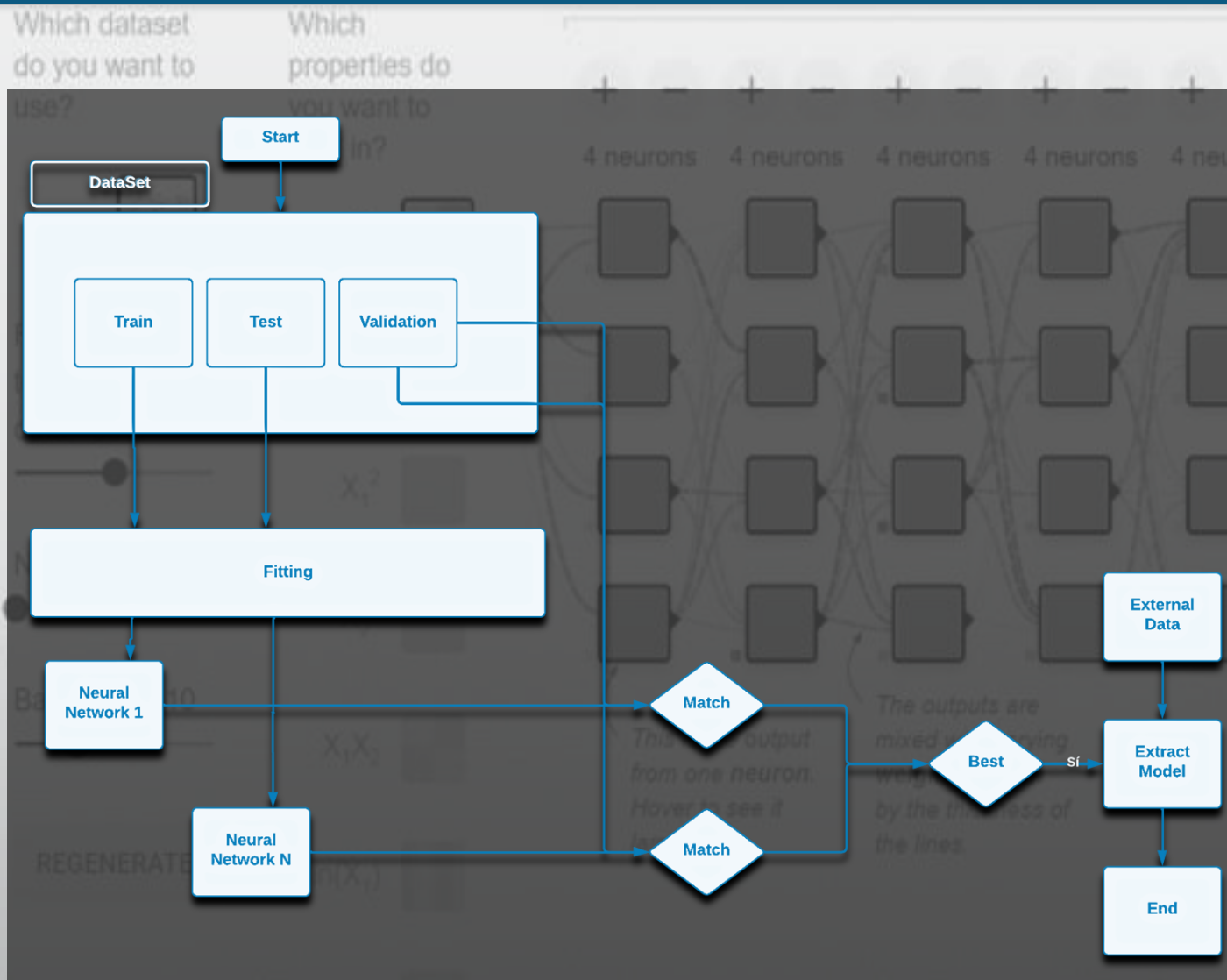
CLASIFICADOR MULTICLASE | IA

IMI. ERICK RODRÍGUEZ MARTÍNEZ



CASO DE ESTUDIO

DISEASES IN THE BEAN PLANTS | MIT



CARACTERÍSTICAS DEL DATASET

TAMAÑO DE IMAGEN: 500X500 Pixeles
POBLACIÓN: 1034 Fotografías
CLASES: 3

CLASE 1- 305 [HEALTHY]
CLASE 2- 410 [ANG.LEAF]
CLASE 3- 319 [B.ROUST]

ENVIRONMENT: No Controlado
DISTANCIA A OBJ.: No Controlado
B/W CONTROL: Ajuste Auto

FITTING - PARÁMETROS

ROTACIÓN: 40 ° GRADOS
 RESC-HORIZONTAL: 20%
 RESC-VERTICAL: 20%
 RESC-ZOOM: 20%
 MODO DE RELLENO: "NEAREST"
 CANALES DE COLOR: 3
 DROPOUT: 0.3

Layer (type)	Output Shape	Param #
keras_layer (KerasLayer)	(None, 1280)	2257984
dropout (Dropout)	(None, 1280)	0
dense (Dense)	(None, 3)	3843

Total params: 2,261,827
 Trainable params: 3,843
 Non-trainable params: 2,257,984

