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DETEKSI TEPI (Edge Detection)

1. filter Sobel

import cv2

import numpy as np

from matplotlib import pyplot as plt

from skimage import data

img = data.astronaut()

#sobel

img\_sobelx = cv2.Sobel(img,cv2.CV\_8U, 1,0,ksize=5)

img\_sobely = cv2.Sobel(img,cv2.CV\_8U, 0,1,ksize=5)

img\_sobel = img\_sobelx + img\_sobely

fig, axes = plt.subplots(4, 2, figsize=(10, 10))

ax = axes.ravel()

ax[0].imshow(img, cmap = 'gray')

ax[0].set\_title("citra input")

ax[1].hist(img.ravel(), bins = 256)

ax[1].set\_title("Histogran Citra Input")

ax[2].imshow(img\_sobelx, cmap = 'gray')

ax[2].set\_title("citra input")

ax[3].hist(img\_sobelx.ravel(), bins = 256)

ax[3].set\_title("Histogran Citra Input")

ax[4].imshow(img\_sobely, cmap = 'gray')

ax[4].set\_title("citra input")

ax[5].hist(img\_sobely.ravel(), bins = 256)

ax[5].set\_title("Histogran Citra Input")

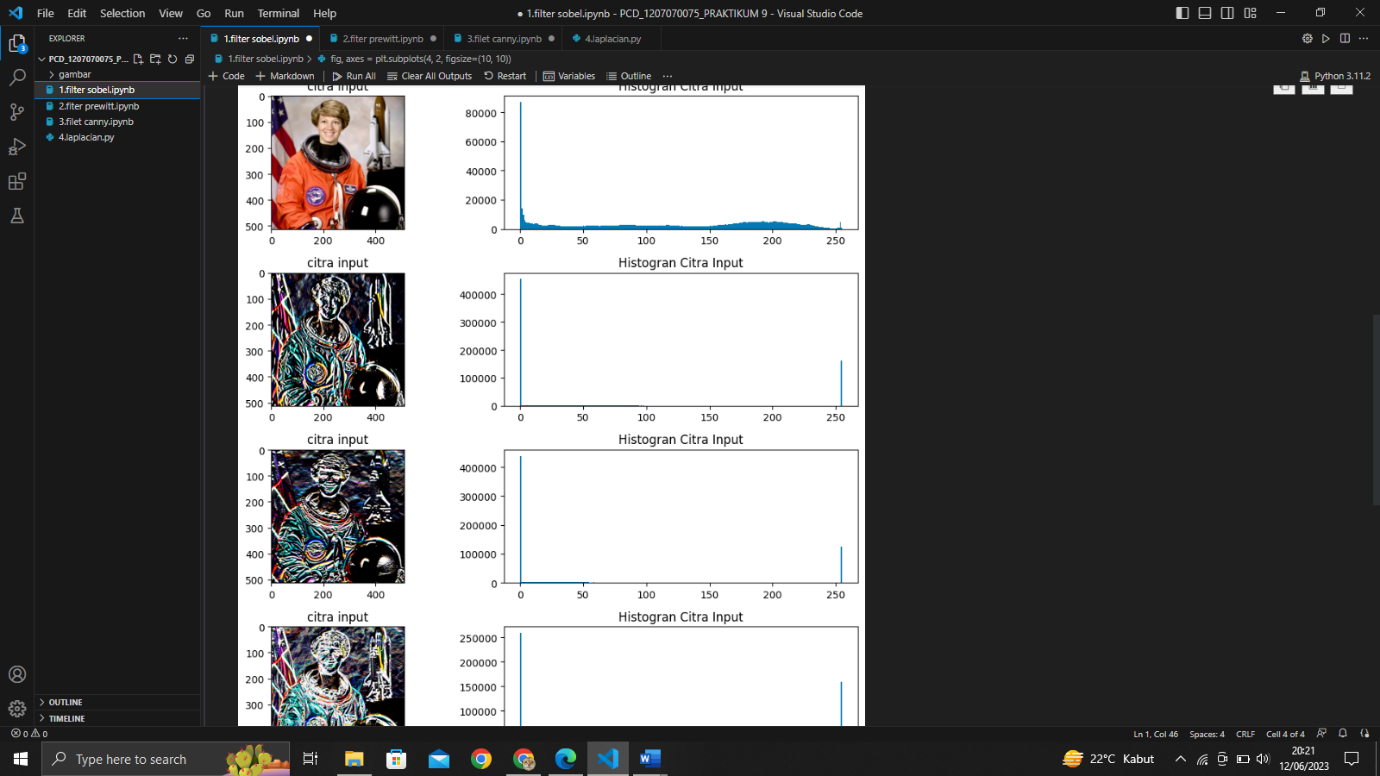
ax[6].imshow(img\_sobel, cmap = 'gray')

ax[6].set\_title("citra input")

ax[7].hist(img\_sobel.ravel(), bins = 256)

ax[7].set\_title("Histogran Citra Input")

fig.tight\_layout()



