

DIAGNÓSTICO DE TUMORES GASTROINTESTINALES CON MSI

Florinda Meléndez Rodríguez

22/05/2020



JUSTIFICACIÓN

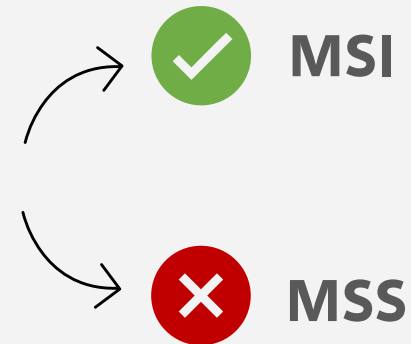


>>> 2 tipos de tumores gastrointestinales

- Con inestabilidad de microsatélites (**MSI**)
- Con estabilidad de microsatélites (**MSS**)

>>> MSI → Predisposición a mutaciones en el ADN

>>> Inmunoterapia



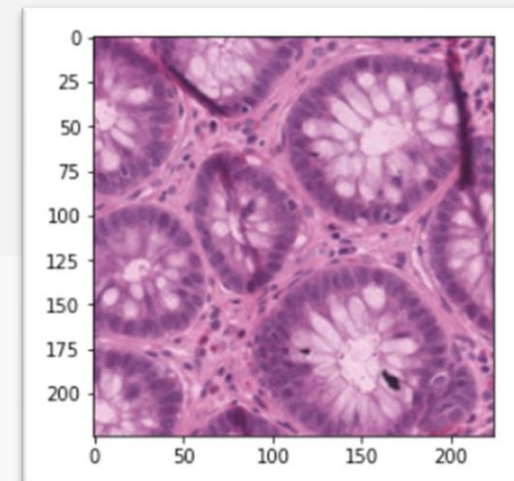
DESCRIPCIÓN DEL DATASET



>>> **192.312 imágenes de biopsias:**

- 75.039 de tumores MSI
- 117.273 de tumores MSS

>>> **Tamaño: 224x224x3**



HERRAMIENTAS



LIBRERÍAS

>>> Numpy 

>>> OpenCV 

>>> Sklearn 

>>> Pandas 

>>> Keras 

>>> Skimage 

MODELOS

>>> Algoritmos de
supervised ML
de clasificación

>>> CNN

TRATAMIENTO DE IMÁGENES

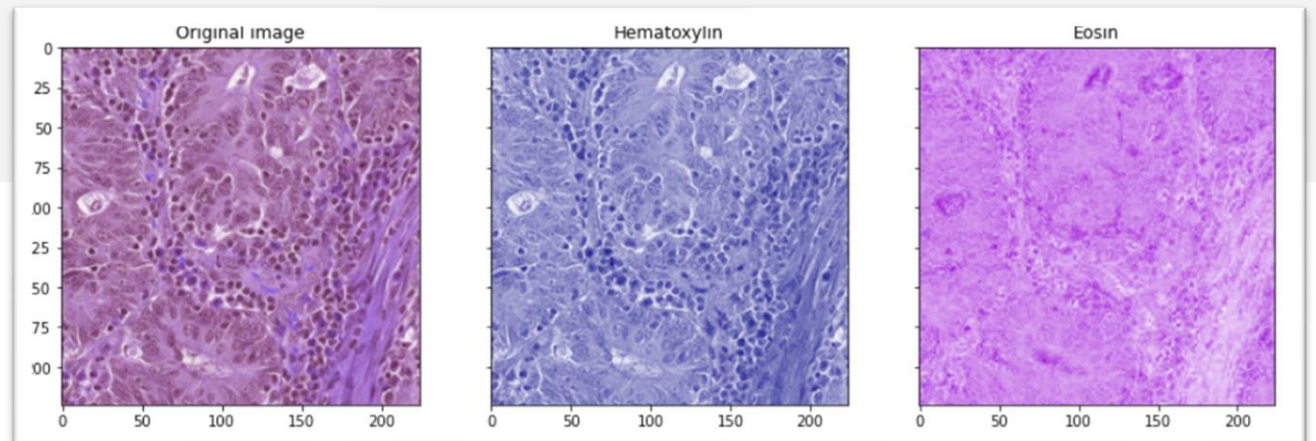


- >>> **RGB y escala de grises**
- >>> **Cambio de tamaño e interpolación**
- >>> **reghb de skimage**
- >>> **Filtros para el ruido**
 - medianBlur
 - blur
 - bilateralFilter
- >>> **Threshold**
- >>> **FFT**
- >>> **PCA**

