

MoodLens

MACHINE LEARNING

Presentación técnica

TRADUCCIÓN DE EMOCIONES⁰¹

*"No olvidemos que las pequeñas
emociones son los grandes capitanes
de nuestras vidas"*

MODELOS⁰²



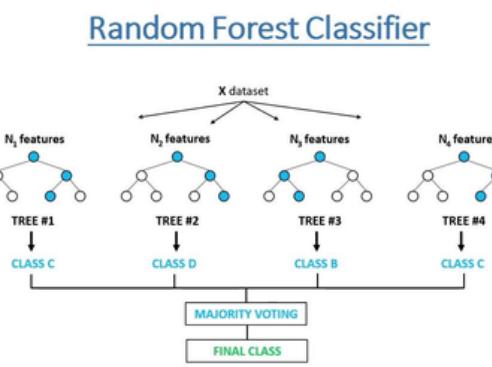
Random Forest Classifier



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RESULTADOS

```
... Classification Report:  
precision recall f1-score support  
  
    enojado      0.25     0.28     0.27      46  
    feliz        0.21     0.45     0.29      31  
    neutral      0.25     0.06     0.09      36  
    sorprendido   0.20     0.33     0.25      43  
    triste       0.00     0.00     0.00      44  
  
accuracy          0.21      200  
macro avg       0.18     0.22     0.18      200  
weighted avg     0.18     0.21     0.17      200
```

*“Nuestra habilidad para adaptarnos es increíble.
Nuestra capacidad de cambiar es espectacular”*

Column, bar, and pie charts compare values in a single category, such as the number of products sold by each salesperson. Pie charts show each category's value as a percentage of the whole.

Fundraiser Results by Salesperson	
PARTICIPANT	UNITS
Andy	11
Chloe	13
Daniel	9
Grace	14
Sophia	21



Red Neuronal Convolucional

35.9k

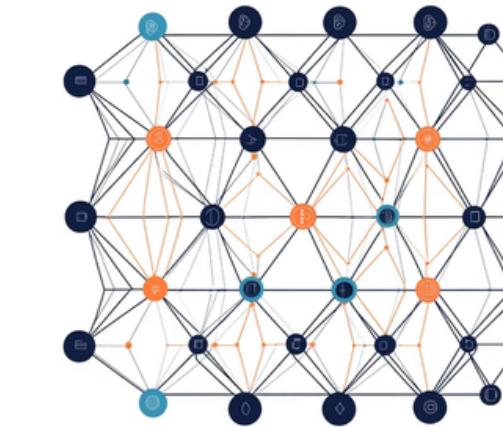


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 TensorFlow
 Keras

The TensorFlow logo consists of a stylized orange 'F' icon above the word 'TensorFlow'. The Keras logo consists of a large red square containing a white 'K'.

