

opencv

October 6, 2024

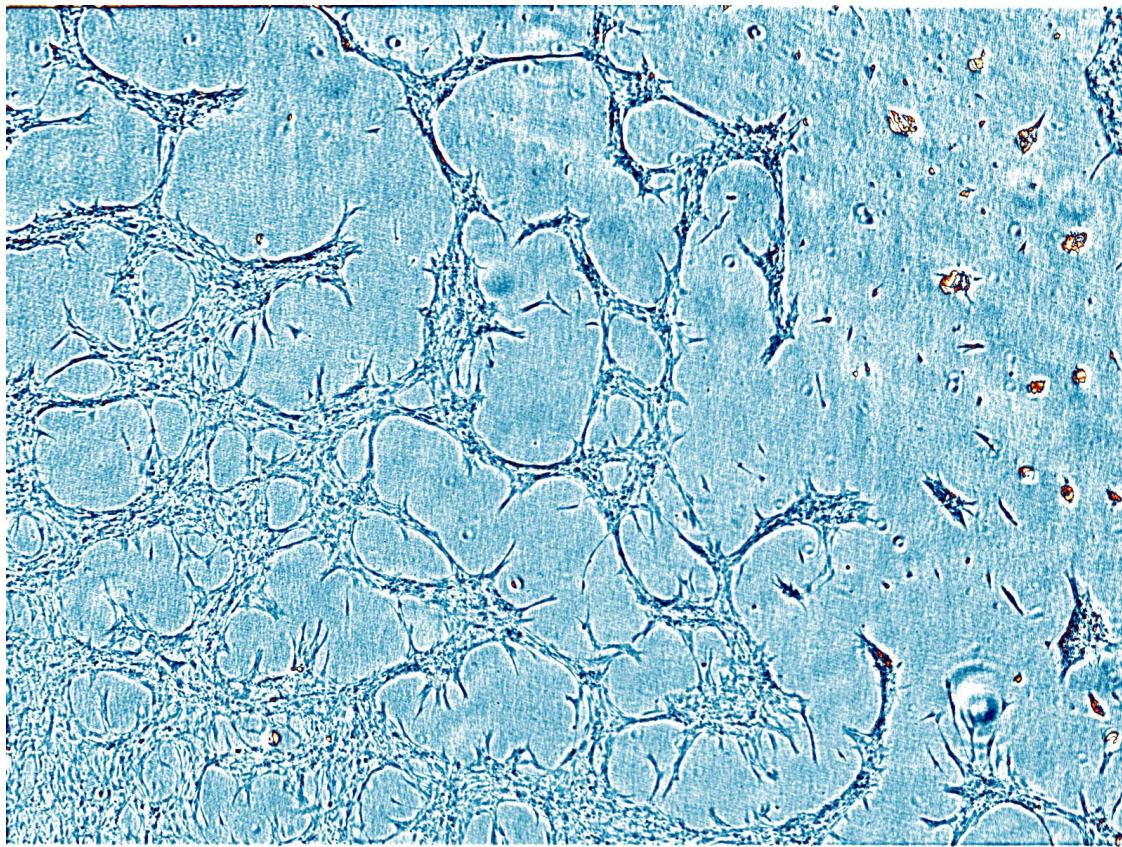
```
[ ]: !pip install opencv-python
```

```
Requirement already satisfied: opencv-python in /usr/local/lib/python3.10/dist-packages (4.10.0.84)
Requirement already satisfied: numpy>=1.21.2 in /usr/local/lib/python3.10/dist-packages (from opencv-python) (1.26.4)
```

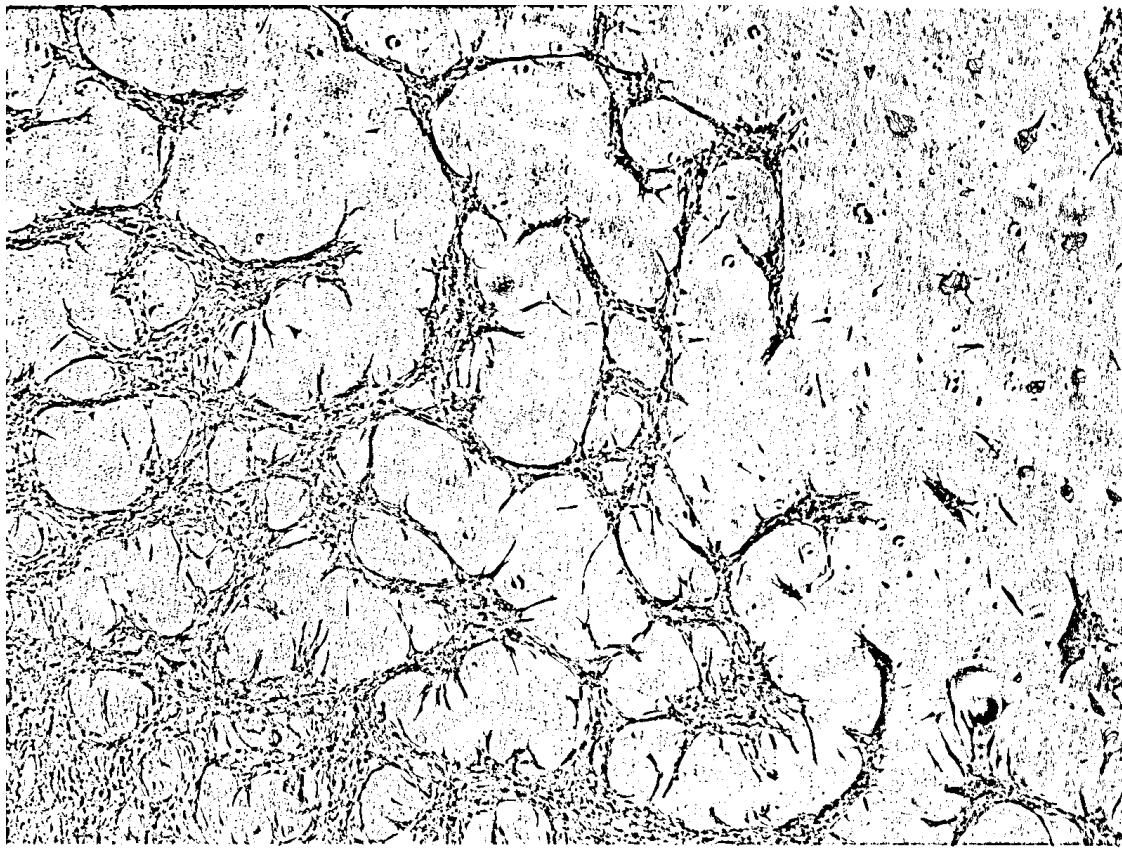
```
[ ]: import cv2
import glob
from google.colab.patches import cv2_imshow

image_path = "/content/sample_data/Img1.jpeg"
images = glob.glob(image_path)

for image_file in images:
    image = cv2.imread(image_file)
    cv2_imshow(image)
```



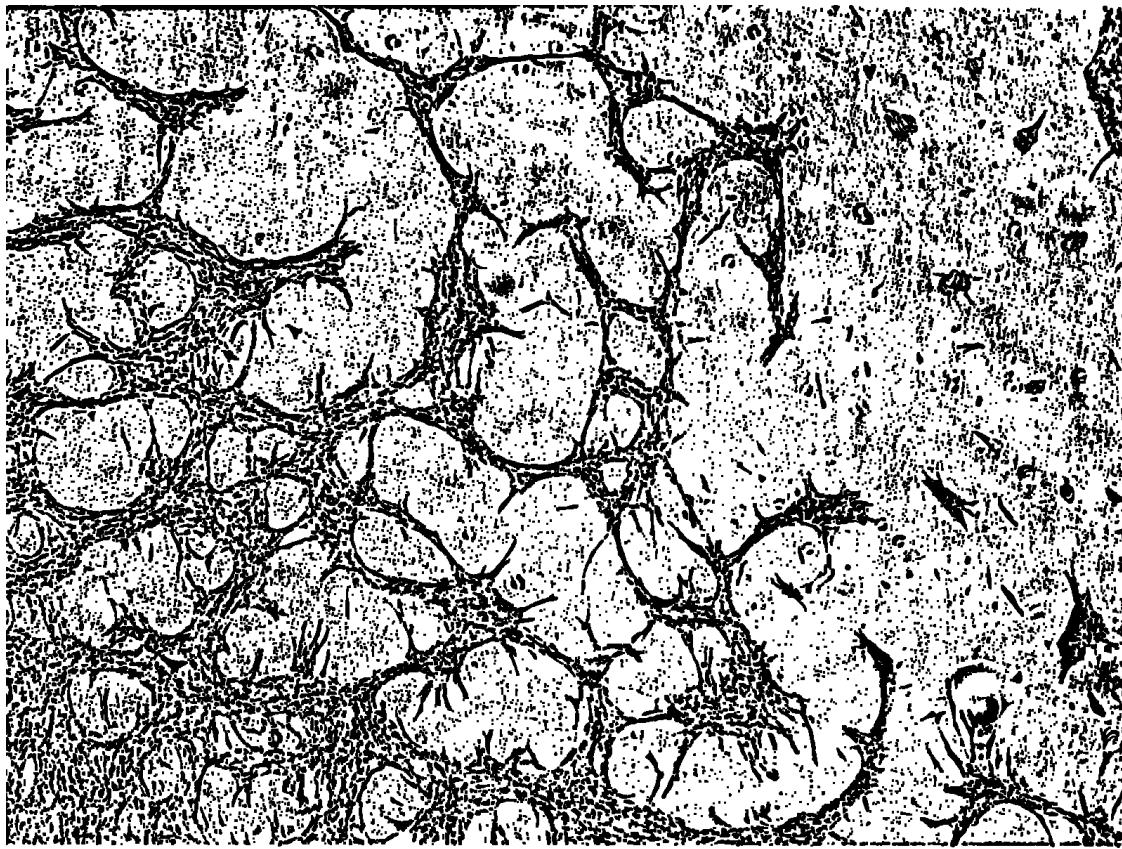
```
[ ]: image = cv2.imread("/content/sample_data/Img1.jpeg", cv2.IMREAD_GRAYSCALE)  
[ ]: _, binary_image = cv2.threshold(image, 135, 255, cv2.THRESH_BINARY)  