TRATAMIENTO DE IMÁGENES



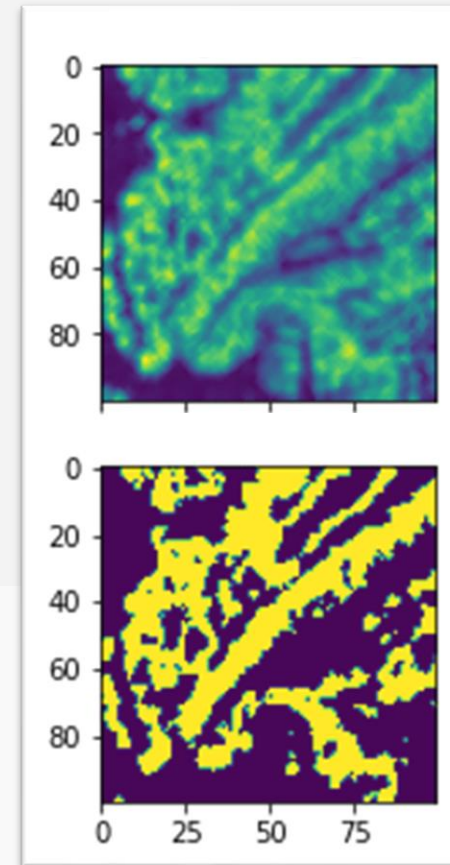
- >>> RGB y escala de grises
- >>> Cambio de tamaño e interpolación
- >>> reghb de skimage
- >>> Filtros para el ruido
 - medianBlur
 - blur
 - bilateralFilter
- >>> Threshold
- >>> FFT
- >>> PCA



TRATAMIENTO DE IMÁGENES



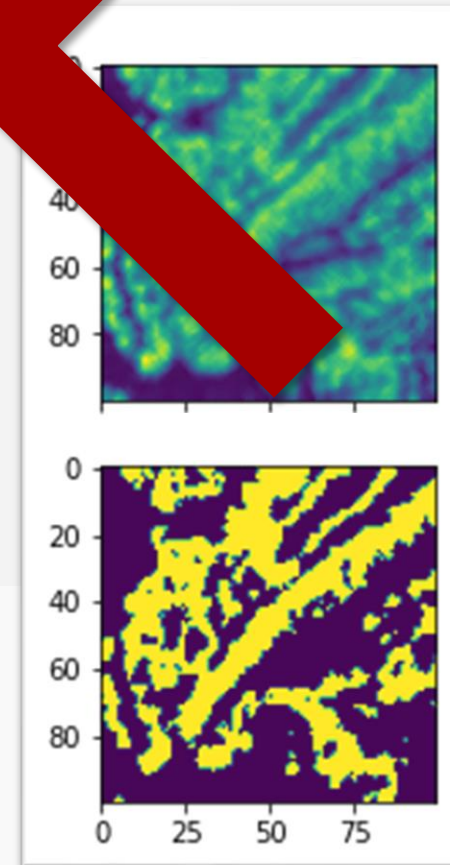
- >>> RGB y escala de grises
- >>> Cambio de tamaño e interpolación
- >>> reghb de skimage
- >>> Filtros para el ruido
 - medianBlur
 - blur
 - bilateralFilter
- >>> Threshold
- >>> FFT
- >>> PCA



TRATAMIENTO DE IMÁGENES



- >>> RGB y escala de grises
- >>> Cambio de tamaño e interpolación
- >>> regionpropskimage
- >>> Filtros para el ruido
 - medianBlur
 - blur
 - bilateralFilter
- >>> Thresh
- >>> FFT
- >>> PCA





>>> Perros y gatos de Marc Pomar

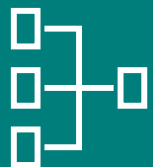
Epoch 18/20
3200/3200 [=====] - 20s 6ms/step - loss: 0.2224 - accuracy: 0.9147 - val_loss: 1.0753 - val_accuracy: 0.5475

>>> Alexnet de Matlab implementada en Python

Epoch 31/100
120/120 [=====] - 219s 2s/step - loss: 0.6933 - accuracy: 0.4979 - val_loss: 0.6931 - val_accuracy: 0.5125

>>> Enfermedades de plantas de Javier Gómez

Epoch 41/100
120/120 [=====] - 405s 3s/step - loss: 0.0498 - accuracy: 0.9826 - val loss: 0.8568 - val accuracy: 0.6292



