Aprendizaje Automático Profundo (Deep Learning)

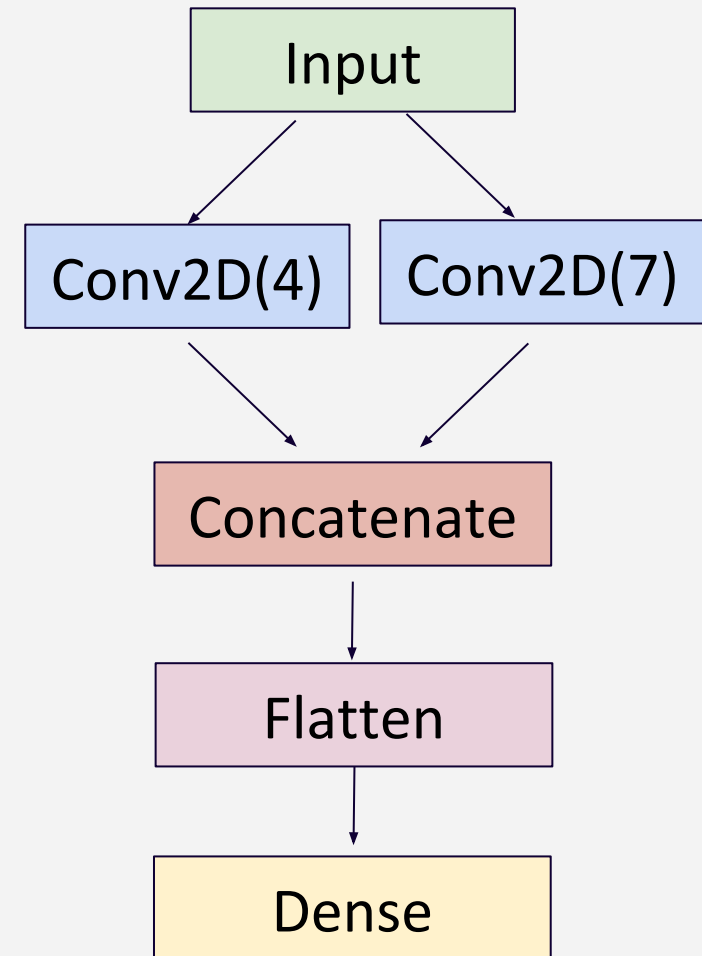**Dr. Facundo Quiroga - Dr. Franco Ronchetti**

Modelos de Grafos Arbitrarios en Keras

Modelos de grafos arbitrarios ([notebook](#))

- Sequential => **lista** de capas
- ¿Modelo como **grafo** de capas?
  - Clase Model

```
from keras import Model
from keras.layers import
InputLayer,Conv2D,Dense, Concatenate,Flatten

x     = Input(shape=(32,32,3))
path1 = Conv2D(4,(3,3),padding="same")(x)
path2 = Conv2D(7,(5,5),padding="same")(x)
join  = Concatenate()([path1,path2])
flat  = Flatten()(join)
fc    = Dense(10,activation="softmax")(flat)
model = Model(inputs=[x],outputs=[fc])
```

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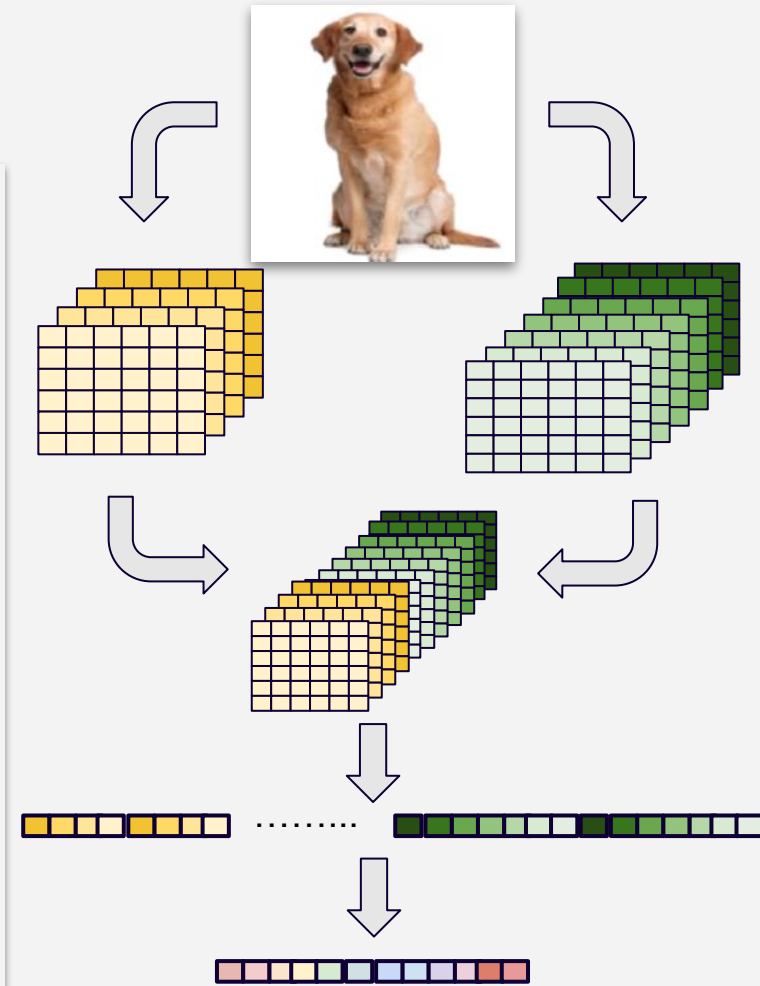
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```
print(model.summary())
=====================================================================
Layer (type)                    Output Shape          Param #     Connected to
=====================================================================
input_1 (InputLayer)            (None, 32, 32, 3)     0
conv2d_5 (Conv2D)               (None, 32, 32, 4)     112         input_1[0][0]
conv2d_6 (Conv2D)               (None, 32, 32, 7)     532         input_1[0][0]
concatenate_3 (Concatenate)     (None, 32, 32, 11)    0           conv2d_5[0][0]
                                                                  conv2d_6[0][0]
flatten_2 (Flatten)             (None, 11264)         0           concatenate_3[0][0]
dense_3 (Dense)                 (None, 10)            112650      flatten_2[0][0]
=====================================================================
Total params: 113,294
```