lab 7 cv.

SURF
BREIF } descriptor Feature
ORB

kp, des

① SURF → . speed up version of (SIFT) → log
. little further and approximited of Box filter
. Convilution with box filter can be easily Calculated with help of integral images
. it can be done in parallel for different scales

Create Surf object ① surf = cv.xfeatures2d.SURF_create(threshold)
find keypoints ② kp = surf.detect(img)
Compute descriptor ③ des = surf.compute(img, kp)
Draw keypoints ④ cv2.drawKeypoints(img, kp, none, color)

Get length of kp → len(kp)
Get length of discriptor → surf.descriptorSize()

② BRIEF (Binory Robust independent elementary features)
detect → star des → briel

. faster method for feature descriptor Calculation, matching
. high recognition rate unless there is large plane rotation
. doesn't provide any method to find the feature
. find features using SIFT, SURF

① create star detector → star = cv2.xfeatures2d.StarDetector_create()
② find key points → kp = star.detect(img, none)
③ inate briel extractor → briel = cv2.xfeatures2d.BriefDescriptorExtractor_create()

④ Compute descriptors → kp, des = briel.Compute(img, kp)

⑤ Draw only key Points cv2.drawKeyPoints(img, kp, none)

kp, desc
↗ detect Compute

detector, descriptor
↗ / /

ORB (oriented Fast and Rotated BRIEF)
efficient alternative to SIFT, Surf
→ in Computation Cost
→ matching performance, mainly patents
ORB is a fusion of (Fast) keypoint detector
(BRIEF) descriptor
with many modification to enhance performance

Create object	ORB = cv2.orb_Create(maxnumfeature)
Find key points	kp = .detect(img)
Compute descript.	des = orb.Compute(img, kp)
Draw keypoints	cv2.drawkeypoint(img, kp, none, Color)