Final Project Options - Advanced Image Processing

1) Choose one recent paper, study it and identify some limitations. Come up with a novel idea to overcome that limitation.
   a) You should give a clear intuition or some analysis as to why you think this extension can overcome the limitation.
   b) Perform experiments to verify whether the new method is working. If the method does not work as desired, analyze why it is not working.
   c) Your report should contain a brief description of both algorithms in your own words along with results of experiments and a discussion on the performances and reasoning.

2) Choose one recent paper and an extension of the chosen paper.
   a) Understand and analyze why the extension should give superior results as compared to the baseline paper. You should come up with some new analysis of the improvement, which is not there in either paper based on your understanding.
   b) Perform experiments to compare the two approaches and analyze when the improvements always occur.
   c) Your report should contain a brief description of both algorithms in your own words along with results of experiments and a discussion on the performances and reasoning.

3) Android app development
   a) Implement an image processing algorithm for object detection/recognition or image quality enhancement and demonstrate its working on an Android phone in real time. Resources for developing apps are available at http://web.stanford.edu/class/ee368/Android/index.html. You cannot demonstrate any of the applications already available there. You need to develop your own image processing algorithm from scratch. You may use any openCV or similar libraries for basic functionalities.
   b) You will not receive any formal assistance in the development of the application.
   c) Your report should contain a brief description of the algorithm in your own words along with the various difficulties faced while building the Android application.

Note:
1) All papers chosen in options 1 and 2 should have been published within the last 10 years.
2) Algorithms chosen in option 3 should be reasonably sophisticated and cannot be very simple linear filters.
3) Students need to email their choices of algorithms for all three options by March 31, 2017 and get their choices vetted by the course instructors.
4) The report should be limited to 10 pages, although it is not necessary that you write 10 pages! The objective of the report is present all your observations concisely and clearly.
5) The due date for submission of project report and supporting code is April 23, 2017.