cv2_imshow(binary_image)
```



```
[ ]: kernel = cv2.getStructuringElement(cv2.MORPH_RECT, (3, 3))

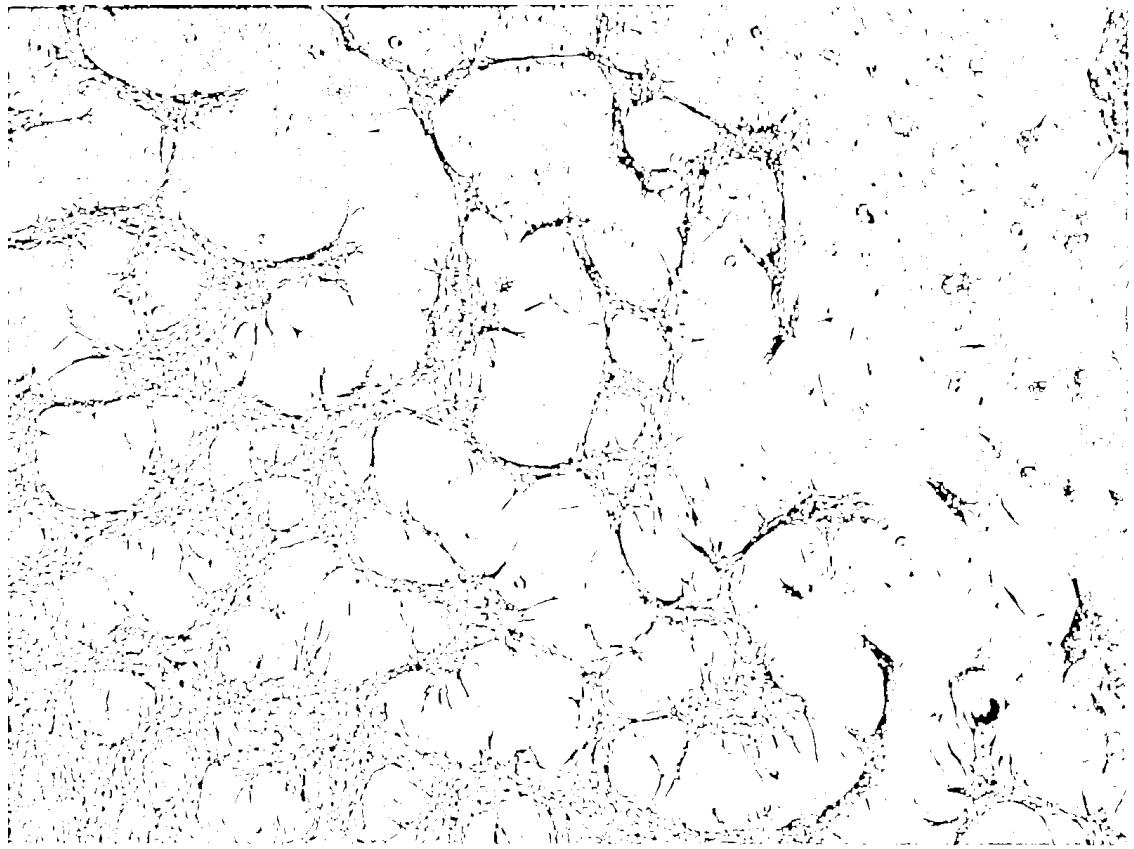
erosion = cv2.erode(binary_image, kernel, iterations=1)

cv2_imshow(erosion)
```

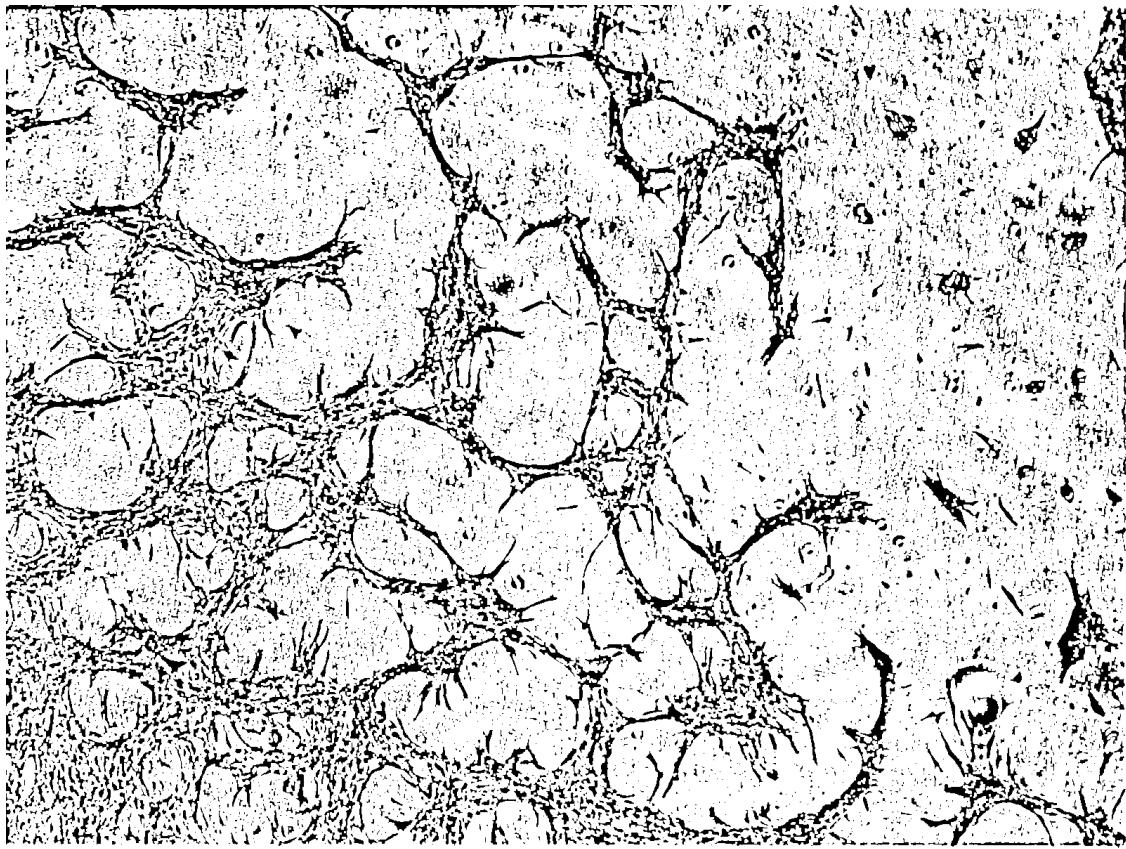


```
