دانشگاه شهید چمران اهواز

کلاس برنامه نویسی پایتون

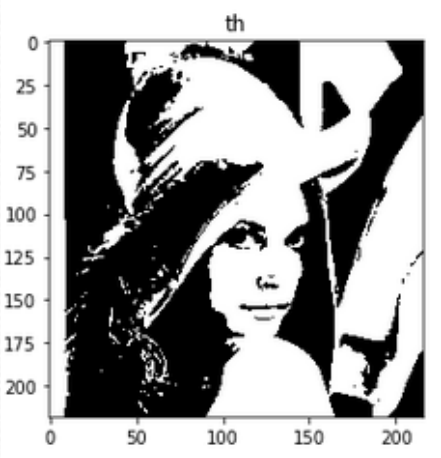
موضوع: مورفولوژی

ارائه دهنده: مرجان مودت

باینری کردن

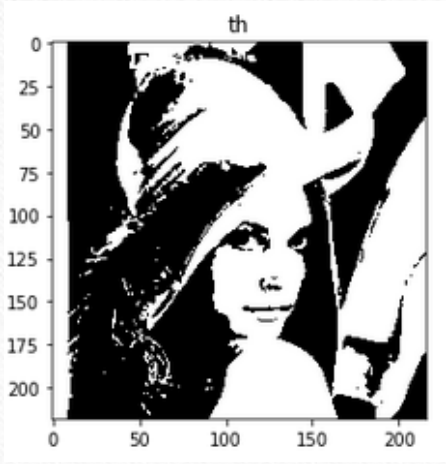
Syntax: cv2.threshold(source, thresholdValue, maxVal, thresholdingTechnique)

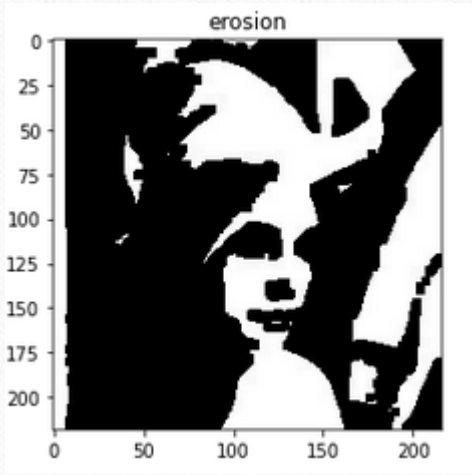
```
src = cv2.imread("/content/drive/MyDrive/imageprocessing/lena.JPG", 1) # read input image

gray = cv2.cvtColor(src, cv2.COLOR_BGR2GRAY) # convert to grayscale

ret, thresh = cv2.threshold(gray, 90, 255, cv2.THRESH_BINARY)
```



فرسایش

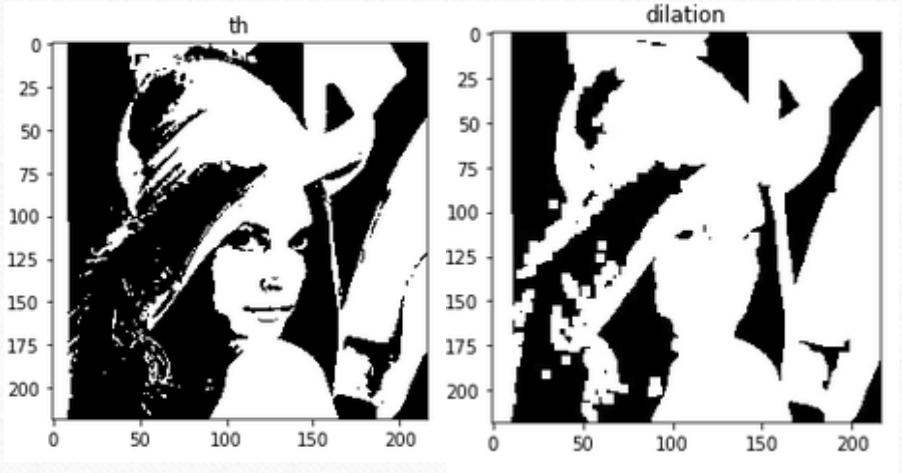
```
kernel = np.ones((5,5), np.uint8)
img_erosion = cv2.erode(binery_image, kernel, iterations=1
)
```