NEURAL NETWORKS

Ratio of training
to test
data: 50%

NO.MODELOS: 5
E.ENTRENAMIENTO: 10
RESULTADO: 94.58%

Batch size: 10
MODELOS: DENSE
CNN
AUTOML

Test loss 0.016
Training loss 0.014

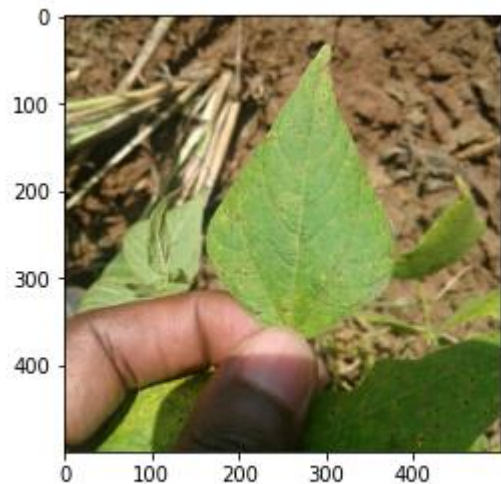
```

Trial 5 Complete [00h 00m 05s]
val_loss: 0.7016022801399231

Best val_loss So Far: 0.07963968068361282
Total elapsed time: 00h 22m 58s
INFO:tensorflow:Oracle triggered exit
Epoch 1/10
43/43 [=====] - 1s 19ms/step - loss: 1.9424 - accuracy: 0.3794
Epoch 2/10
43/43 [=====] - 0s 4ms/step - loss: 1.0619 - accuracy: 0.7068
Epoch 3/10
43/43 [=====] - 0s 3ms/step - loss: 0.6156 - accuracy: 0.8137
Epoch 4/10
43/43 [=====] - 0s 4ms/step - loss: 0.4855 - accuracy: 0.8456
Epoch 5/10
43/43 [=====] - 0s 4ms/step - loss: 0.3590 - accuracy: 0.9013
Epoch 6/10
43/43 [=====] - 0s 4ms/step - loss: 0.3261 - accuracy: 0.9042
Epoch 7/10
43/43 [=====] - 0s 4ms/step - loss: 0.2755 - accuracy: 0.9131
Epoch 8/10
43/43 [=====] - 0s 4ms/step - loss: 0.2196 - accuracy: 0.9324
Epoch 9/10
43/43 [=====] - 0s 4ms/step - loss: 0.1821 - accuracy: 0.9480
Epoch 10/10
43/43 [=====] - 0s 4ms/step - loss: 0.1862 - accuracy: 0.9458
INFO:tensorflow:Assets written to: ./image_classifier/best_model/assets
    
```


RESULTADOS

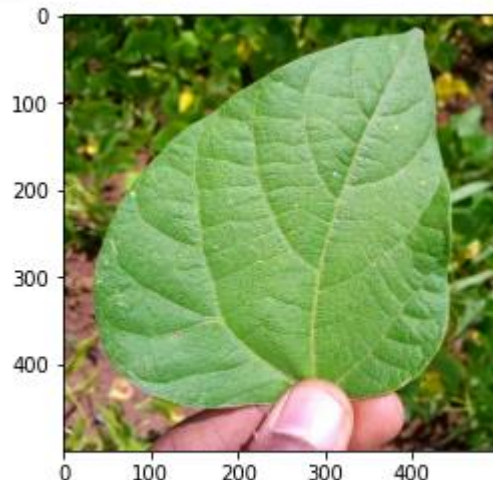
[[0.00285696 0.98579246 0.01135054]]



Actual Label : bean_rust
Predicted Label : bean_rust

0% Angular Leaf
98.5 % Bean Roust
0% Healthy

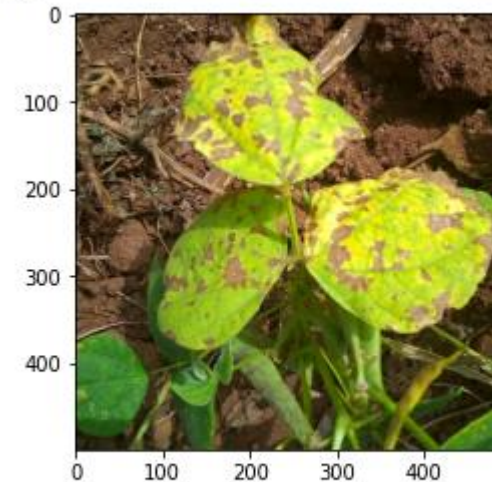
[[0.00146853 0.00810928 0.99042225]]



Actual Label : healthy
Predicted Label : healthy

0% Angular Leaf
0 % Bean Roust
99% Healthy

[[0.4663173 0.52673805 0.00694477]]



Actual Label : angular_leaf_spot
Predicted Label : bean_rust

46% Angular Leaf
52 % Bean Roust
0% Healthy

APP-CLASIFICADOR

MONITOREO EN TIEMPO REAL CON
APLICACIÓN-IA WEB Y MOBIL



CAPTURAR

RESULTADO:

0% ANGULAR LEAF
0 % BEAN ROUST
99% HEALTHY

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¡GRACIAS!