Project

COMPENG 4TN4

March 1, 2022

1 Outline

- You can use ANY package as long as it does not do your proposed method in one line or as a function!
- The main approach MUST contain at least three stages (Preprocessing, Feature Extraction, Classifier (Regressor)
- Second approach can be implemented by Deep Learning or considerable change in Feature extraction or any other blocks of your main approach
- PLEASE DO NOT COPY THE CODES FROM websites (e.g. kaggle, github, $\cdots$). You can use their codes/methods for comparison purposes
- try to include all the middle outputs of your approach in the report (preprocessing module output, keypoints/patches, output for some images, some misclassified images)
- If your task is recognition, it is necessary to put confusion matrix in your report for the test data
- if you can try to use a real time output video, for example if your project is gesture recognition, test it with a 10 sec video of yourself.

2 Grading

- Novelty of the approach and topic (if you are implementing a current paper or approach try to choose an interesting topic/paper to implement, for example the face detection is a very well known problem and maybe there is not much novelty in it, however there are some recent papers that have interesting ideas (for example novel feature extraction) for this task)
- Implementation
- Report (Abstract, Introduction + Related Work, Proposed Method, Experimental Results, Conclusion), It should be at least 4 pages and no more than 10. The format of report MUST follow CVPR 2022 latex template. OTHERWISE the mark for the report will be 0.
- Presenting the method in (maximum 12 slides). Presenting will be online.
- Implementing second method and adding comparison to other papers have extra points

3 Some suggestions

1. Action recognition

2. Emotion recognition
3. Gesture recognition
4. Line segmentation in handwritten documents
5. License Plate Recognition
6. Artistic Style Transfer
7. Ball tracking in a football game
8. Book Cover Recognition
9. Skin disease detection using image processing
10. COVID 19 detection on CT images
11. Real-Time Sign Language Recognition
12. Language Recognition in a printed document
13. Seniors Fall Detection
14. 3D reconstruction of a scene
15. Content-aware seam carving
16. Detection of Hand Position and Orientation
17. Single Image Reflection Removal
18. Image Demoiring
19. Image Denoising
20. Image Super Resolution ($\times 2$ or $\times 4$)

You are not limited to these topics! solve a problem that you care about! Some other interesting topics can be found in https://web.stanford.edu/class/ee368/index.html.