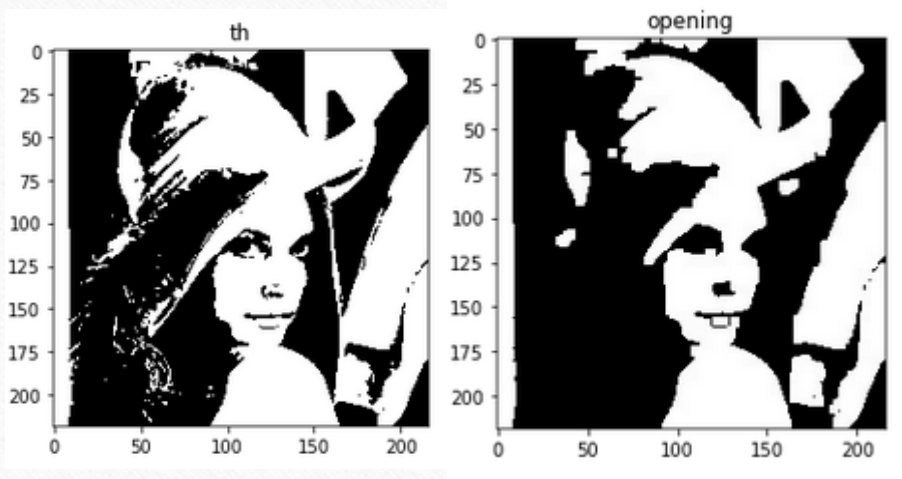
گسترش

```
img_dilation = cv2.dilate(binery_image, kernel, ite
rations=1)
```



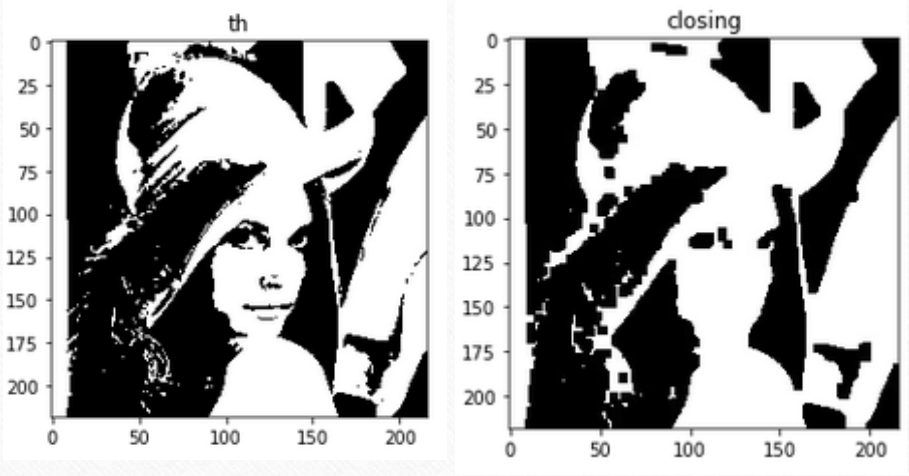
باز کردن

```
opening = cv2.morphologyEx(binery_image, cv2.MORPH_OPEN, kernel)
```