1. filter Prewitt

import cv2

import numpy as np

from matplotlib import pyplot as plt

from skimage import data

img = data.astronaut()

#prewitt

kernelx = np.array([[1,1,1,],[0,0,0],[-1,-1,-1]])

kernely = np.array([[-1,0,1,],[-1,0,1],[-1,0,1]])

img\_prewittx = cv2.filter2D(img, -1, kernelx)

img\_prewitty = cv2.filter2D(img, -1, kernely)

img\_prewitt = img\_prewittx + img\_prewitty

fig, axes = plt.subplots(4, 2, figsize=(10, 10))

ax = axes.ravel()

ax[0].imshow(img, cmap = 'gray')

ax[0].set\_title("citra input")

ax[1].hist(img.ravel(), bins = 256)

ax[1].set\_title("Histogran Citra Input")

ax[2].imshow(img\_prewittx, cmap = 'gray')

ax[2].set\_title("citra input")

ax[3].hist(img\_prewittx.ravel(), bins = 256)

ax[3].set\_title("Histogran Citra Input")

ax[4].imshow(img\_prewitty, cmap = 'gray')

ax[4].set\_title("citra input")

ax[5].hist(img\_prewitty.ravel(), bins = 256)

ax[5].set\_title("Histogran Citra Input")

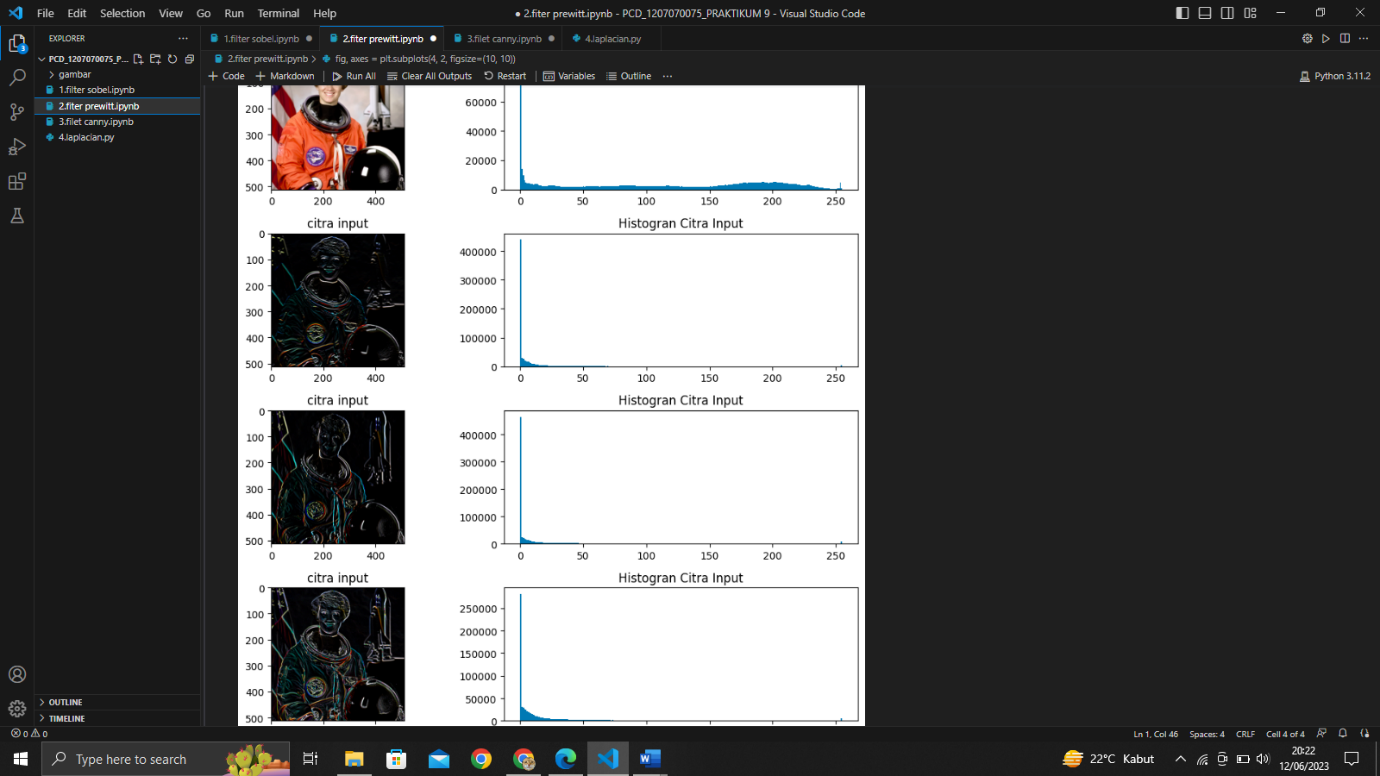
ax[6].imshow(img\_prewitt, cmap = 'gray')

ax[6].set\_title("citra input")

ax[7].hist(img\_prewitt.ravel(), bins = 256)

ax[7].set\_title("Histogran Citra Input")

fig.tight\_layout()



