파이썬 기반 AI 드론 코딩

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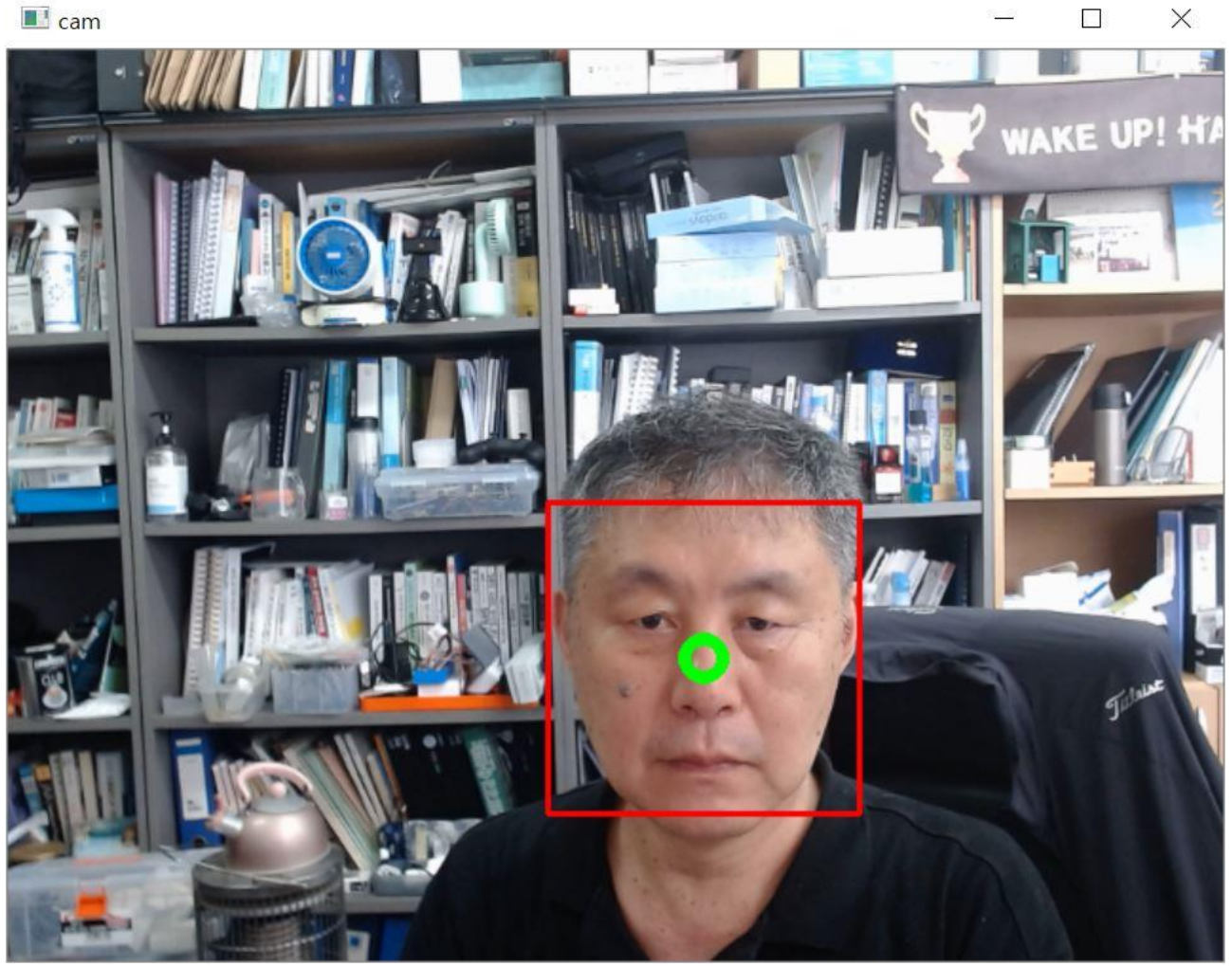
Face Detection AI 알고리즘

- Haar Cascade
  - https://github.com/opencv/opencv/blob/master/data/haarcascades/haarcascade_frontalface_default.xml
- Dlib : HOG + CNN
  - https://github.com/davisking/dlib
- MTCNN
  - https://github.com/ipazc/mtcnn
- OpenCV DNN : Caffe based DNN
  - https://github.com/opencv/opencv/tree/master/samples/dnn/face_detector

Opencv Face Detection



Opencv Face Detection

- pre-training model 다운로드
  - https://github.com/opencv/opencv/blob/master/data/haarcascades
- findFace 01
  - https://github.com/DIT-AI-Drone-Course/SOURCE/blob/main/Day04/findFace01.py
- findFace 02
  - https://github.com/DIT-AI-Drone-Course/SOURCE/blob/main/Day04/FindFace02.py

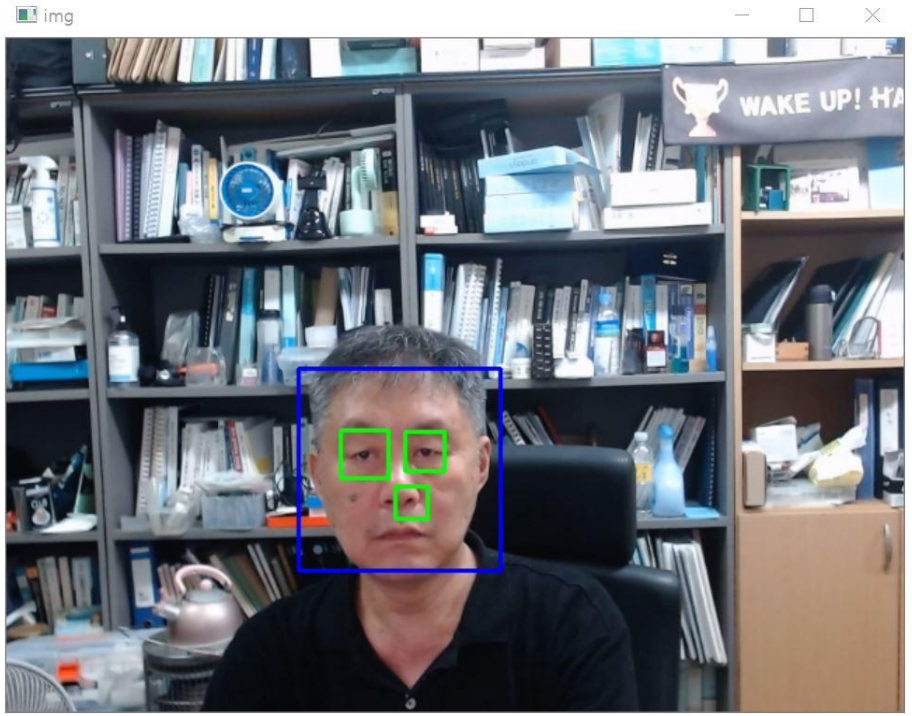
Face Detection & File Save

- VideoWriter()
- 소소 : https://github.com/DIT-AI-Drone-Course/SOURCE/blob/main/Day04/Video_Writer_Test.py

- 실습 01
  - Haar Cascade Face Detection 비디오 스트림을 파일(avi)로 저장하시오.

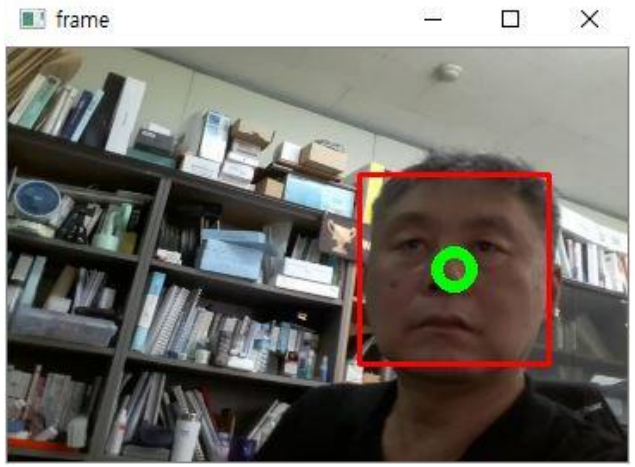
Opencv Face, Eyes Detection

- 이미지 :
  - https://github.com/DIT-AI-Drone-Course/SOURCE/blob/main/Day04/cascade_image_cv.py
- 비디오 :
  - https://github.com/DIT-AI-Drone-Course/SOURCE/blob/main/Day04/cascade_face_eye.py



Tello 드론 Face Detection

- 실습 02
  - Opencv 웹캠 비디오 스트림 소스를 Tello 드론 카메라 소스로 수정하시오.
  - FindFace() 함수 구현



- 소스 코드
  - https://github.com/DIT-AI-Drone-Course/SOURCE/blob/main/Day04/findFaceTello01.py
  - https://github.com/DIT-AI-Drone-Course/SOURCE/blob/main/Day04/findFaceTello02.py

- 실습 03
  - 실습 02를 사용하여 드론 비디오 스트림을 파일(avi)로 저장하시오
    - VideoWriter(), imshow()

구글 MediaPipe

- https://google.github.io/mediapipe/