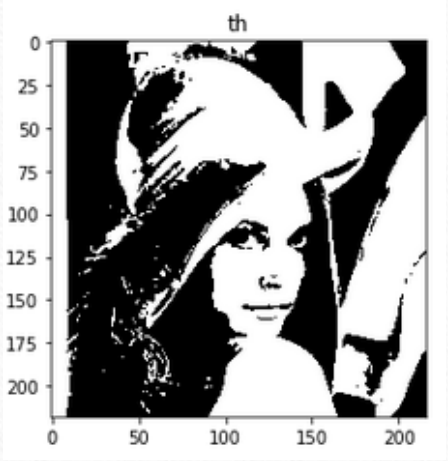
بستن

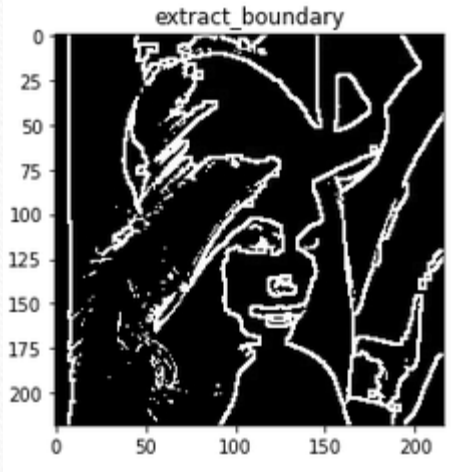
```
closing = cv2.morphologyEx(binery_image, cv2.MORPH_CLOSE, kernel)
```



استخراج مرز

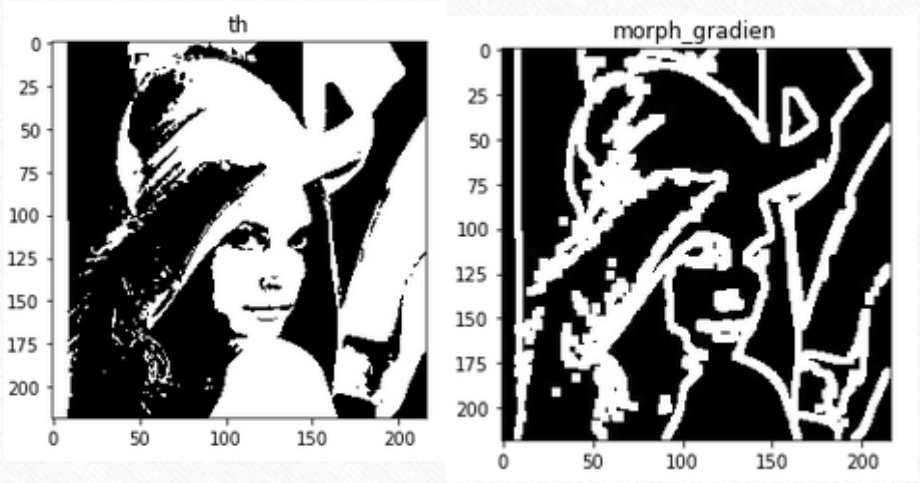
```
extract_boundary = binery_image - img_erosion
```





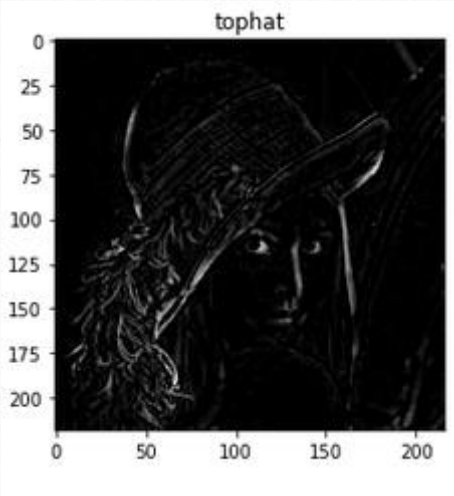
گرادیان

```
morph_gradien = img_dilation - img_erosion
```



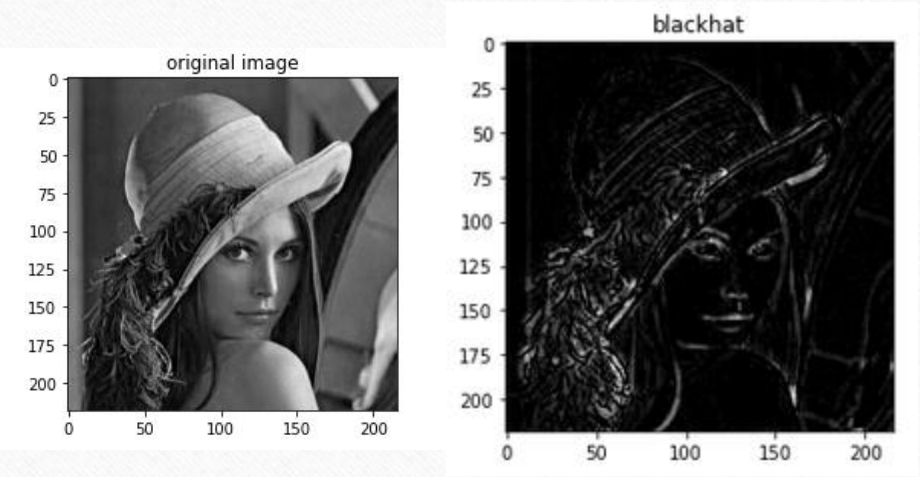
تبدیل بالا کلاه

```
tophat = binery_image - opening
```



