	Project Title	Short description	Link to paper/resource	Additional Comments	Team name	Member 1	Member 2	Member 3
1	Headshot portrait style transfer	Transfer the style of a headshot portrait onto another content headshot image.	https://people.csail.mit.edu/yichangshih/portrait_web/2014_portrait.pdf	No need to implement the algorithm for videos				
2	Seam carving for content aware image resizing	Dynamically change image dimensions by removing data the is of lesser importance. Compute least energy seams and remove them from the image to reduce the image size effectively.	https://inst.eecs.berkeley.edu/~cs194-26/fa16/hw/proj4-seamcarving/imret.pdf	Image size reduction as well as enlargement of existing images using seams. A simple UI where the user can specify important regions that should not be removed during resizing.				
3	Local warp and cross dissolve	Given two images perform a warp based cross dissolve where each frame is an interpolation over the warped images. Gives rise to clips which are a lot more realistic compared to direct cross dissolve.	http://www.seas.upenn.edu/~cse399b/Lectures/CSE399b-08-morphing.pdf	Create a short video clip showing the transformation from the first image to the second. Gather some failed results as well for the method				
4	Sketch based image retrieval	Given a sketch as an input gather the closest matching images from the database of images.	http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7546593	Try extend feature representations by adding your own features. Perform extensive data augmentation on existing datasets like TUBerlin, Sketchy to ensure you have a large enough varied dataset for retrieval feature computation and testing or use the Google Draw dataset which is large enough and would work for all practical purposes. If possible extend to sketch based sketch retrieval.				
5	Image Replacement through Texture Synthesis	Remove parts of images by replacing them with the best possible background match	http://graphics.stanford.edu/papers/texture_replace/texture_replace.pdf	Provide multiple success and failure examples explaining why the method fails for some examples				
6	Friend Blend	Given two images where people are placed at different locations on the same background, merge them together so they both appear in the same image	https://web.stanford.edu/class/ee368/Project_Spring_1415/Reports/Chen_Zeng.pdf	Extension to a short video sequence where people are far apart so that they can be blended using alpha blending. Give examples of yourselves				
7	Generating High Dynamic Range Images	HDR imaging - generating images with a greater range of luminance levels than which can be achieved by taking only a single photograph with a fixed exposure.It should also use Photographic Tone Reproduction and Gradient Domain High Dynamic Range Compression. Relevant papers should be referred for the same.	https://inst.eecs.berkeley.edu/~cs194-26/fa16/Papers/debevec97.pdf	This should be exciting and fun for people interested and involved with photography.				
8	Flash/no-flash image pairs for denoising and deblurring.	An iterative improvement of the guided image filter for flash/no-flash photography.	http://hhoppe.com/flash.pdf					
9	Super-resolution from a single image	The goal of Super-Resolution (SR) methods is to recover a high resolution image fror	http://ieeexplore.ieee.org/document/5459271/					
10	Latex Generation from Printed Equations	The goal of the project would be to convert images of a document taken by the user into latex source code. This would involve 3 things - page optimization, character recognition and Latex compilation. Main part of the project would be dealing with page optimization part - which would involve Binarization, skew correction, segmentation, etc. Then would come recognition which would involve some machine learning part and feature extraction.	http://www.sci.utah.edu/~gerig/CS7960-S2010/handouts/Hu.pdf, http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=6738973	The coversion part from the extrated characters of the document to the latex code can be left. Main part of the project would involve the image processing and machine learning.				
11	Fast Directional Chamfer Matching	The Chamfer System offers a high-performance solution to shape-based object detection. It covers the detection of arbitrary-shaped objects, whether parametrized (e.g. rectangles and ellipses) or not (e.g. pedestrian outlines).	https://www.umiacs.umd.edu/users/vashok/MyPapers/HighlySelectiveConf2010/liu_cvpr2010.pdf	Note - Code maybe available. Try several experiments on your own images and test cases.Donot use any libraries for doing the same.				
12	Automatic Estimation and Removal of Noise from a Single Image	One goal in image restoration is to remove the noise from the image in such a way that the "original" image is discernible.	http://ieeexplore.ieee.org/document/4359321/	If the algorithm works fast enough can maybe try realtime denoising videos. Again no use of pre-exisiting libraries is allowed.				
