# tạo nhiễu Gauss

import cv2  
import numpy as np  
  
*# original image*f = cv2.imread('miss-1.png', cv2.IMREAD\_GRAYSCALE)  
f = f/255  
  
cv2.imwrite('miss-gray.png',f\*255)  
  
cv2.imshow('original image', f)  
cv2.waitKey(0)  
  
*# create gaussian noise*x, y = f.shape  
mean = 0  
var = 0.01  
sigma = np.sqrt(var)  
n = np.random.normal(loc=mean, scale=sigma, size=(x,y))  
  
cv2.imshow('Noise', n)  
cv2.waitKey(0)  
  
print(np.min(n))  
*# add a gaussian noise*g = f + n  
  
cv2.imshow('Image with Noise', g)  
cv2.waitKey(0)  
cv2.destroyAllWindows()  
  
cv2.imwrite('miss-gauss001.png',g\*255)

# Nhiễu muối tiêu

import cv2  
import numpy as np  
  
*# orginal image*img = cv2.imread('miss-1.png', cv2.IMREAD\_GRAYSCALE)  
img = img/255  
  
cv2.imshow('original image', img)  
cv2.waitKey(0)  
  
*# blank image*x,y = img.shape  
g = np.zeros((x,y), dtype=np.float32)  
  
*# salt and pepper amount*pepper = 0.1  
salt = 0.95  
  
*# create salt and peper noise image*for i in range(x):  
 for j in range(y):  
 rdn = np.random.random()  
 if rdn < pepper:  
 g[i][j] = 0  
 elif rdn > salt:  
 g[i][j] = 1  
 else:  
 g[i][j] = img[i][j]  
  
cv2.imshow('image with noise', g)  
cv2.waitKey(0)  
cv2.destroyAllWindows()  
  
*# (optional) save the image  
# cv2.imwrite('miss-salt-pepper.png',g\*255)*