CNN para identificar garabatos del cuerpo humano

UNIVERSIDAD GALILEO
Instituto de Investigación de Operaciones
Posgrado en Análisis y Predicción de Datos

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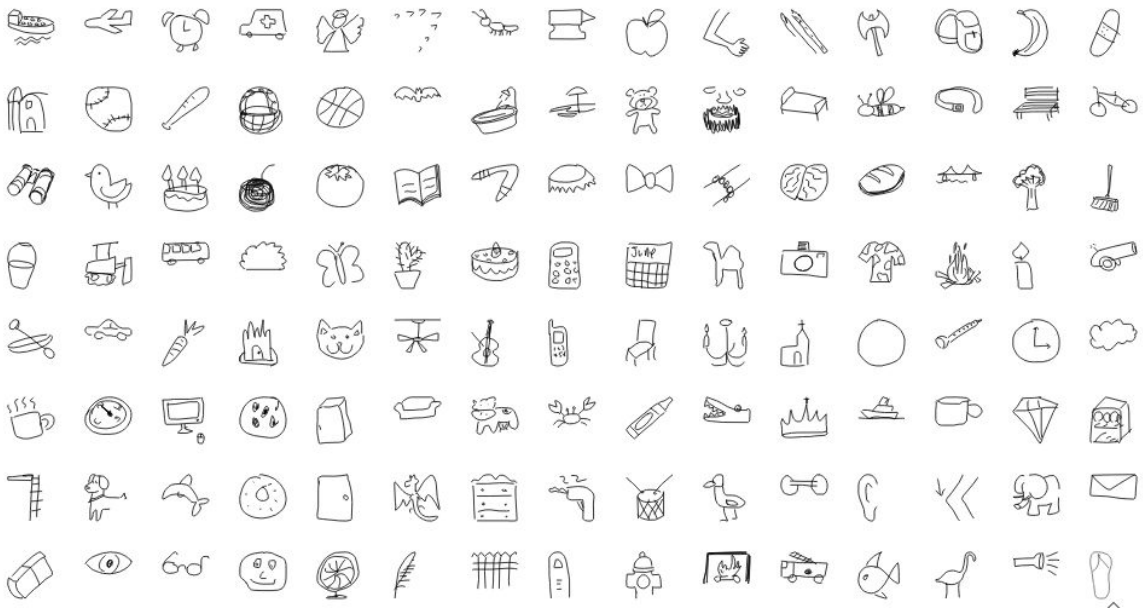
AGENDA

- Origen del proyecto
- Dataset
- Modelo CNN
- Posibles usos

Origen del proyecto

Google QuickDraw



https://quickdraw.withgoogle.com/data

Clases a utilizar

```
arm.npy
beard.npy
belt.npy
finger.npy
face.npy
eyeglasses.npy
eye.npy
elbow.npy
ear.npy
foot.npy
hat.npy
hand.npy
knee.npy
```

```
jacket.npy
helmet.npy
mouth.npy
moustache.npy
leg.npy
pants.npy
nose.npy
necklace.npy
toe.npy
t-shirt.npy
sweater.npy
smiley%20face.npy
shorts.npy
shoe.npy
underwear.npy
```

