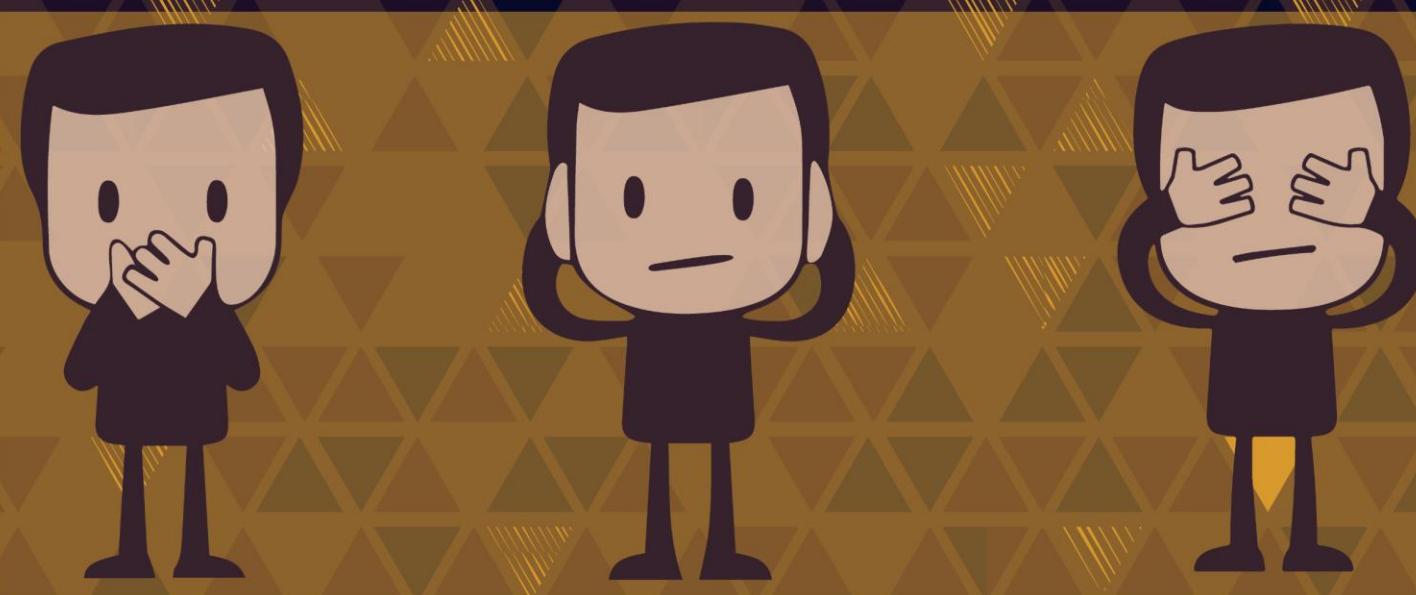




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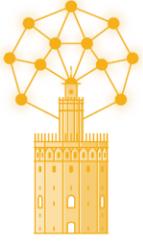
DACTILOLOGÍA – LENGUAJE DE SIGNOS



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- 1 EQUIPO**
- 2 PROYECTO**
- 3 DESARROLLO**
- 4 DEMOSTRACIÓN**
- 5 FUTURAS MEJORAS**



