Project:

3D Reconstruction

Detail:

Base on OpenCV library, coding in Python. Aiming to build a simple script which can convert 2 photos taken from different angle to a 3D clouds model.

Step:

1. Camera calibration. Get my iPhone 6s camera intrinsic matrix and distortion coefficient.
2. Matching points in two 2D images which are taken by my phone, via the algorithm I learned from Computer Vision class. (maybe via matching the features, or some better way I find later)
3. Image rectification. Estimating the motion of the two images, then calculating its essential matrix so that I can rectify the images.
4. Reconstructing the 3D real world coordinates of the image points. Using the mapping method from Epipolar Geometry.
5. 3D virtualization. Take my output (a .ply or .obj file, hopefully. I’ll try to find a way to manage this) into Meshlab. Then comparing with the same model reconstructed by the other professional software (e.g. Agisoft).