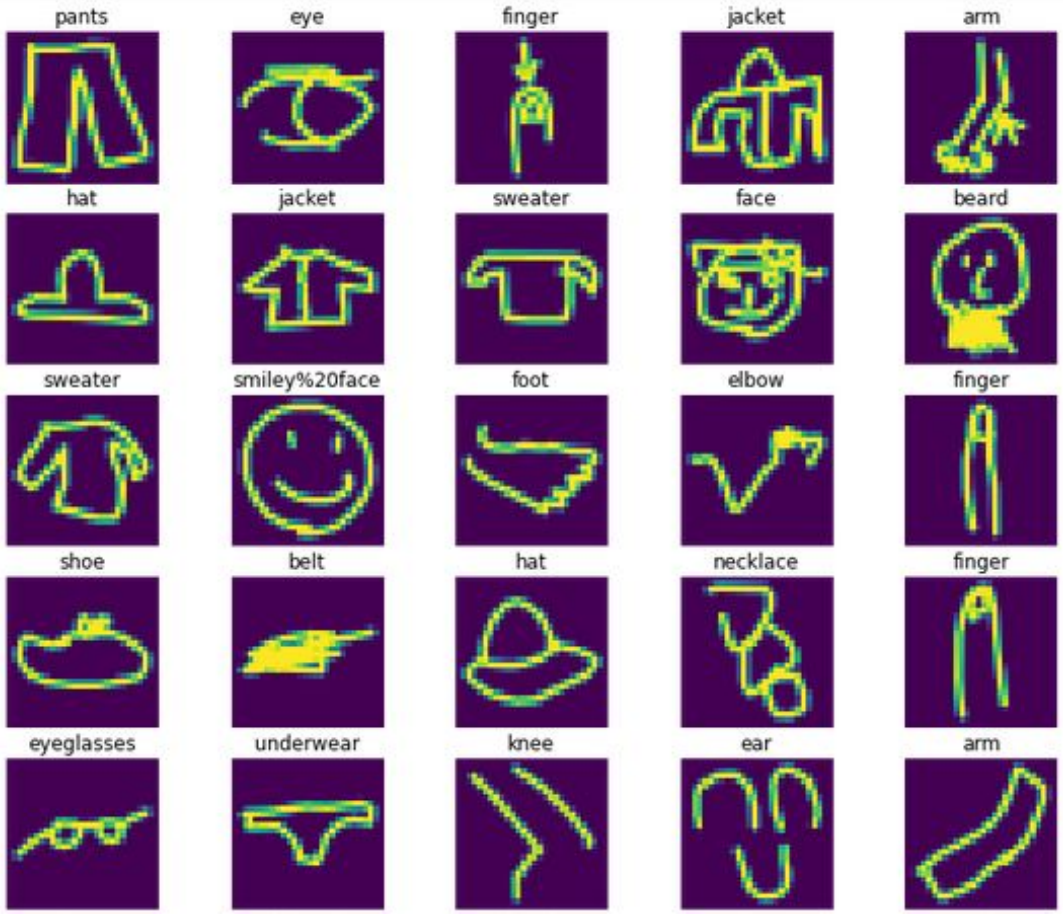
Modelo

```
Model: "sequential_1"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
conv2d_3 (Conv2D)            (None, 28, 28, 16)        160
_________________________________________________________________
max_pooling2d_3 (MaxPooling2 (None, 14, 14, 16)        0
_________________________________________________________________
conv2d_4 (Conv2D)            (None, 14, 14, 32)        4640
_________________________________________________________________
max_pooling2d_4 (MaxPooling2 (None, 7, 7, 32)          0
_________________________________________________________________
conv2d_5 (Conv2D)            (None, 7, 7, 64)          18496
_________________________________________________________________
max_pooling2d_5 (MaxPooling2 (None, 3, 3, 64)          0
_________________________________________________________________
flatten_1 (Flatten)          (None, 576)               0
_________________________________________________________________
dense_2 (Dense)              (None, 28)                16156
_________________________________________________________________
dense_3 (Dense)              (None, 28)                812
=================================================================
Total params: 40,264
Trainable params: 40,264
Non-trainable params: 0
```

Testing

```
score = model.evaluate(x_test, y_test, verbose=0)
print('Test accuracy: {:0.2f}%'.format(score[1] * 100))
```

```
Test accuracy: 96.64%
```


pants
eye
finger
jacket
arm
hat
jacket
sweater
face
beard
sweater
smiley%20face
foot
elbow
finger
shoe
belt
hat
necklace
finger
eyeglasses
underwear
knee
ear
arm

Futuros Trabajos

Utilizar YOLO para detectar las partes del cuerpo de un dibujo hecho a mano

Gracias