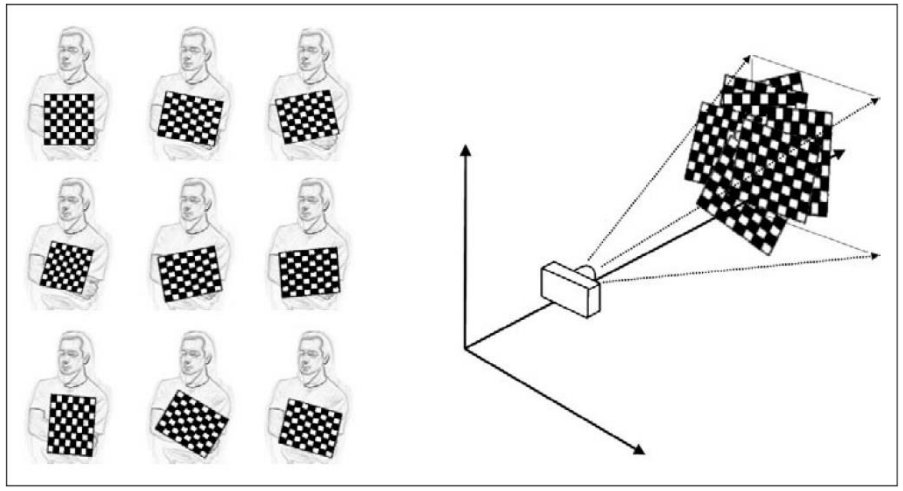
Homework 1

Assignment

- In this assignment, you will practice how to implement camera calibration.
- For implement details, please refer to the slides *02-camera p.76-80.*
- We will provide an example code, you need to revise it by your calibration function.
- *DO NOT* use the cv2.calibrateCamera or other calibration functions, you need to implement it from scratch.



Assignment

- In example code (camera_calibration.py), the code of loading data is provided.
  - ✓ command: python camera_calibration.py
- Camera calibration:
  - ✓ First, figure out the Hi of each images.
  - ✓ Use Hi to find B, and calculate intrinsic matrix K from B by using Cholesky factorization.
  - ✓ Then, get extrinsic matrix [R|t] for each images by K and H (p.79).
- After you find out the intrinsic matrix and extrinsic matrixes, plot it like p.86 result.
  - ✓ plot code is given, you only need to feed the data in.
- For mathematic details, please refer to slides *02-camera p.76-80*.

Assignment

- Two types of data you should try:
  - ✓ images we provided in data folder
  - ✓ images captured by your smart phone
    - We have provided the chessboard image, print it out and take photo with it.
    - NOTICE that you should close the AF(auto focus) function of your camera, and set a fix focus.
    - If you don’t know how to fix focus of your camera, please google it or ask TAs,

Assignment

- Deadline: 2019/3/26 23:55:00 pm
- Hand in your report and code on New E3.
- The report should include:
  - ✓ your introduction
  - ✓ implementation procedure
  - ✓ experimental result (of course you should also try your own images)
  - ✓ discussion
  - ✓ conclusion
  - ✓ work assignment plan between team members.
- If you have any problems, please e-mail to TAs.