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

Midterm Project: Stitching images (based on homography)

Date Due：2021. Apr. 26th, PM11:55 (~2 weeks)

Description

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1. Writing a program for stitching images into one big image. You need to import given images then output one “stitched” image. (choose your tools, ex. C++/C, python, openCV, Matlab).
2. Please manually pick-up the corresponding point sets by external software (ex. Photoshop, xnView), and import (or copy & paste) the coordinate values into your source code. You don’t need to write user-interface programs for picking up coordinate values. Please show what points you select for homography estimation in the midterm report document.
3. After you select all corresponding points, you can calculate homography matrixes for any pair images. Then, try to warp image into a NEW big image. As a result, you get the answer. Basically, you do NOT need to deal with the blending issue for overlapping area.
4. Please make any reasonable assumption and strategy for processing the assignment. But, DO NOT use any commercial software or existing algorithm (including third party function, and openCV built-in stitching function) to carry out this assignment.
5. Deliverable: There are three types of data you should provide: 1) Source code in python, C/C++, Matlab, etc. with simple comment, and execution file (.exe) if available. 2) Two-page document report (converted into PDF) to describe how you process images and draw corresponding MARKs on images. 3) One output stitched image. Please zip all your files, and upload to moodle by due 4/26 (Mon.) PM11:55.

SCORE evaluation rule:

1. Successfully stitching 3 images: 70%,
2. Result having good quality and well-written report (English or Chinese is accepted): 30%,
3. Extra score for stitching 4 images and basic blending for overlapping area: 15%.

NOTE: this midterm project will be **25%** of final grade.

- Here is the reference output (for stitching 3 images, 001.JPG, 002.JPG and 003.JPG):

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