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EQUIPO



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1. EQUIPO



Alejandro
Hernán Luque

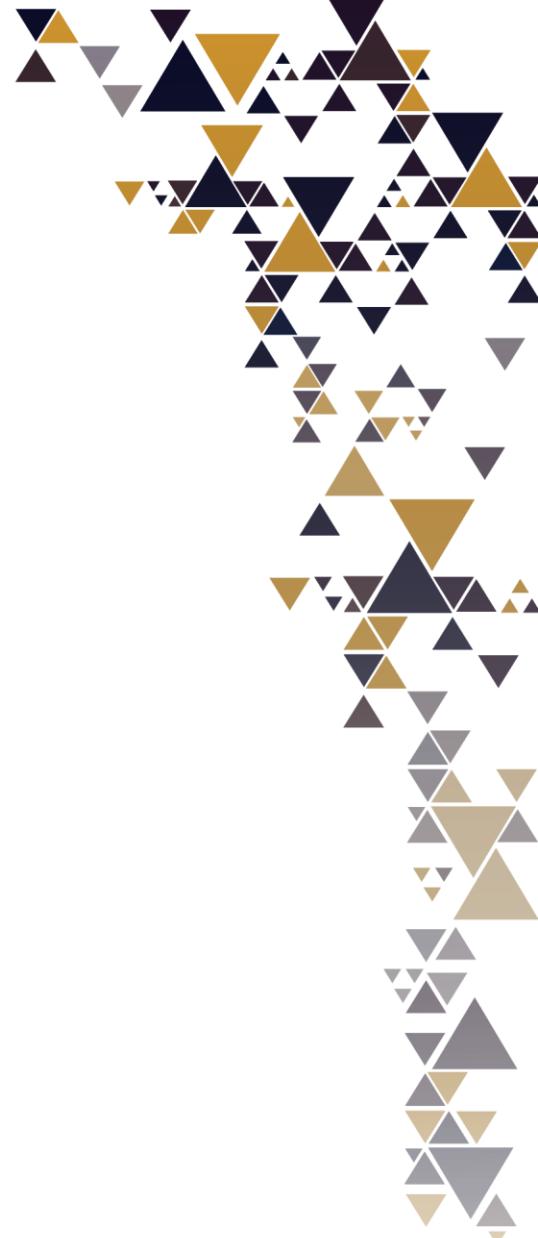
[linkedin.com/in/
alejandrohernan/](https://linkedin.com/in/alejandrohernan/)

María
Adame Martín

[linkedin.com/in/
mariaadame/](https://linkedin.com/in/mariaadame/)

José Enrique
Ruiz Navarro

[linkedin.com/in/
joseenriqueruiz/](https://linkedin.com/in/joseenriqueruiz/)





