NTUST course: Computer Vision and Applications (CI5336701, 2019 Spring)

Homework#2：Using homography to recover the frontal view of a projected image

Date Due：2019. Apr. 1st , PM11:55。

Description

1. Writing a program for reading a JPG image, calculating homography mapping matrix of a projected image and a frontal pattern. (choose your tools, ex. C++/C, openCV, Matlab).
   請撰寫程式讀取圖檔，計算投影影像與正面影像的 homography。(使用您擅長的工具,可用 C/C++, OpenCV, Matlab)
2. In class, you are asked to take a photo of the projector. Please manually define the pixel-region the projected image, and no need to write mouse interface for picking up the points.
   上課時，老師會提供照片供同學拍照。請手動用其他軟體決定框選區域頂點與區域即可，不需要寫滑鼠操作介面點選角點。
3. After you convert the regions, please save it as another file name (named student ID.JPG) and subtract your image by the ground truth image (named student ID.BMP).
   當你將圖片轉換後，請將影像另外儲存成一張照片(用學號.JPG 當名稱)，並將您的照片與標準照片相減(用學號.BMP 當名稱)。
4. In this homework, you can use least-square method, DLT (SVD), openCV function (ex , findHomography), Matlab (all are revealed in class) or any other ALGORITHM to archive this purpose. Note: please do NOT directly use any commercial software for this assignment.
   你可使用上課講的方法，或任何可達到此目的之演算法，但請不要直些使用商用軟體達到該目的。
5. Deliverable: There are three types of data you should provide: 1) Source code in C++/C or Matlab, with simple comment. 2) Execution file (.exe) for this example. 3) One page description saved in ppt, doc, or pdf file format. Please zip all your files, then, upload on moodle by due 4/1 PM11:55.
   請繳交 3 種檔案 1) 程式原始檔，並在內文加簡易註解，2)執行檔，該執行檔可執行老師提供的檔案，3)一頁簡易說明 (以 ppt, doc 或 pdf 儲存)。請將所檔案壓縮，並在期限內 4/1 晚上 PM11:55 前傳到 moodle。

Hint: the snapshot of images in this assignment: