**교육일지**

**교육 제목 : 비전**

**교육 장소 : YGL C6 강의실**

**교육 일시 : 2021/11/08**

**OpenCV 그리기 함수**

**# cv2.line(img, pt1, pt2, color, thickness = None, lineType = None) -> img**

**# flags**

**# img:그림을 그릴 영상**

**# pt1, pt2: 직선의 시작점, 끝점**

**# color: 직선의 칼라 (B,G,R)의 튜플**

**# thinkness: 선두께**

**# lineType: cv2.LINE\_4, cv2.LINE\_8, cv2.LINE\_AA**

**# cv2.rectangle(img, pt1, pt2, color, thickness = None, lineType = None) -> img**

**# cv2.rectangle(img, rect, color, thickness = None, lineType = None) -> img**

**# rect: 사각형의 위치 정보 (x, y, w, h)**

**# cv2.circle(img, center, radius, color, thickness = None, lineType = None) -> img**

**# center: 원의 중심좌표 (x, y)**

**# radius : 원의 반지름**

**# cv2.polylines(img, pts, isClosed, color, thickness = None, lineType = None) -> img**

**# center: 다각형 점들의 array**

**# isClosed : True for 폐곡선**

**import numpy as np**

**import cv2**

**img = np.full((500, 500, 3), 255, np.uint8)**

**# x, y 좌표순서**

**cv2.line(img, (50, 50), (200, 50), (0, 0, 255), 5)**

**cv2.line(img, (50, 60), (150, 160), (0, 0, 128))**

**cv2.rectangle(img, (50, 200, 150, 100), (0, 255, 0), 2)**

**cv2.rectangle(img, (70, 220), (180, 280), (0, 128, 0), -1)**

**cv2.circle(img, (300, 100), 30, (255, 255, 0), -1, cv2.LINE\_AA)**

**cv2.circle(img, (300, 100), 60, (255, 0, 0), 3, cv2.LINE\_AA)**

**pts = np.array([[250, 200], [300, 200], [350, 300], [250, 300]])**

**cv2.polylines(img, [pts], True, (255, 0, 255), 2)**

**text = 'Hello? OpenCV ' + cv2.\_\_version\_\_**

**cv2.putText(img, text, (50, 350), cv2.FONT\_HERSHEY\_SIMPLEX, 0.8,**

**(0, 0, 255), 1, cv2.LINE\_AA)**

**cv2.imshow("img", img)**

**cv2.waitKey()**

**cv2.destroyAllWindows()**

**카메라 동영상 처리**

**# cv2.VideoCapture(index/filename, apiPreference=None) -> retval**

**# index: camera\_id or filename**

**# apiPreference=None**

**# cv2.VideoCapture.open(index/filename, apiPreference=None) -> retval**

**# retval: True or False**

**# cv2.VideoCapture.read(image=None) -> retval, image**

**# retval : True or False**

**# cv2.VideoCapture.get() -> retval**

**# cv2.Canny(image, threshold1, threshold2)**

**# image:입력영상**

**# threshold1 = low value, threshold2 = high value**

**# 카메라 열기**

**cap = cv2.VideoCapture(0)**

**if not cap.isOpened(): #True or Falose**

**print("Camera open failed!")**

**sys.exit()**

**# 카메라 프레임 크기 출력**

**print('Frame width:', int(cap.get(cv2.CAP\_PROP\_FRAME\_WIDTH)))**

**print('Frame height:', int(cap.get(cv2.CAP\_PROP\_FRAME\_HEIGHT)))**

**# cap.set(cv2.CAP\_PROP\_FRAME\_WIDTH, 320)**

**# cap.set(cv2.CAP\_PROP\_FRAME\_HEIGHT, 240)**

**# 카메라 프레임 처리**

**while True:**

**ret, frame = cap.read()**

**if not ret:**

**break**

**edge = cv2.Canny(frame, 50, 150)**

**# inversed = ~frame # 반전**

**cv2.imshow('frame', frame)**

**cv2.imshow('frame1', edge)**

**# cv2.imshow('inversed', inversed)**

**if cv2.waitKey(10) == 27:**

**break**

**cap.release()**

**cv2.destroyAllWindows()**