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INTRODUCCIÓN



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2.1 PROYECTO



Dactilología
Alfabeto lenguaje
de signos



Reconocimiento
Reconocimiento
de imágenes



Habla
Construcción
de palabras





2.2 IMPACTO SOCIAL

Discapacidad Visual:
187 178 personas

Discapacidad Expresiva:
16 945 personas

Discapacidad Auditiva:
230 917 personas



Favorecer la inclusión social

Concienciar del problema

Motivar a otros en la
búsqueda de soluciones



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DESARROLLO



3. DESARROLLO

Elección del
modelo



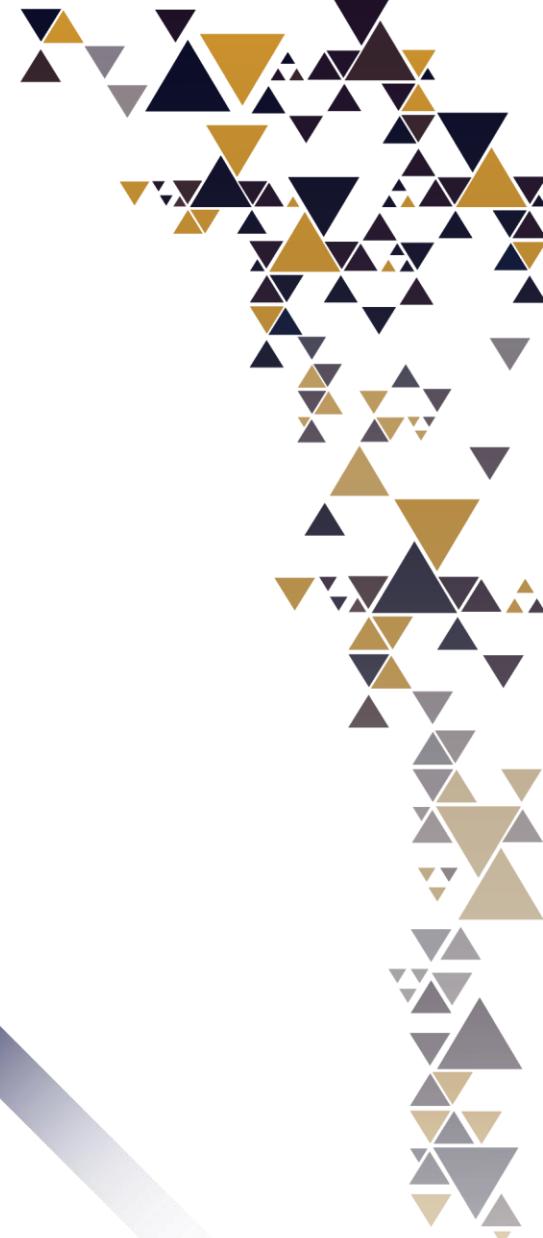
Data Set



Entrenamiento

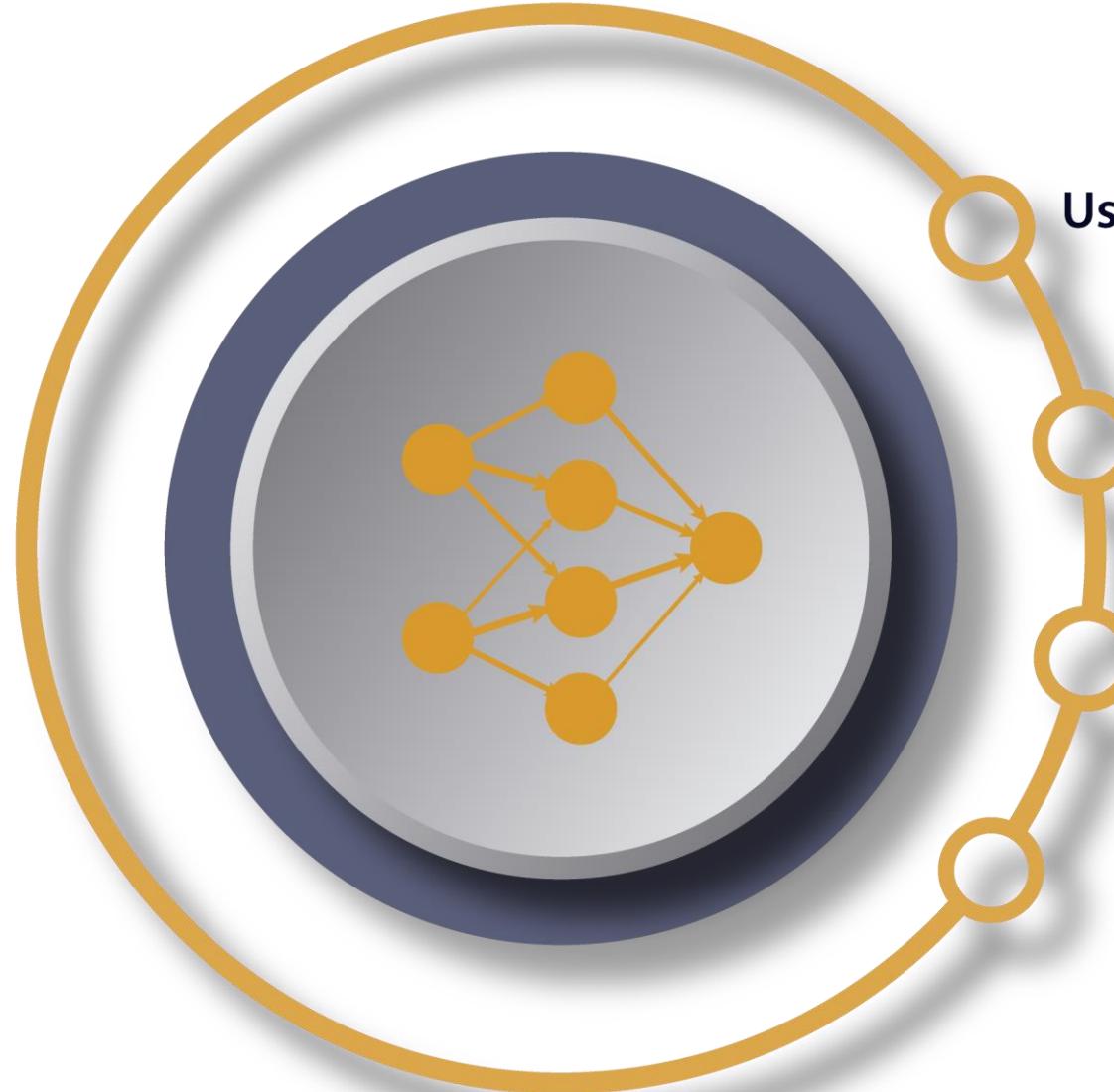


Aplicación





3.1 ELECCIÓN DEL MODELO



Uso de transfer learning

Clasificación vs detección

Modelos comprobados:
SSD, mobilenet, Yolo

Elección de Yolov3: 24 capas convolucionales preentrenado con Coco



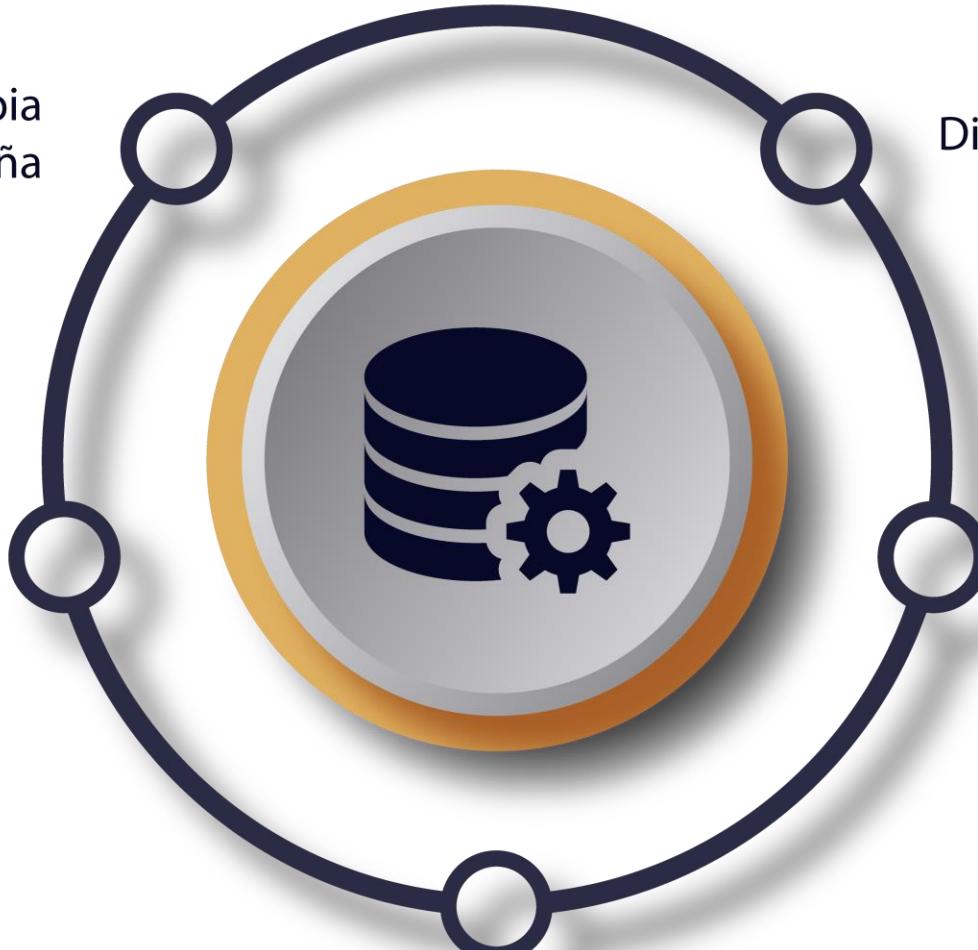


3.2 DATA SET



Elaboración propia
Dactilológico usado en España

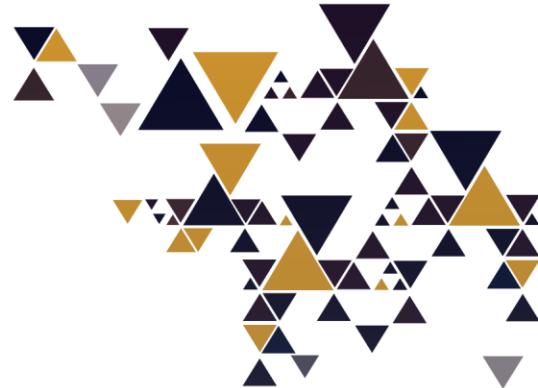
Videos de 1 minuto
más de 300 imágenes por clase