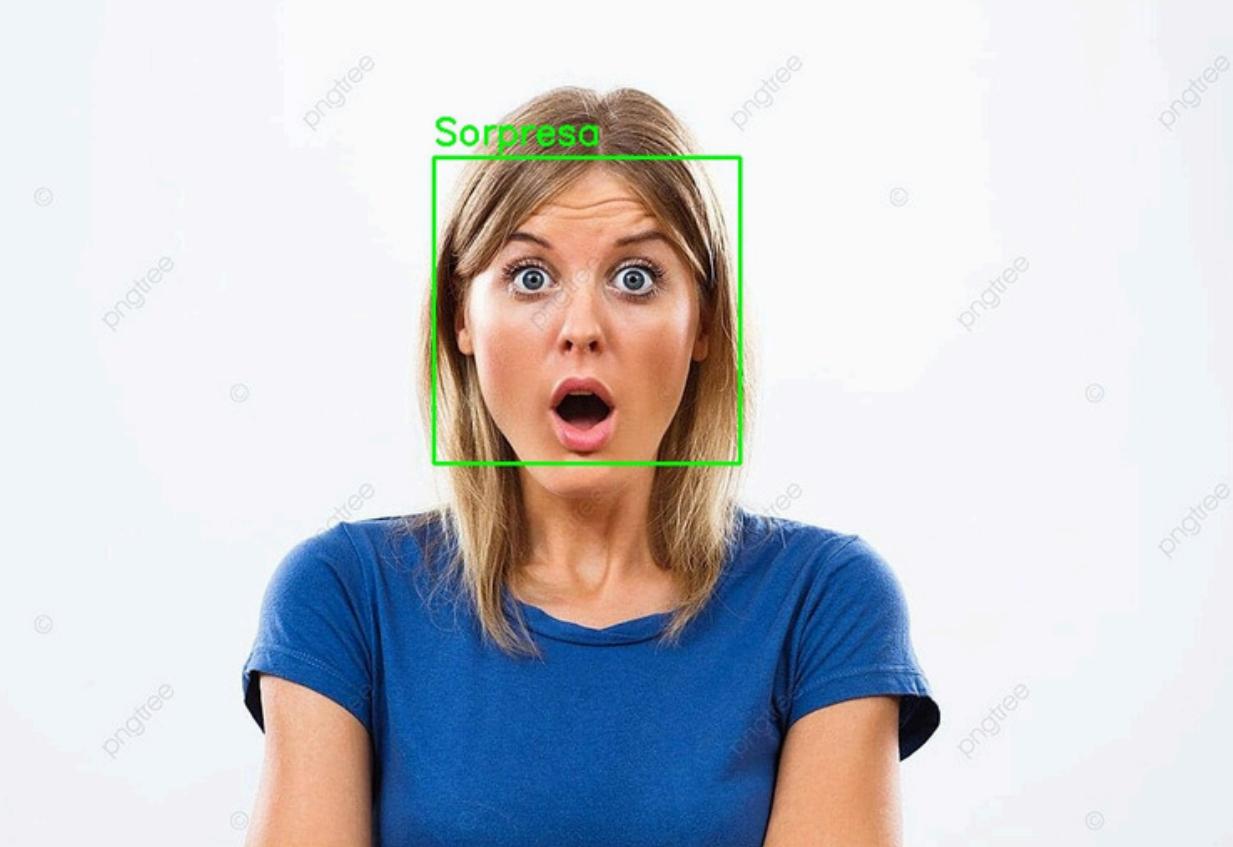
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