Project 2 guidelines- Augmented reality (AR)

In this project you are going to built an AR application.

This project will conclude the second part of the course, tackling the topics of:

- Transformation
- Camera calibration
- Feature detection

Part 1: perspective warping

1. Choose a good "feature-full" image that you can track- this is your reference image to find the features and track them.
2. Print out the image and make a video of it on a planar surface while moving around the image- rotation, translation and scale changes relatively to the image will make a good movie.
3. follow the comments in `perspective_warping_empty.py` to complete this part.

Part 2: planer AR

1. Calibrate your camera from before with a printed chessboard (follow our calibration notebook). you will need `K` and `dist_coeffs` for this part.
2. copy and paste your finished part 1- only the warping lines are replaced with other lines- follow the comments in `planar_AR_empty.py` to complete this part.
3. Part 2 is HARDER and is worth only 20 points (this means that part 1 is 80).
4. Once you finish rendering the cube you can try render more elaborate 3D objects like the drill (function and drill files are attached- notice you will have to do some `pip install`s). This is for bonus points (try render something cooler if you can!).

submission guidelines:

1. Groups of up to 2 people.
2. Please add to the PDF some explanations. Maybe some debug outputs you have (images or data that is relevant).
3. Results expected in a .zip file with the name ``PROJ2_NAME1_ID1_NAME2_ID2.zip` with content of:

- A detailed summary of the work done and assumptions made. Where does your algorithm succeed and where it failed?
- Code in .py files
- The output videos in a reasonable format.

3. Submission is due 3 weeks from the last class.

Good luck!

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