28 clases



3.3 ENTRENAMIENTO



Yolo

Uso de la red
neuronal Yolo



Transfer Learning
Establecimiento de
las nuevas clases

Entrenamiento

24 h de entrenamiento
con Nvidia 2070
8Gb VRAM

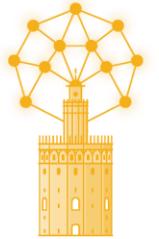


Test
Prueba del modelo



Modelo
Obtención de los archivos
que definen el modelo





3.4 APLICACIÓN



OpenCV
Uso de video

Pyttsx3
Api de Google

Darkflow
Paso de yolo a TF

Numpy
Manipulación de vectores

Model
Uso del modelo y pesos

Pyqt5
Aplicación de escritorio



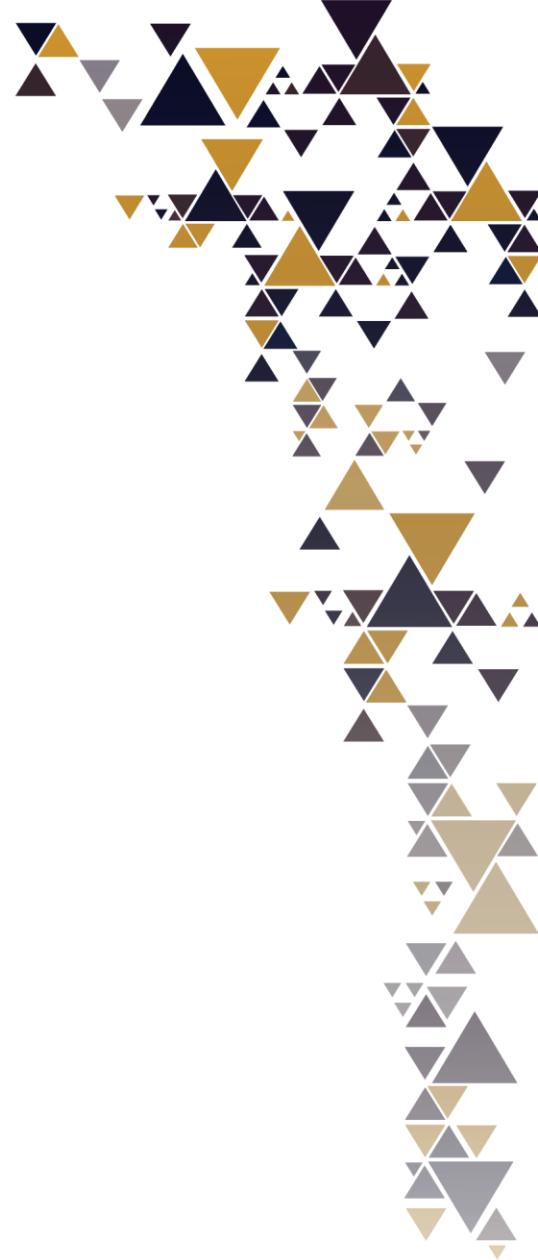


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OPEN SOURCE



github.com/ai-sign-language





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DEMOSTRACIÓN



4. DEMOSTRACIÓN

The screenshot shows a Mac OS X desktop environment. In the center, there is a terminal window titled "Python" with the following text:

```
-: (mp3)

File Size: 0
Encoding: MPEG audio
Channels: 1 @ 16-bit
SampleRate: 24000Hz
ReplayGain: off
Duration: unknown

In:0.000 00:00:01.03 [00:00:00.00] Out:49.5k [      ]
Done.
MacBook-Pro-de-Jose:test_video_with_model quique$ python
WARNING: Logging before flag parsing goes to stderr.
W0707 17:51:20.301054 4475925952 deprecation_wrapper.py:in:RMSPropOptimizer instead.
W0707 17:51:20.301325 4475925952 deprecation_wrapper.py:in:AdadeltaOptimizer instead.
W0707 17:51:20.301466 4475925952 deprecation_wrapper.py:119] From /Users/quique/Desktop/lab/darkflow/net/build.py:17: The name tf.train.RMSPropOptimizer is deprecated. Please use tf.compat.v1.train.RMSPropOptimizer instead.
W0707 17:51:20.301723 4475925952 deprecation_wrapper.py:119] From /Users/quique/Desktop/lab/darkflow/net/build.py:19: The name tf.train.MomentumOptimizer is deprecated. Please use tf.compat.v1.train.MomentumOptimizer instead.

objc[52649]: Class QCocoaPageLayoutDelegate is implemented in both /usr/local/lib/python3.7/site-packages/cv2.dylib (0x108ebe5c0) and /usr/local/lib/python3.7/site-packages/PyQt5/Qt/lib/qtprintsupport.framework/Versions/S/QtPrintSupport (0x130a3c478). One of the two will be used. Which one is undefined.
objc[52649]: Class QCocoaPrintPanelDelegate is implemented in both /usr/local/lib/python3.7/site-packages/cv2.dylib (0x108ebe638) and /usr/local/lib/python3.7/site-packages/PyQt5/Qt/lib/qtprintsupport.framework/Versions/S/QtPrintSupport (0x130a3c4f0). One of the two will be used. Which one is undefined.