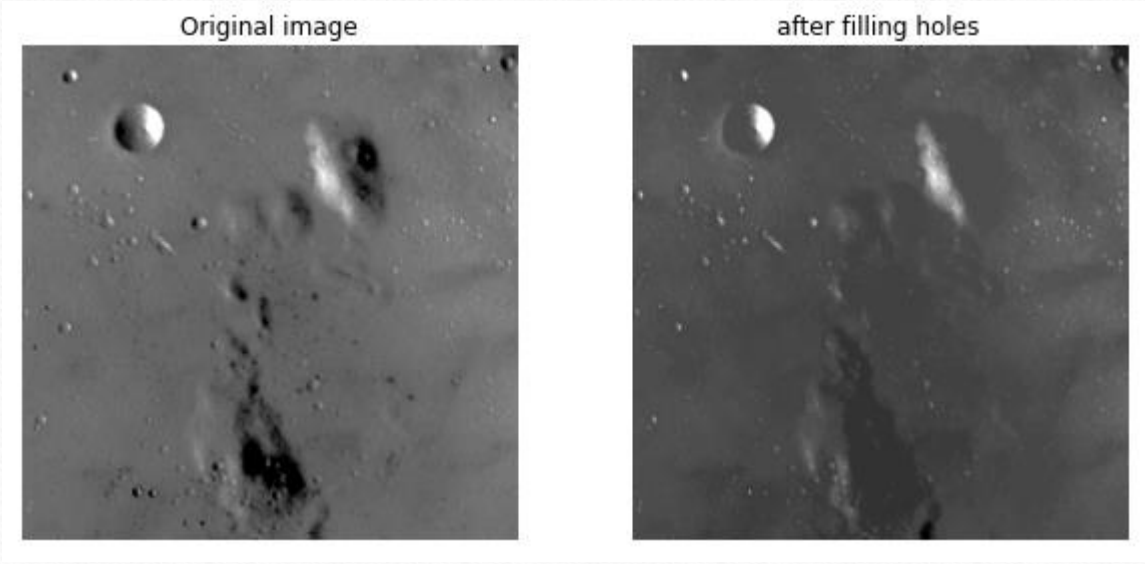
تبدیل پایین کلاه

```
blackhat = closing - binery_image
```



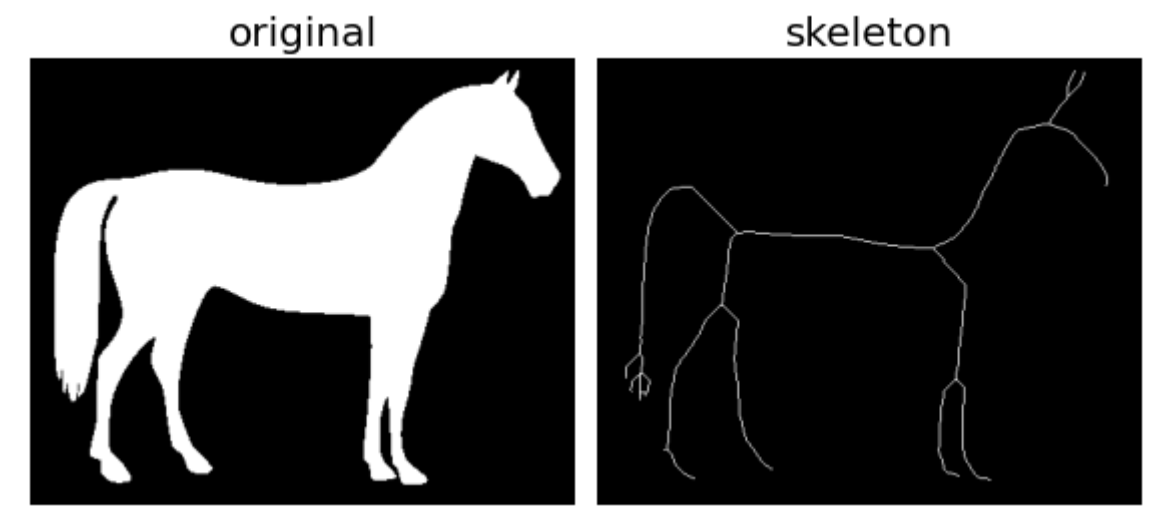
پر کردن حفره

```
filled = reconstruction(seed, mask, method='erosion')
```