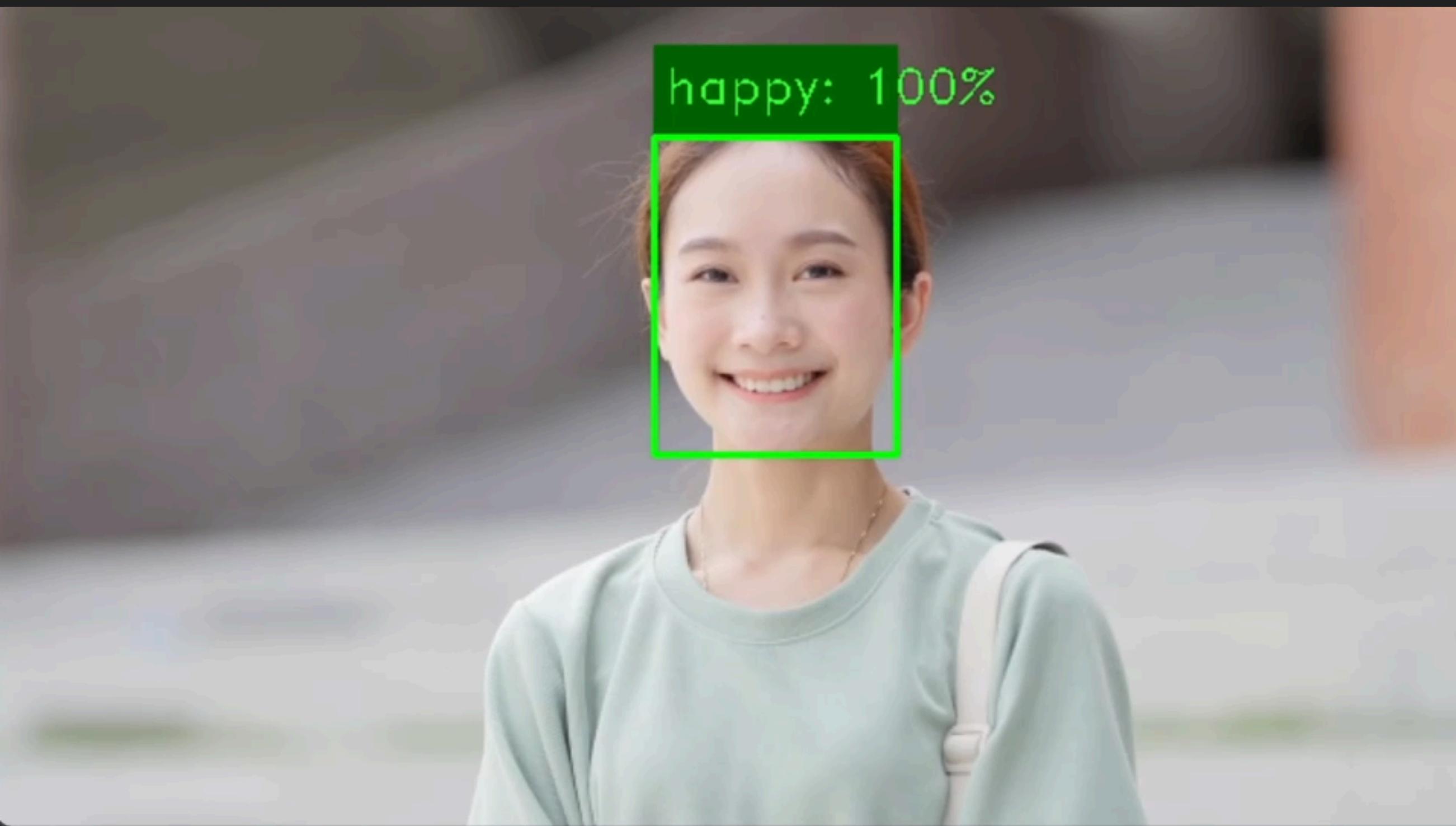