objc[52649]: Class QCocoaApplicationDelegate is implemented in both /usr/local/lib/python3.7/site-packages/cv2.dylib (0x108ebe340) and /usr/local/lib/python3.7/site-packages/PyQt5/Qt/plugins/platforms/libqcocoa.dylib (0x130962c28). One of the two will be used. Which one is undefined.
objc[52649]: Class QNSApplication is implemented in both /usr/local/lib/python3.7/site-packages/cv2.dylib (0x108ebe2f0) and /usr/local/lib/python3.7/site-packages/PyQt5/Qt/plugins/platforms/libqcocoa.dylib (0x130962c78). One of the two will be used. Which one is undefined.
objc[52649]: Class QCocoaMenuLoader is implemented in both /usr/local/lib/python3.7/site-packages/cv2.dylib (0x108ebe2a0) and /usr/local/lib/python3.7/site-packages/PyQt5/Qt/plugins/platforms/libqcocoa.dylib (0x130962ab0). One of the two will be used. Which one is undefined.
objc[52649]: Class QNSImageView is implemented in both /usr/local/lib/python3.7/site-packages/cv2.dylib (0x108ebe660) and /usr/local/lib/python3.7/site-packages/PyQt5/Qt/plugins/platforms/libqcocoa.dylib (0x130962ea0). One of the two will be used. Which one is undefined.
objc[52649]: Class QNSStatusItem is implemented in both /usr/local/lib/python3.7/site-packages/cv2.dylib (0x108ebe6b0) and /usr/local/lib/python3.7/site-packages/PyQt5/Qt/plugins/platforms/libqcocoa.dylib (0x130962ef8). One of the two will be used. Which one is undefined.
objc[52649]: Class QNSOpenSavePanelDelegate is implemented in both /usr/local/lib/python3.7/site-packages/cv2.dylib (0x108ebe480) and /usr/local/lib/python3.7/site-packages/PyQt5/Qt/plugins/platforms/libqcocoa.dylib (0x130962f98). One of the two will be used. Which one is undefined.
```

Below the terminal, a small application window titled "Control" is open, showing buttons for Load, Start, Stop, Speak, and Clean. The desktop background features a pattern of overlapping triangles in various shades of blue, purple, and gold.



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FUTURAS MEJORAS





5. FUTURAS MEJORAS



- Aplicación móvil
- Aplicación web
- Reducción tamaño modelo
- Reconocimiento palabras
- Traducción Conversaciones
- Mayor dataset



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¡GRACIAS!

