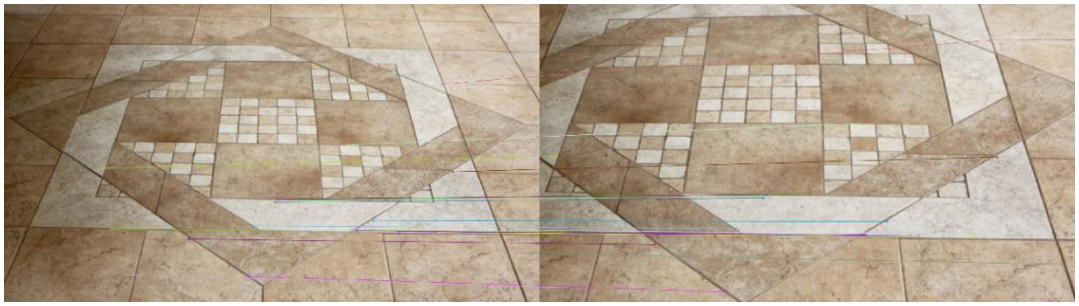
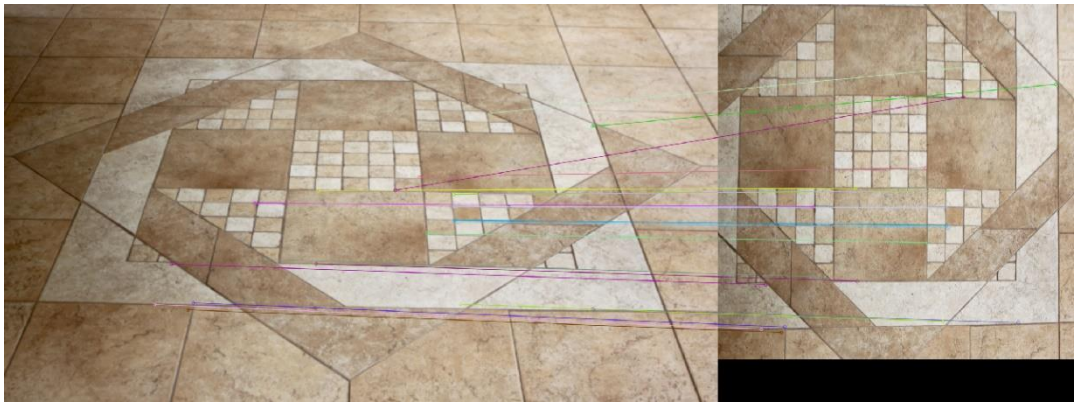
Report

- Problem 1: Homography estimation
  - Screenshots:
    - Sample k correspondences (k = 4, 8, 20 or even more)

DLT	1-0.png to 1-1.png 1-0.png to 1-2.png
k = 4	
k = 8	

	
k = 20	 

NDLT	1-0.png to 1-1.png 1-0.png to 1-2.png
k = 4	

	
k = 8	 
k = 20	

- Compare the errors:
  - DLT vs. normalized DLT
  - Sample k = 4, 8, 20 or even more

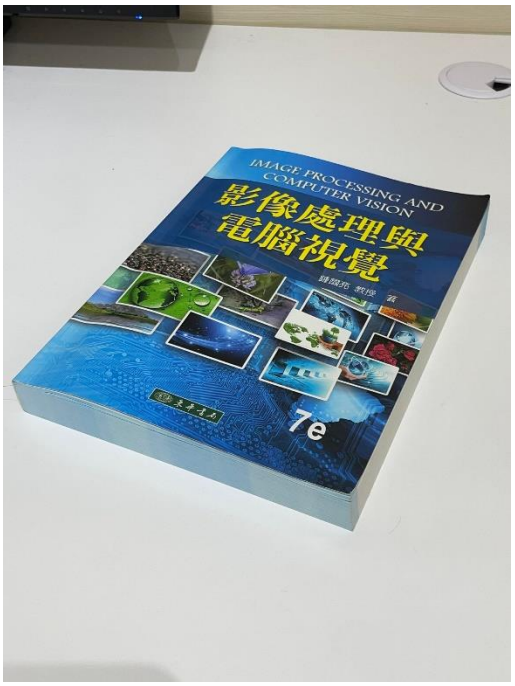
Note : error1 is 1-0.png to 1-1.png, error2 is 1-0.png to 1-2.png

Error table of DLT vs. normalized DLT			
	k = 4	k = 8	k = 20
DLT	error1 = 138.81 error2 = 3687.49	error1 = 1.50 error2 = 4.94	error1 = 0.28 error2 = 1067.47
Normalized DLT	error1 = 138.81 error2 = 3687.49	error1 = 1.43 error2 = 4.81	error1 = 0.27 error2 = 121.95

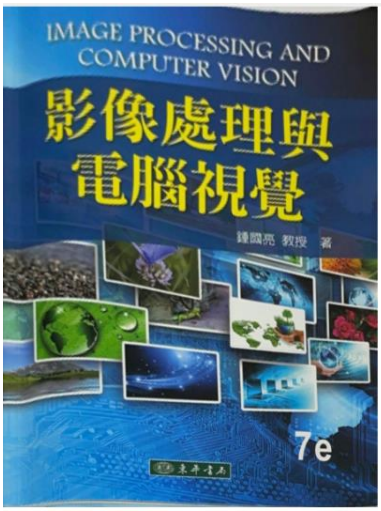
- (Bonus)
  - Your method
  - Screenshot: correspondences of other local features
  - Experimental comparisons
- Discussion

  (interesting finding, difficulties you encountered, insights you observe)
  - k = 20 時的 error2 反而比 k = 8 時還要高，原因可能是沒有正確的去除 outliers，導致計算 error 偏高。

- Problem 2: Document rectification
  - The input document image (must be captured by yourself)



  - Rectified results



  - Briefly explain your method (how you choose the corners, warping efficiency)
    - 我的 Target image 是 450 * 600 的圖片，先用選取的 4 個點與 [[0,0], [449,0], [449,599], [0,599]] 算出 Homography H，再用 H^{-1} 做 backward warping，再將求出的點做 bilinear interpolation 後輸出。

- Please tell us how to execute your codes, including the package used and the environment.
  - Problem 1: enter “python3 1.py [source image path] [target image path] [correspondence path] [k_pairs] [DLT/NDLT]”
  - Problem 2: enter “python3 mouse_click_example.py images/book.jpg”
  - Environment: python 3.9.13, numpy 1.23.1, opencv 4.6.0