1. filter Canny

import cv2

import numpy as np

from matplotlib import pyplot as plt

from skimage import data

img = data.astronaut()

#canny

img\_canny = cv2.Canny(img,100,200)

fig, axes = plt.subplots(2, 2, figsize=(10, 10))

ax = axes.ravel()

ax[0].imshow(img, cmap = 'gray')

ax[0].set\_title("citra input")

ax[1].hist(img.ravel(), bins = 256)

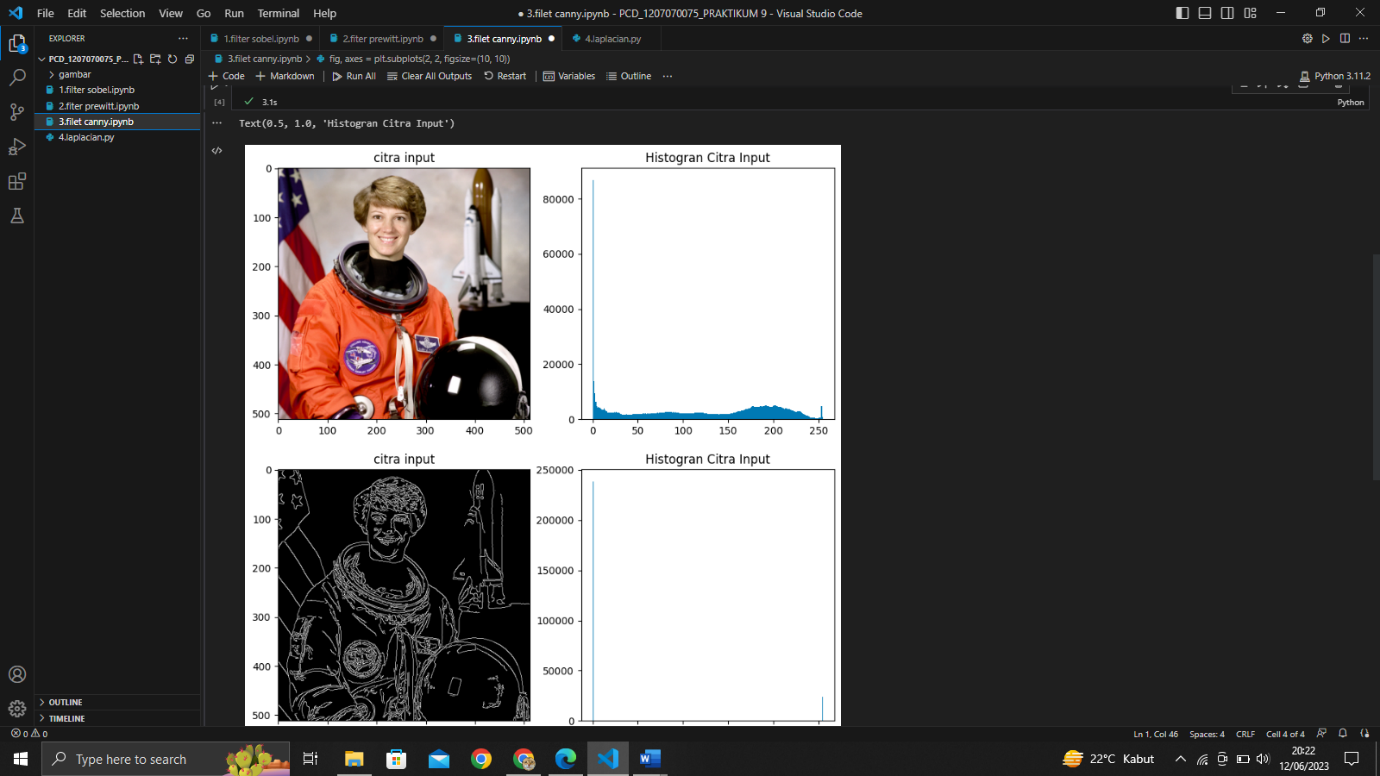
ax[1].set\_title("Histogran Citra Input")

ax[2].imshow(img\_canny, cmap = 'gray')

ax[2].set\_title("citra input")

ax[3].hist(img\_canny.ravel(), bins = 256)

ax[3].set\_title("Histogran Citra Input")



1. filter Laplacian

import cv2

img = cv2.imread('gambar/nicola.jpg', 0)

blur = cv2.GaussianBlur(img, (3, 3), 0)

laplacian = cv2.Laplacian(blur, cv2.CV\_64F)

laplacian = laplacian / laplacian.max()

cv2.imshow('laplacian-gaussian', laplacian)

cv2.waitKey(0)