[ ]: dilatation = cv2.dilate(binary_image, kernel, iterations=1)
```

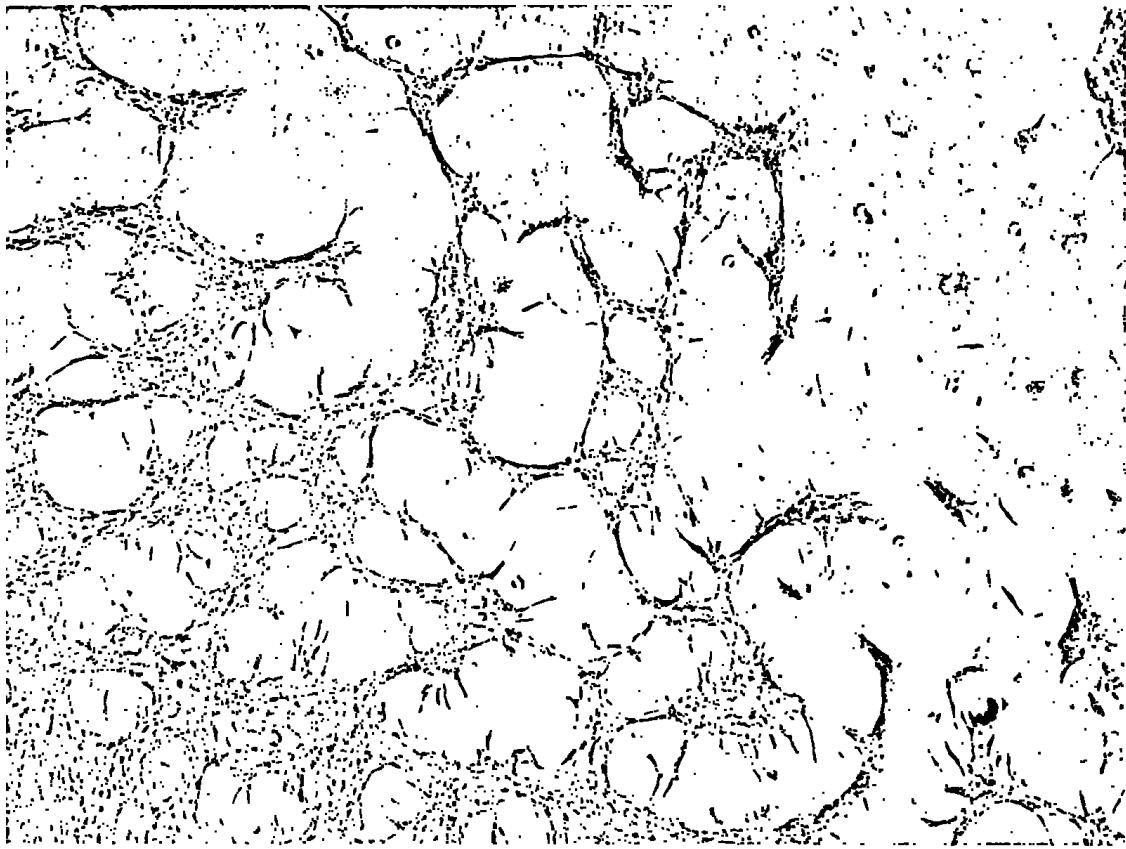
```
cv2_imshow(dilatation)
```



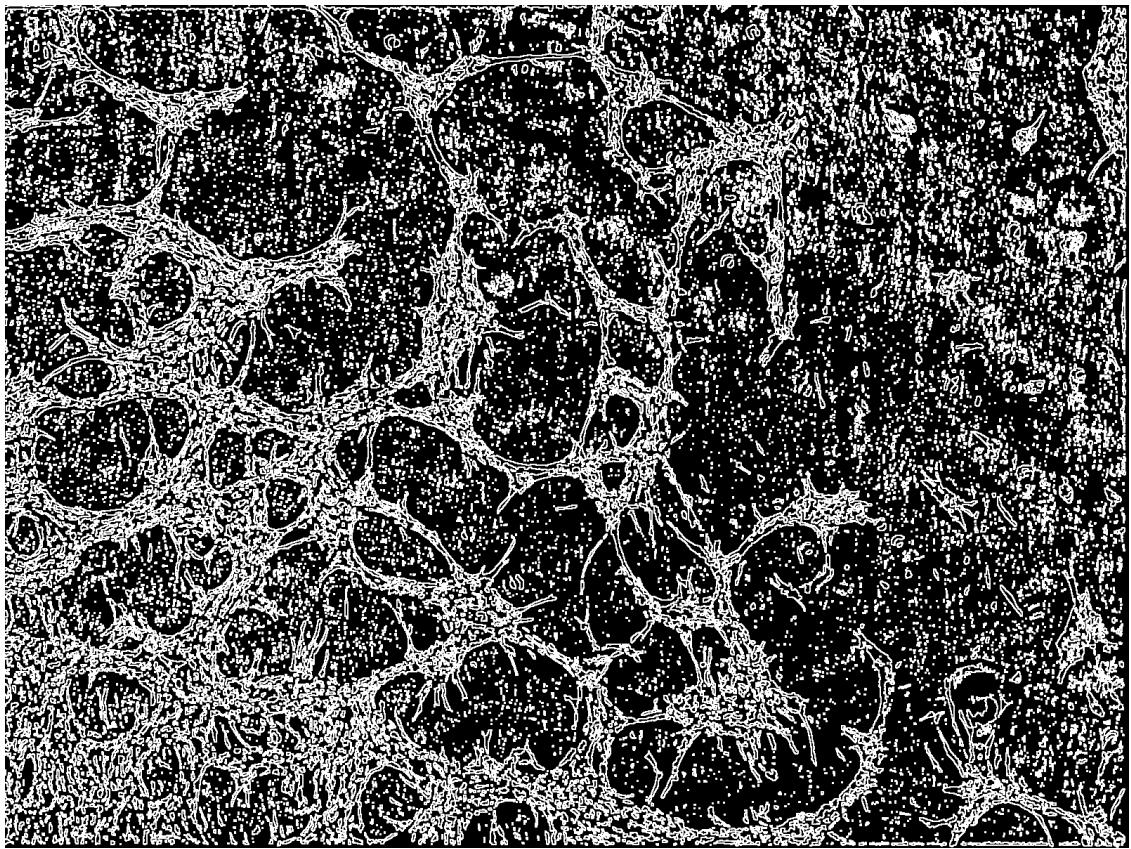
```
[ ]: filter = cv2.morphologyEx(binary_image, cv2.MORPH_OPEN, kernel)  
cv2_imshow(filter)
```