Biblioteca de Deep Learning desarrollado por Google

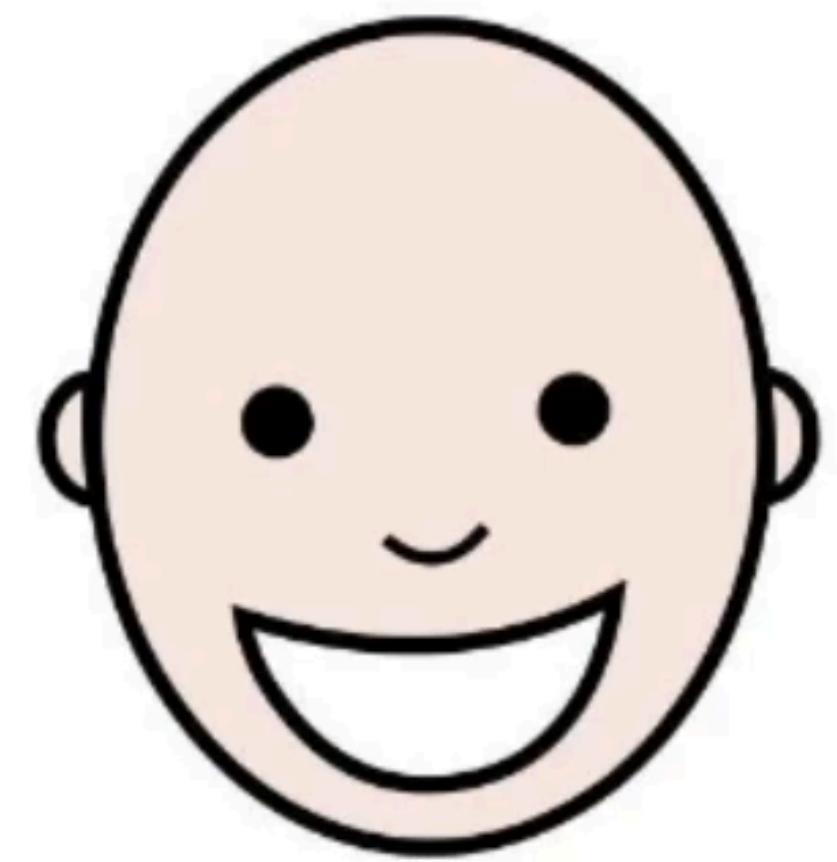


Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 48, 48, 32)	1,600
batch_normalization (BatchNormalization)	(None, 48, 48, 32)	128
activation (Activation)	(None, 48, 48, 32)	0
max_pooling2d (MaxPooling2D)	(None, 24, 24, 32)	0
dropout (Dropout)	(None, 24, 24, 32)	0
conv2d_1 (Conv2D)	(None, 24, 24, 64)	18,496
batch_normalization_1 (BatchNormalization)	(None, 24, 24, 64)	256
activation_1 (Activation)	(None, 24, 24, 64)	0
max_pooling2d_1 (MaxPooling2D)	(None, 12, 12, 64)	0
dropout_1 (Dropout)	(None, 12, 12, 64)	0
conv2d_2 (Conv2D)	(None, 12, 12, 128)	73,856
batch_normalization_2 (BatchNormalization)	(None, 12, 12, 128)	512
activation_2 (Activation)	(None, 12, 12, 128)	0
max_pooling2d_2 (MaxPooling2D)	(None, 6, 6, 128)	0
dropout_2 (Dropout)	(None, 6, 6, 128)	0
flatten (Flatten)	(None, 4608)	0
dense (Dense)	(None, 256)	1,179,904
batch_normalization_3 (BatchNormalization)	(None, 256)	1,024
activation_3 (Activation)	(None, 256)	0
dropout_3 (Dropout)	(None, 256)	0
dense_1 (Dense)	(None, 7)	1,799