13	Face Detection in Color Images	Human face detection plays an important role in applications such as video surveillance, human computer interface, face recognition, and face image databasemanagement. The proposed face detection algorithm for color images in the presence of varying lighting conditions as well as complex backgrounds.	http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=1000242					
14	Spectral remapping for image downscaling	An image downscaling technique capable of appropriately repre-senting high-frequency structured patterns. Method uses Fourier theory and Gabor analysis.	http://dl.acm.org/citation.cfm?id=3073670	It is interesting but may be mathematically challenging.				
15	Structure-preserving image smoothing via region covariances	Simple image smoothing approach which depends on covariance matrices of simple image features (regions).	http://web.cs.hacettepe.edu.tr/~erkut/publications/RegCovSmoothing.pdf					
16	Content aware image downscaling	The paper deals with preservation of color/edges/details of an image by gaussian kernels over space and color.	http://dl.acm.org/citation.cfm?id=2508370					
17	Optimizing Color Consistency in Photo Collections	The paper presents a consistent editing of photos in an album given they share common content. The output shall have comon content in photos having a similar appearance.	http://www.cs.huji.ac.il/~yoavhacohen/color-consistency/color-consistency-light.pdf					
18	Palette-Based Image Recoloring UsingColor Decomposition Optimization	The paper provides a method to get a compact color palette from an inout image. The method also deals with recoloring the image with a modified palette.	http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7859399					
19	Manga Colorization	Performs image coloring on black and white images to color regions based on similar pattern and intensity continuity.	http://dl.acm.org/citation.cfm?id=1142017					
20	Removing Camera Shake froma Single Photograph	The paper deals with image restoration from camera blurred images. The method uses stochastic methods on image degradation model to achieve this.	https://cs.nyu.edu/~fergus/papers/deblur_fergus.pdf	The paper is a baseline to understand the concept and expected results. One may implement any other method of similar difficulty level.				
21	Image Enhancement using color transfer	Given an input photograph, the model automatically generates a set of images with stylized skies.		Interesting application of color transfer. You are free to implement any other color transfer papers that are challenging enough to qualify as a project.				
22	Segmentation of color image using adaptive thresholding and mas	Image segmentation is the process of dividing an image into multiple parts. This is ty	http://ieeexplore.ieee.org/xpls/icp.jsp?arnumber=6572557					
23	Saliency Filters: Contrast Based Filtering for Salient Region Detec	Saliency detection is basically finding out what stands out in an image. In the project, a saliency measure derived from element contrast produces a pixel-ac which uniformly covers the objects of interest and consistently separates foreground a	http://www.philkr.net/papers/2012-06-01-cvpr/2012-06-01-cvpr.pdf					
24	Image InPainting	Reconstruction of small missing and damaged portions of images	http://www.inf.ufrgs.br/~oliveira/pubs_files/inpainting.pdf					
25	Image colorization using similar images	Example-based method to colorize a gray image. As input, the user supplies a reference color image which is semantically similar to th Features are extracted from these images at the resolution of superpixels, and these features are then used to guide the colorization process.	http://dl.acm.org/citation.cfm?id=2393402					

26	Pose Detection	Pose estimation using region or contour description.	http://cs.brown.edu/~ls/Publications/SigalEncyclopediaCVdraft.pdf					
27	Poisson Image Editing	Image editing technique for changing the appearence of the image	Poisson Image Editing					
28	Fast Panorama Stitching for High-Quality Panoramic Images on Mobile Phones	Method for stiching images	panaroma					
29	Depth-Map Generation by Image Classification	Generaitng a depth map from a single rgb image	DepthMap	It's will be interesting to work and know about depth maps as it is trending these days.				
30	Reflection Removal using Ghosting cues	Removing the reflections on the image when they are taken through double pane glass windows	Reflection Removal	It's a computational phography related project,will get to know about some good algotihms				
31	Simultaneous Structure and Texture Image Inpainting	Fillling the parts which are missing in an image	Imageinpainting					
32	Layered depth panaroma	A technique for representing layered representation from a sparse set of images taken with a hand-held camera	layered depth panaroma					