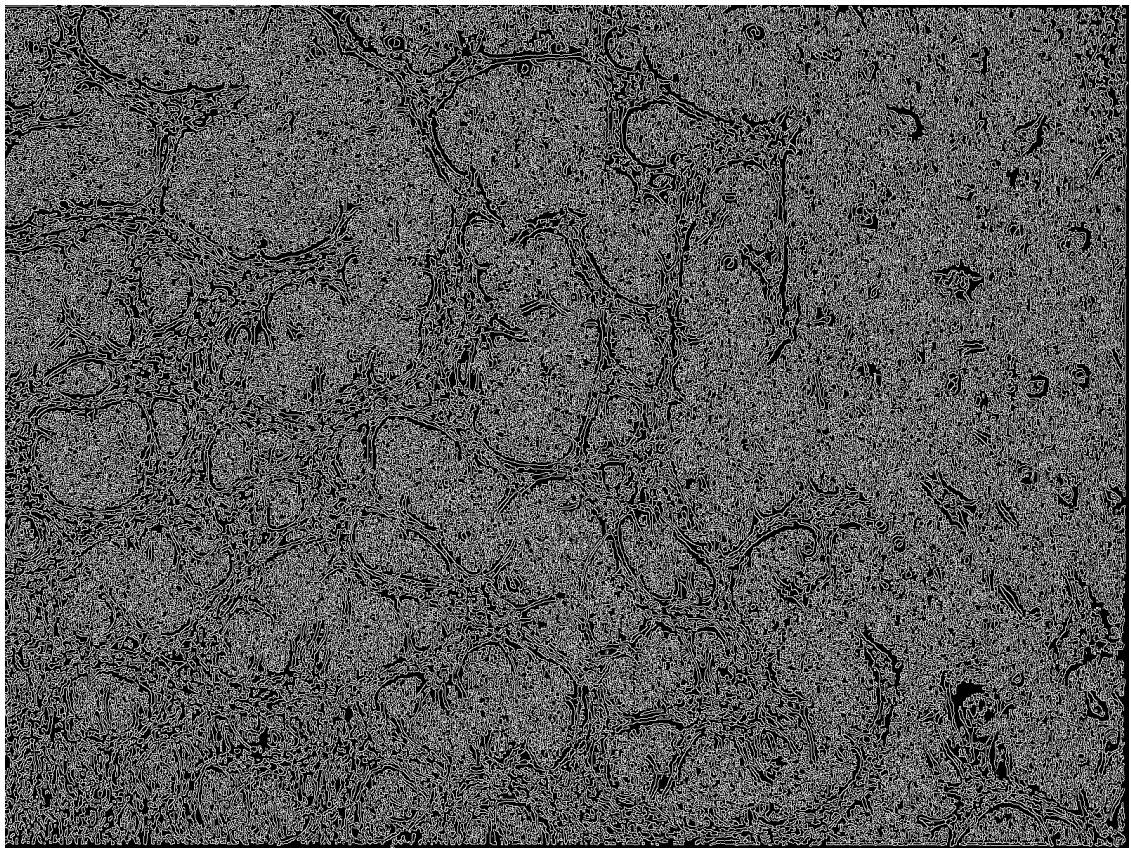
```
[ ]: filter2 = cv2.morphologyEx(binary_image, cv2.MORPH_CLOSE, kernel)  
cv2_imshow(filter2)
```



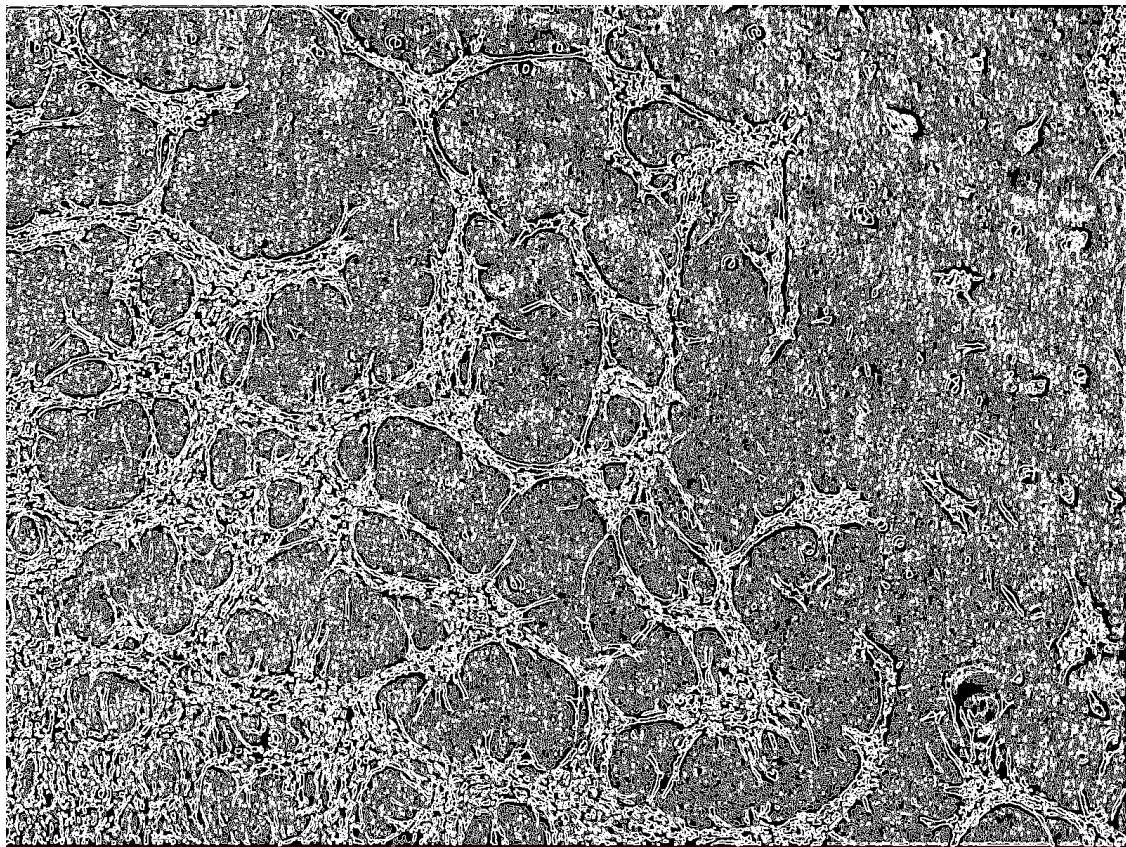
```
[ ]: filtro4 = cv2.morphologyEx(binary_image, cv2.MORPH_GRADIENT, kernel)  
cv2_imshow(filtro4)
```



```
[ ]: edges = cv2.Canny(image, 255, 1)
cv2_imshow(edges)
```

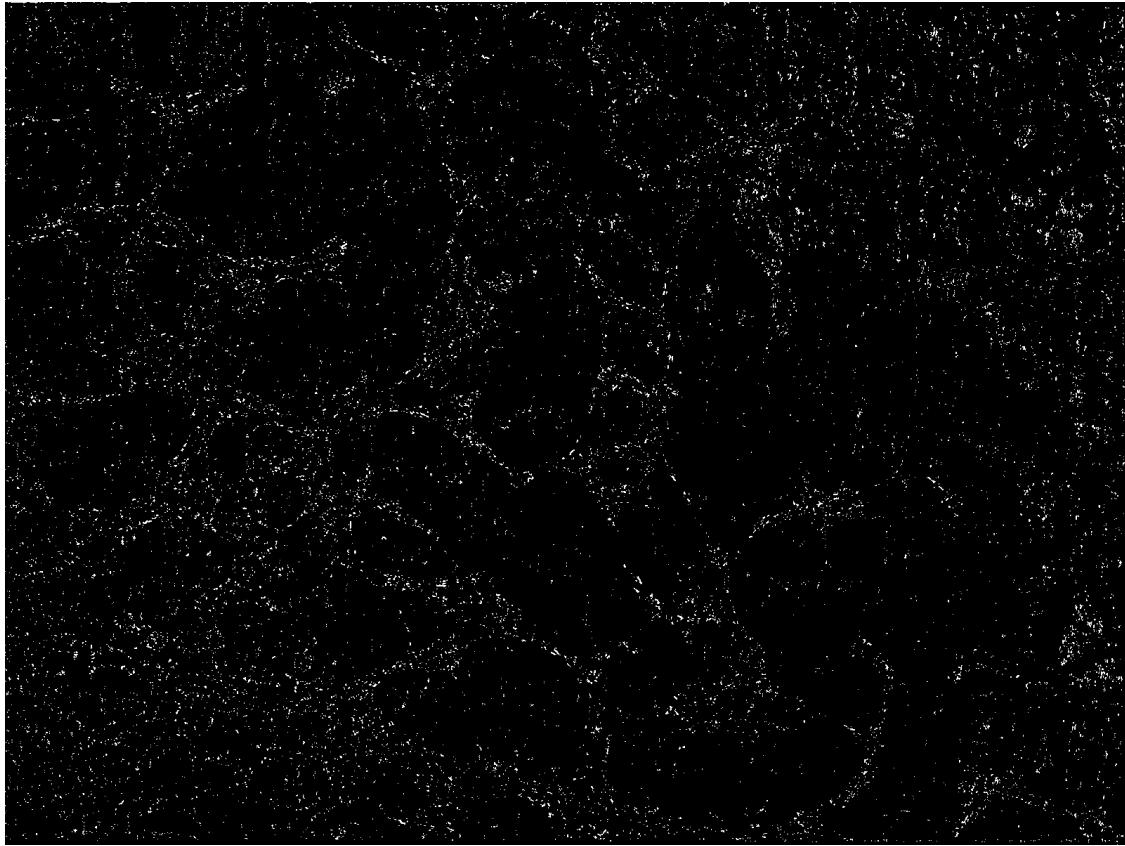


```
[ ]: f = filtro4 + edges  
cv2_imshow(f)
```

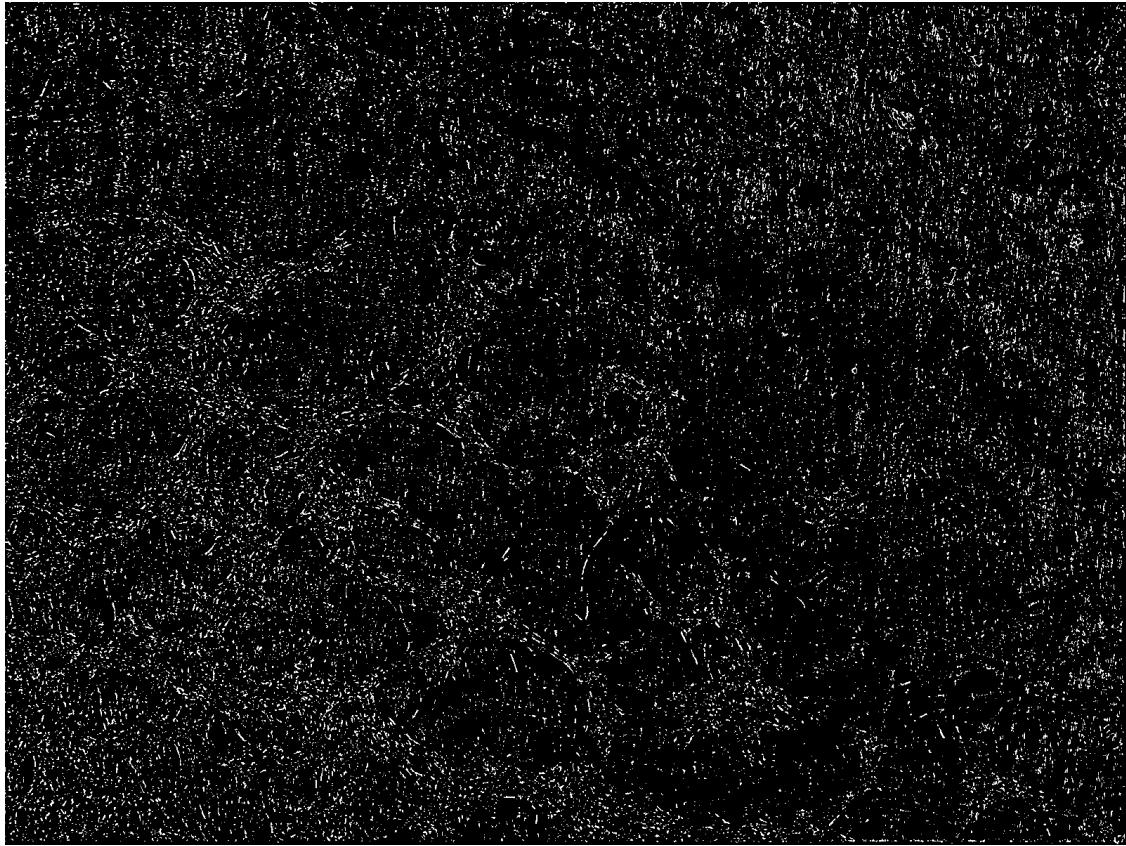


```
[ ]:
```

```
[ ]: filtro5 = cv2.morphologyEx(binary_image, cv2.MORPH_TOPHAT, kernel)  
cv2_imshow(filtro5)
```



```
[ ]: filtro6 = cv2.morphologyEx(binary_image, cv2.MORPH_BLACKHAT, kernel)  
cv2_imshow(filtro6)
```



```
[ ]: filtro8 = cv2.morphologyEx(binary_image, cv2.MORPH_HITMISS, kernel)  
cv2_imshow(filtro8)
```

