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README.md

sobel,canny,laplaciann.py

SenthilSEC README.md 2bef332 · now History

Preview Code Blame 80 lines (60 loc) · 2.31 KB Raw

EDGE-DETECTION

Aim:

To perform edge detection using Sobel, Laplacian, and Canny edge detectors.

Software Required:

Anaconda - Python 3.7

Algorithm:

Step1:

Import all the necessary modules for the program.

Step2:

Load a image using imread() from cv2 module.

Step3:

Convert the image to grayscale

Step4:

Using Sobel operator from cv2,detect the edges of the image.

Step5:

Using Laplacian operator from cv2,detect the edges of the image and Using Canny operator from cv2,detect the edges of the image.

PROGRAM

```
NAME:P.Senthil Arunachalam
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EXP:6.EDGE DETECTION

import cv2
import numpy as np
import matplotlib.pyplot as plt

# Load the image
image = cv2.imread('Tiger.jpg')  # Replace with your image path
gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
# Original Image
plt.imshow(cv2.cvtColor(image, cv2.COLOR_BGR2RGB))
plt.title('Original Image')
plt.axis('off')

#SOBEL EDGE DETECTOR
sobel_x = cv2.Sobel(gray_image, cv2.CV_64F, 1, 0, ksize=5)  # Sobel in x direction
sobel_y = cv2.Sobel(gray_image, cv2.CV_64F, 0, 1, ksize=5)  # Sobel in y direction
sobel_combined = cv2.magnitude(sobel_x, sobel_y)  # Combine both directions
plt.imshow(sobel_combined, cmap='gray')
plt.title('Sobel Edge Detection')
plt.axis('off')

#LAPLACIAN EDGE DETECTOR
laplacian = cv2.Laplacian(gray_image, cv2.CV_64F)
plt.imshow(laplacian, cmap='gray')
```

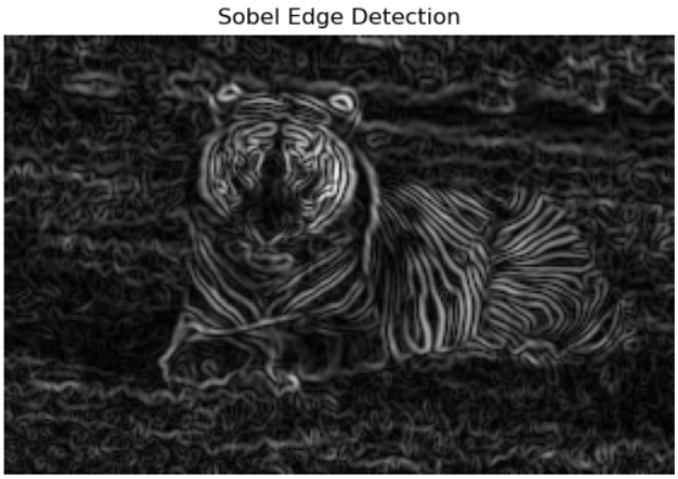
```
plt.title('Laplacian Edge Detection')
plt.axis('off')

#CANNY EDGE DETECTOR
canny_edges = cv2.Canny(gray_image, 50, 150)
plt.imshow(canny_edges, cmap='gray')
plt.title('Canny Edge Detection')
plt.axis('off')
```

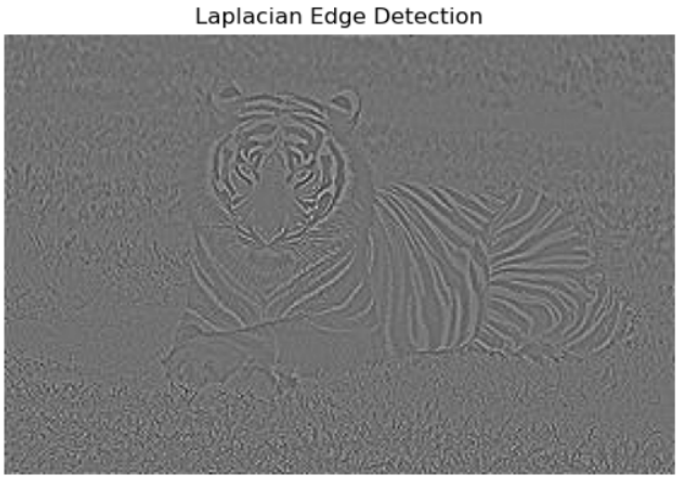
Output:

ORIGINAL IMAGE

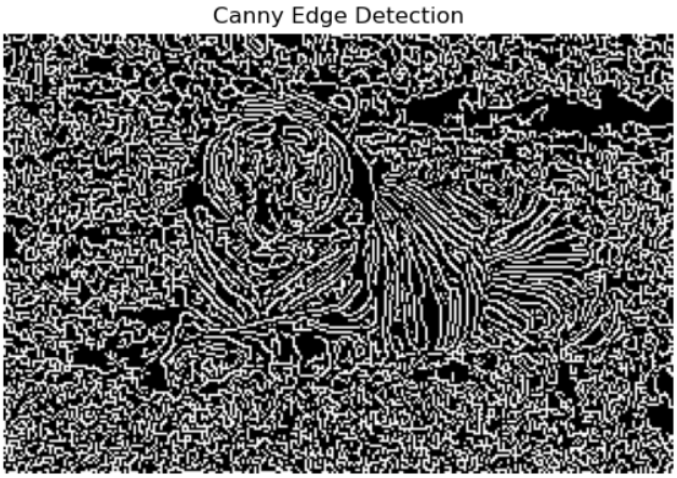
SOBEL EDGE DETECTOR



LAPLACIAN EDGE DETECTOR



CANNY EDGE DETECTOR



Result:

Thus the edges are detected using Sobel, Laplacian, and Canny edge detectors.