>>> Perros y gatos de Marc Pomar

Epoch 18/20
3200/3200 [=====] - 20s 6ms/step - loss: 0.2224 - accuracy: 0.9147 - val_loss: 1.0753 - val_accuracy: 0.5475

>>> Alexnet de Matlab implementada en Python

Epoch 31/100
120/120 [=====] - 219s 2s/step - loss: 0.6933 - accuracy: 0.4979 - val_loss: 0.6931 - val_accuracy: 0.5125

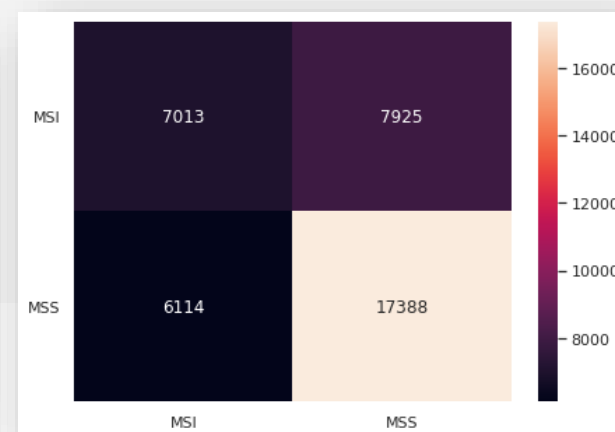
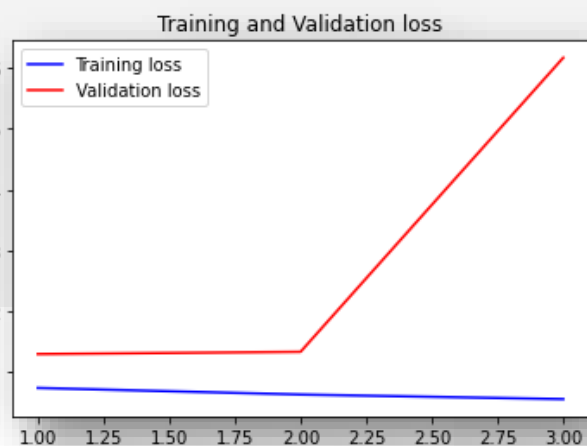
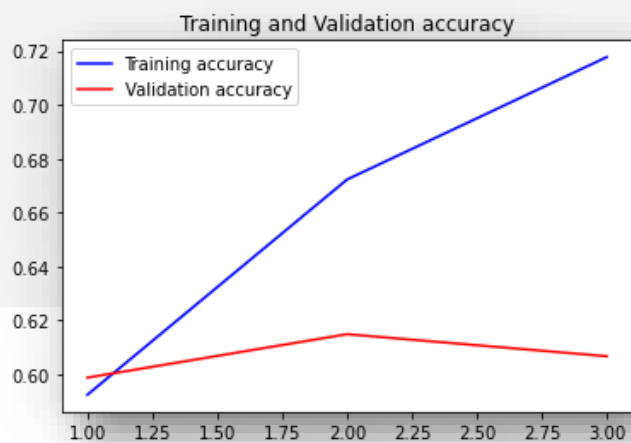
>>> Enfermedades de plantas de Javier Gómez

Epoch 41/100
120/120 [=====] - 405s 3s/step - loss: 0.0498 - accuracy: 0.9826 - val loss: 0.8568 - val accuracy: 0.6292

MÉTRICAS



```
Epoch 2/60  
3846/3846 [=====] - 27893s 7s/step - loss: 0.6377 - accuracy: 0.6723 - val_loss: 1.3390  
- val_accuracy: 0.6149  
  
Epoch 00002: val_accuracy improved from 0.59873 to 0.61485, saving model to Checkpoint_CNN_02_0.61  
Epoch 3/60  
3846/3846 [=====] - 28029s 7s/step - loss: 0.5622 - accuracy: 0.7177 - val_loss: 6.1702  
- val_accuracy: 0.6067  
  
Epoch 00003: val_accuracy did not improve from 0.61485  
Epoch 4/60  
78/3846 [.....] - ETA: 7:30:26 - loss: 0.5320 - accuracy: 0.7292
```



GRACIAS

DATAMAD0320



Florinda Meléndez Rodríguez

fcmelrod@gmail.com

<https://github.com/Flori-87>

<https://www.linkedin.com/in/florinda-melendez>