Masters CIMET/3DMT/MLDM - 2018	Practical Exercise II (Camera Calibration)	Due date: 9 March 2018

Description:

The objective of this exercise session is to learn and perform camera calibration using MATLAB and CalTech calibration toolboxes.
As a part of this lab session you will do the following task sequentially:

- Learn the basic usage of a famous camera calibration toolboxes.
- Calibrate single camera using the toolbox.
- Calibrate a stereo system the toolbox.

Toolbox:

Follow the link below in order to download and learn the usage of "CalTech" camera calibration toolbox.
http://www.vision.caltech.edu/bouguetj/calib_doc/

Data:

Besides CalTech Images, other images are obtained from the stereo system of our lab. A set of 51 images are given. However, you can consider reduced number (at least 20) of images from them (in such case make sure that you have selected consistent pair of images for both cameras) to perform the tasks of this lab.

Instructions:

In order to accomplish the goal of this lab session you have to follow two examples from the link:
1. First calibration example - Corner extraction, calibration, additional tools
2. Fifth calibration example - Calibrating a stereo system, stereo image rectification and 3D stereo triangulation

Task 1: Learn the usage of the calibration toolbox. Detail instructions are given in the corresponding links. For the purpose of learning, you can either use the data from the links or use the images given for this lab.
Task 2: Calibrate single camera (first example).
Task 3: Calibrate the stereo system (fifth example).

Report:

In your report you must provide the details of the calibration results that you obtained from the experiments. Note that your report should provide enough details which reflects the knowledge that you obtained from such experiments. You are encouraged to study the external references mentioned in the web-link.