Final project (100 points)

- First, form your groups of 4 people each. Since there are a total of 35 students, there will be one group which will have 3 people. In total, there will be 9 groups. List the group members on this link. I highly recommend doing this by September 26th.
- Once the group is formed, decide among yourselves the problem that you would want to work on. Before beginning to work on it, get it approved by me via a 1-page informal proposal. Do not spend too much time making the proposal fancy – just explain what you wish to do with the aid of any figure/equation(s) you deem fit. The proposal itself won't affect your score but is just a step that you need to pass to make sure you are working on something reasonable.
    1. Get the proposal approved during the weeks of Oct 6th – Oct 17th. You can either send the proposal via email (listing the group members) or through office hours. You should ideally send the first proposal early so that I can suggest changes to it if needed, and you can revise it and get approved before Oct 17th.
    2. Since this final project on computer vision will likely involve the topics that are being covered in this course, it is understandable if you wish to know all the topics that are yet to be covered before finalizing what you wish to work on. Please look at the slides of Lecture 1 to get an idea of what will be covered in the remaining months. I will also make sure to briefly talk about those topics in the week of Sept 29th – Oct 3rd. This should give you sufficient time to think about the problem statement and get it approved by mid-October.
- The overarching goal is to choose a task and create a solution that makes use of some computer vision algorithm(s) to obtain information from images or videos. Each group will need to deliver three things.
    1. [40 points] A 15-minute class presentation during the week of Dec 1st – Dec 5th.
        - 7-8 minutes presentation of what the problem statement is; what you tried; what worked (including its theory); what did not work; what are the limitations etc.
        - 4-5 minutes of live demo of your final application, showing how exactly the system operates.
        - Total time for presentation is 12 minutes which will be strictly enforced. Practice the presentation well so that you can communicate all your work and creativity effectively within the allocated time. Failing to do that will lead to points deduction.
        - 3 minutes of Q&A.
    2. [40 points] A detailed 5–6-page report explaining the same things (of class presentation) in much more detail. I will communicate more details about what all should be there in the report sometime in October. This report will be due on Dec 5th.
    3. [20 points] A zipped file containing all the code and other dependencies needed to run the final application. This will also be due on Dec 5th.
- Restriction: If you decide to work on a project involving machine learning (which will begin in the class from October), you cannot you publicly available "data AND

annotations". You must either collect your own data or create new annotations for existing data. You will not be evaluated on the volume of data used for training and testing.

- Important note: You need to demonstrate that your group has actually put in 30-40 days of work in the project. If your final product could have been produced by simply working in the last week, or worse, last few days, then that will heavily penalize your group's score. Ideally, the way to demonstrate that you have put in true work into the project will be to (i) start from a non-trivial problem statement in the beginning, something that cannot be done in two days of coding by 4 people; (ii) show a history of all that you tried; demonstrate with figures what did not work (failure cases); a sequence of attempts which lead to your final product; (iii) honestly and meticulously studying through different experiments (documented in the project report) the intermediate/final algorithm to see why it works the way it works, and why exactly it doesn't work in some other cases.
- We are not necessarily looking for you to solve a difficult problem completely, but we are looking to see the effort and (hopefully) a creative attempt.
- Note also that not all group members are guaranteed to receive the same scores. If we suspect one/more of the members did not do much, we will seek further clarification and grade accordingly.
- Be creative in what your group is trying to accomplish. And if you are genuinely trying to do things that way, all the above rules will matter less to you.