

## TUTORIAL PENGGUNAAN OPENCV DAN PYTHON

### Penampil Citra

```
import cv2

citra = cv2.imread('messi.jpg')
cv2.imshow("Program Penampil Citra", citra)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

### Operasi Invers Warna

```
import cv2

cv2.namedWindow("Program Penampil Citra", cv2.WINDOW_AUTOSIZE)
citra = cv2.imread('messi.jpg')
citrahasil = citra
cv2.bitwise_not(citra, citrahasil)
cv2.imshow("Program Penampil Citra", citrahasil)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

### Operasi Modifikasi Warna

```
import cv2
import numpy as np

cv2.namedWindow("Program Penampil Citra", cv2.WINDOW_AUTOSIZE)
citra = cv2.imread('messi.jpg')
citrahasil = citra
color_mask = np.zeros(citra.shape, citra.dtype)
color_mask[:, :] = (100, -50, 20)
cv2.add(citra, color_mask, citrahasil)
cv2.imshow("Program Penampil Citra", citrahasil)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

### Operasi Penghalusan

```
import cv2
import numpy as np

cv2.namedWindow("Program Penampil Citra", cv2.WINDOW_AUTOSIZE)
citra = cv2.imread('messi.jpg')
jendela = 15
sigmaX = 9
sigmaY = 9
citrahasil = cv2.GaussianBlur(citra, (jendela, jendela), sigmaX, sigmaY)
cv2.imshow("Program Penampil Citra", citrahasil)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

### Operasi Konversi Biner dan Keabuan

```
import cv2
import numpy as np
```

```

cv2.namedWindow("Citra Keabuan", cv2.WINDOW_AUTOSIZE)
cv2.namedWindow("Citra Biner", cv2.WINDOW_AUTOSIZE)
citra = cv2.imread('messi.jpg')
citrakeabuan = cv2.cvtColor(citra, cv2.COLOR_BGR2GRAY)
ambang = 127
keabuanmaks = 255
retval, citrabiner = cv2.threshold(citrakeabuan, ambang, keabuanmaks,
cv2.THRESH_BINARY)
cv2.imshow("Citra Keabuan", citrakeabuan)
cv2.imshow("Citra Biner", citrabiner)
cv2.waitKey(0)
cv2.destroyAllWindows()

```

### **Operasi Penggabungan 2 Citra**

```

import cv2
import numpy as np

cv2.namedWindow("Citra Gabungan", cv2.WINDOW_AUTOSIZE)
citra1 = cv2.imread('000319.png')
citra2 = cv2.imread('000320.png')
citrahasil = cv2.addWeighted(citra1, 0.5, citra2, -0.5, 127)
cv2.imshow("Citra Gabungan", citrahasil)
cv2.waitKey(0)
cv2.destroyAllWindows()

```