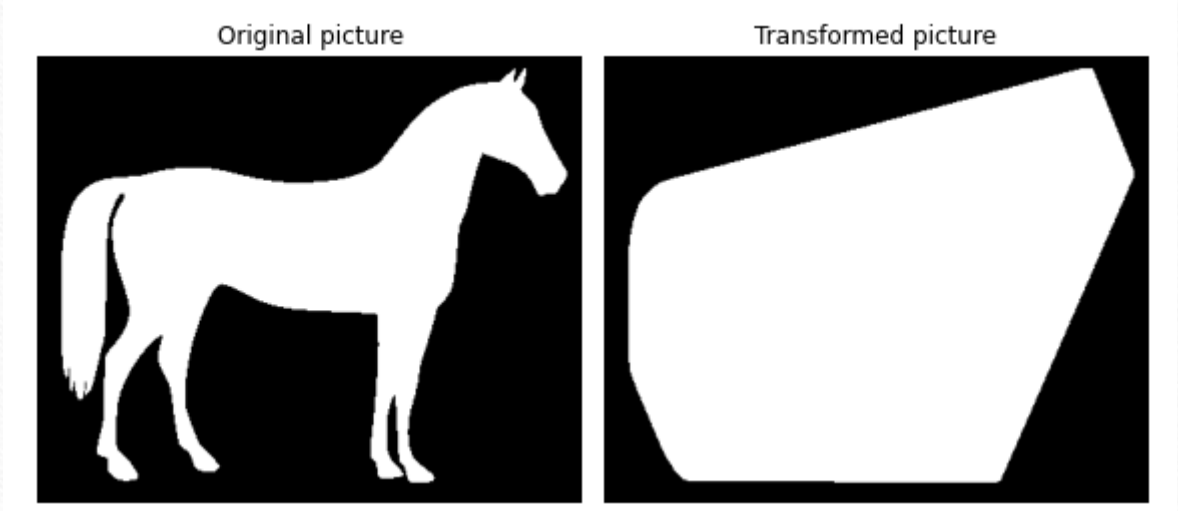
اسکلت بندی

```
from skimage.morphology import skeletonize

skeleton = skeletonize(image)
```

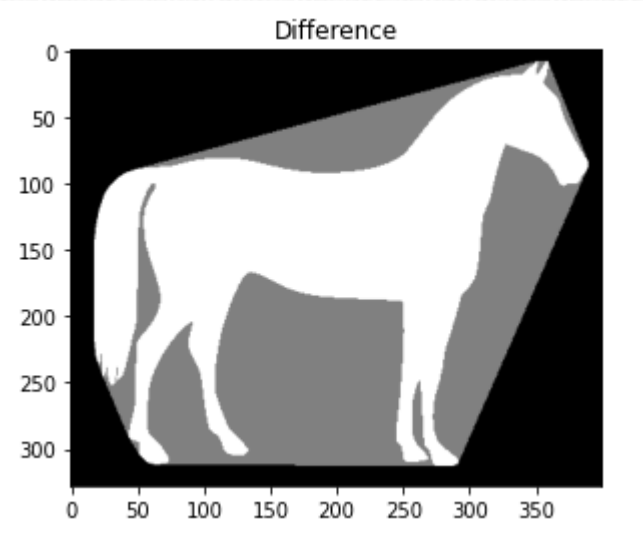


پوسته محدب

```
from skimage.morphology import convex_hull_image
chull = convex_hull_image(image)
```



اختلاف پوسته محدب با تصویر اصلی



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سپاس از توجه شما دوستان