This documentation is a basic tutorial to use meshroom with scripting.

Meshroom version : meshroom 2019.2.0

operating at conda environmet

First of all, the quality of input images are important for output quality. Be careful and **do not shake** the camera. Also a good camera is advised.

After the meshroom setup everything is trivial. You will create some folders and put the related images to one folder and related codes in another folder and change the bat file's inside according the folders names and directory. That is all. Before get into detail, we need to understand the workflow of the meshroom to make everything more meaningful.

The workflow is ordered as follow:

1) CameraInit
2) FeatureExtraction
3) ImageMatching
4) FeatureMatching
5) StructureFromMotion
6) PrepareDenseScene
7) DepthMap
8) DepthMapFilter
9) Meshing
10) MeshFiltering
11) Texturing

This processes are done to obtain textured 3d obj file from images. All the steps can be done from cmd individually with the commands below.

```
Run_00_CameraInit(baseDir,binDir,srcImageDir)
Run_01_FeatureExtraction(baseDir,binDir,numImages)
Run_02_ImageMatching(baseDir,binDir)
Run_03_FeatureMatching(baseDir,binDir)
Run_04_StructureFromMotion(baseDir,binDir)
Run_05_PrepareDenseScene(baseDir,binDir)
Run_07_DepthMap(baseDir,binDir,numImages,3,srcImageDir)
Run_08_DepthMapFilter(baseDir,binDir)
Run_09_Meshing(baseDir,binDir)
Run_10_MeshFiltering(baseDir,binDir)
Run_11_Texturing(baseDir,binDir)
```

However if you do not want to do all steps one by one you need use the run_alicevision.py code. This code take all inputs at once. All the processes done with default parameters. If you want to change parameters, you need to change the run_alicevision.py file. However default parameters are suitable for lots of cases.

The inputs are as follow:

```
baseDir = sys.argv[1]
srcImageDir = sys.argv[2]
binDir = sys.argv[3]
numImages = int(sys.argv[4])
runStep = sys.argv[5]
```

baseDir is the directory that includes run_alicevision.py

srcImageDir i is the output directory

binDir is the directory that includes the input images and the srcImageDir file

numImages is the number of the images in my case it is 14

runStep is which process will done. It can be run01, run02 ... If you want to do all steps in ordered as my workflow you can select runall as runStep.

In my case inside the bat file is that:

```
call conda activate base
pause
python "C:\Users\guner\OneDrive\Documents\cifcif\run_alicevision\run_alicevision.py" "C:\Users\
guner\OneDrive\Documents\cifcif\Copper plastic\trials" "C:\Users\guner\OneDrive\Documents\cifcif\
Copper plastic" "C:\Meshroom-2019.2.0\aliceVision\bin" 14 runall
pause
```

First I need to activate conda environment, then the inputs are writen.

baseDir "C:\Users\guner\OneDrive\Documents\cifcif\run_alicevision\run_alicevision.py"

srcImageDir "C:\Users\guner\OneDrive\Documents\cifcif\Copper plastic\trials"

binDir "C:\Users\guner\OneDrive\Documents\cifcif\Copper plastic"

numImages 14

runStep runall

according to directories above, in cifcif file there are two file Copper plastic and run_alicevision files.

In run_alicevision (baseDir) file there must be the files that can be find run_alicevision.rar in the drive link below. Also, the drive link is in the github page https://github.com/gner007/ME462.
https://drive.google.com/open?id=1nRKS4BpBA7EF8vSR5gmsCcrll_dkPO69

In copper plastic file there is a file named as trials (srcImageDir). **This file must be empty before the bat file is started.** Moreover, in copper plastic file (binDir) there must be the images and the output directory (srcImageDir) (trials for this case).

After all, the bat file must be changed according the number of images and folder names and directories. That is all. If there will be problems during 3d reconstruction, restarting the computer is advised. After restarting delete the files in srcImageDir and start bat file again.

Bat file can be found in github page. Name is run.bat.