kmeans

from sklearn.cluster import KMeansimport numpy as npimport matplotlib.pyplot as pltfrom PIL import Image

img = Image.open('your\_image.jpg').convert('RGB')data = np.array(img)

pixels = data.reshape(-1, 3)

kmeans = KMeans(n\_clusters=3)kmeans.fit(pixels)

segmented\_image=kmeans.cluster\_centers\_[kmeans.labels\_].astype(int)segmented\_image = segmented\_image.reshape(img.shape[0], img.shape[1], 3)

plt.imshow(segmented\_image)plt.axis('off')

plt.title('K-means Image Segmentation')plt.show()

segmented\_image\_pil=Image.fromarray(segmented\_image.astype(np.uint8))# segmented\_image\_pil.save('segmented\_image.jpg')Fuzzy

fcm

import cv2

import numpy as np

import skfuzzy as fuzz

image = cv2.imread('your\_image.jpg', cv2.IMREAD\_GRAYSCALE)

image\_data = np.double(image) / 255.0

c = 2

cntr, u, u0, d, jm, p, fpc = fuzz.cluster.cmeans(

data=image\_data.T,

c=c,

m=2,

error=0.005,

maxiter=1000,

init=None

)

segmented\_image = np.argmax(u, axis=0)

segmented\_image = (segmented\_image \* 255).astype(np.uint8)

cv2.imshow('Segmented Image', segmented\_image)

cv2.waitKey(0)

cv2.destroyAllWindows()