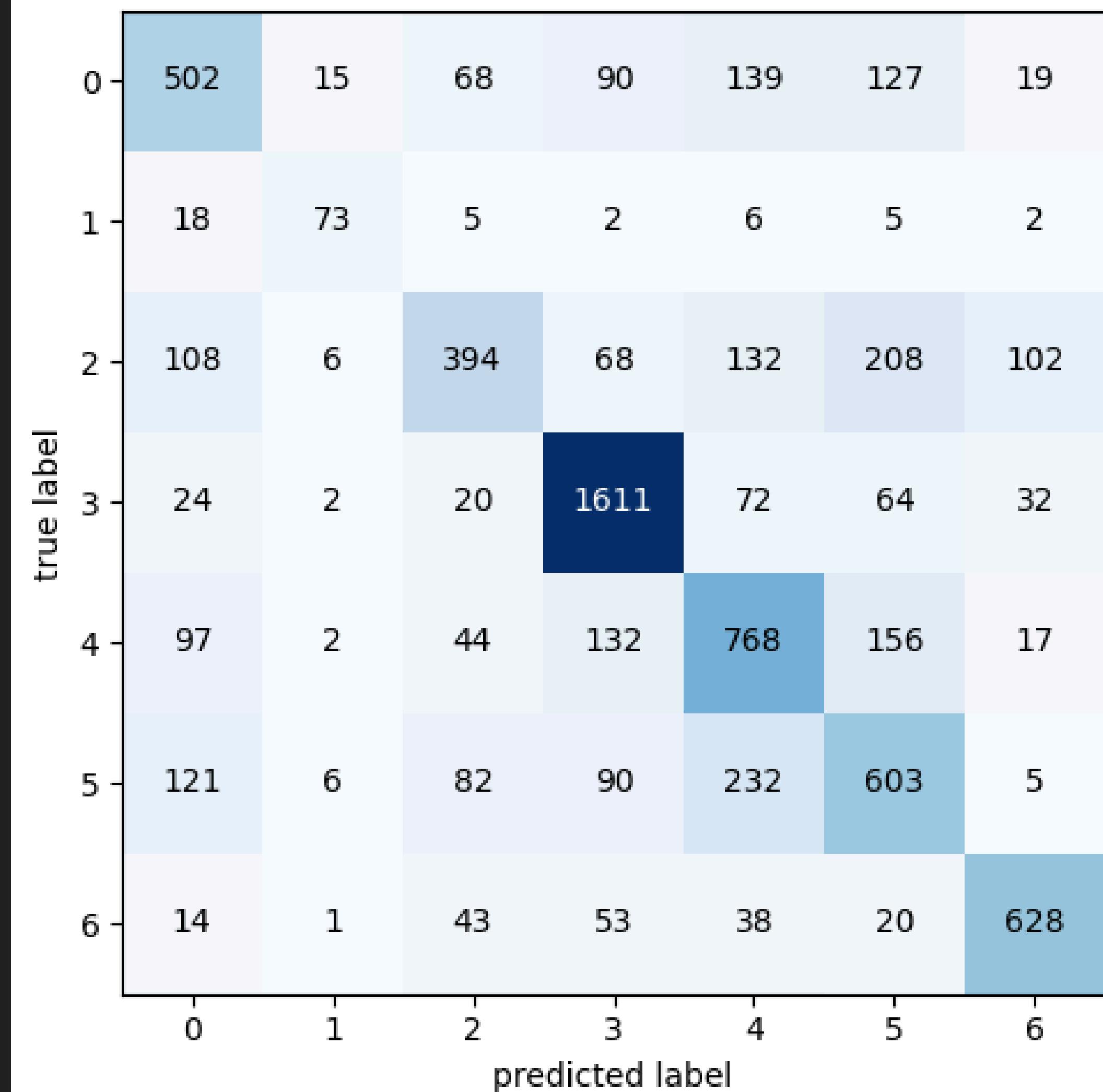




HAPPY



Clase	Emoción
0	angry
1	disgust
2	fear
3	happy
4	neutral
5	sad
6	surprise



RESULTADOS

Clase	Emoción	Precision	Recall	F1-score	Support
0	angry	0.5679	0.5229	0.5445	960
1	disgust	0.6952	0.6577	0.6759	111
2	fear	0.6006	0.3870	0.4707	1018
3	happy	0.7874	0.8827	0.8323	1825
4	neutral	0.5537	0.6316	0.5901	1216
5	sad	0.5097	0.5294	0.5194	1139
6	surprise	0.7801	0.7880	0.7840	797

La emoción con mejor desempeño en términos de F1-score es "happy" (0.8323), mientras que la de peor desempeño es "fear" (0.4707). Esto indica que el modelo reconoce mejor las emociones felices y tiene más dificultades con el miedo.

Column, bar, and pie charts compare values in a single category, such as the number of products sold by each salesperson. Pie charts show each category's value as a percentage of the whole.

Fundraiser Results by Salesperson	
Participant	Units
Andy	11
Chloe	13
Daniel	9
Grace	14
Sophia	21



Yolo



2.8k  **roboflow**

+

 PyTorch

+

 **ultralytics**
YOLO

Biblioteca de Deep Learning desarrollada por Meta



RESULTADOS

Class	Images	Instances	Box(P)	R	mAP50	mAP50-95):
all	185	862	0.684	0.773	0.771	0.651
angry	76	176	0.621	0.68	0.649	0.497
disgust	18	18	0.79	0.944	0.957	0.939
fear	51	128	0.63	0.688	0.716	0.551
happy	64	180	0.725	0.833	0.853	0.637
neutral	52	184	0.576	0.707	0.632	0.476
sad	64	144	0.525	0.683	0.626	0.505
surprise	32	32	0.923	0.875	0.963	0.955

preprocess, 1.6ms inference, 0.0ms loss, 5.2ms postprocess per image
Saved to runs/detect/val

La emoción con mejor desempeño en términos de mAP50 es "disgust" (0.957), mientras que la de peor desempeño es "sad" (0.626). Esto indica que el modelo yolo con el entrenamiento actual reconoce mejor las emociones Happy y Disgust y tiene más dificultades con el neutral y sad.

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CONCLUSIONES

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Para este caso en concreto, los tres modelos ofrecen desempeños interesantes, siendo el de TensorFlow el que, a priori, reconoce una variedad más estable de emociones (a pesar de confundir algunas), con un menor entrenamiento. Sin embargo, el modelo de YOLO, con más entrenamiento y tiempo, puede llegar a tener una precisión mayor.

GRACIAS

