NTUST course: Computer Vision and Applications (CI5336701, 2021 Spring)

Homework#2：Using homography to swap the contents of two photo frames

Date Due：2021. Apr. 12th, PM11:55。

Description

---

1. Writing a program for reading a JPG image, calculating homography mapping matrixes between two photo frames in “ArtGallery.JPG” (shown in bottom), swapping them, and generating a new fake image. (choose your tools, ex. Python, C++/C, Matlab).
2. Please manually define the pixel-region of these photo frames, and no need to write mouse interface for picking up the points. And, manually select at least 4 corresponding point sets for estimating a 3x3 homography matrix.
3. After you swap the regions, please save it as another JPG file (named as ID.JPG).
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 to create the image for this assignment.
5. Deliverable: There are two types of data you should provide: 1) Source code in Python, C++/C or Matlab, with simple comments. And execution file, if you have, (.exe) for this example. 2) One-page description saved in ppt, doc, or pdf file format (statement in either English or Chinese). Please zip all your files, then, upload to moodle by due date of Apr. 12 PM11:55, 2021.

Hint: the snapshot of image in this assignment, (source JPG image will be given)