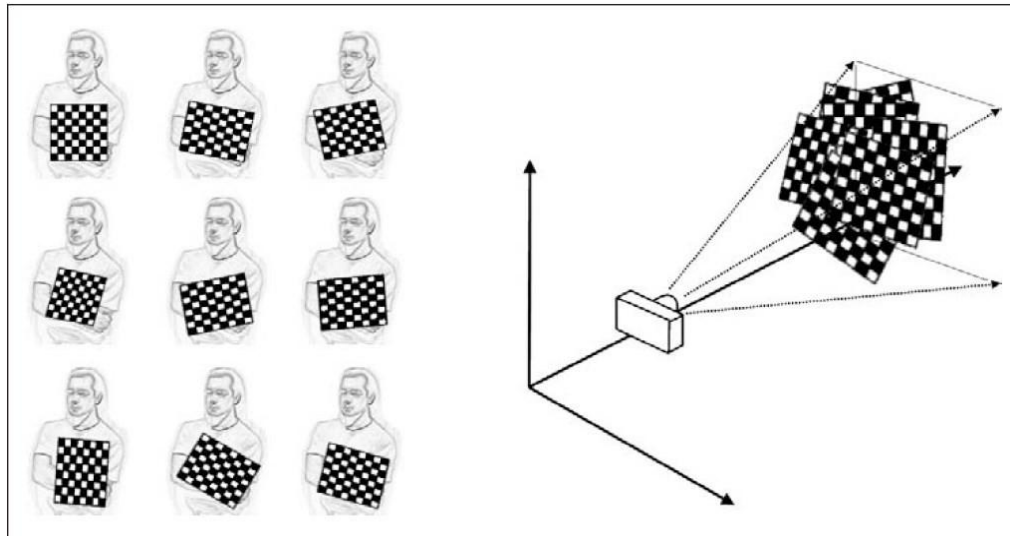


Homework 1

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 H_i of each images.
 - ✓ Use H_i 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, 80).
- 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 smartphone
 - 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: 2021/3/22 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 email to TAs.