

CS 663 Course Project Proposal

Course project topic among list given by sir-

25. Let's say you urgently wanted to scan a document and send it out over email, but don't have access to a scanner. You can use your mobile phone to take pictures of the document, but if the document is large in size, any one picture might be insufficient to cover the entire document. In such a case, you will need to align the different images you clicked, and blend them to create a meaningful collage. You will also want the image to not be crooked but aligned with the horizontal and vertical axes. This is yet another fun application of image warping. See a sample project from Stanford [here](#).

Names-

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Paper name- Mobile Page Scanner.

(Link - https://stacks.stanford.edu/file/druid:bf950qp8995/Badlani_Akinola_Li.pdf)

We will use the photos we click ourself to test our image processing algorithm too.

We will implement the algorithms mentioned in the research paper, as given there.

We are also planning to implement machine learning in our project, for which we will use the dataset from -

https://www.kaggle.com/arnaud58/landscape-pictures?select=00000001_%285%29.jpg

For scenery images.

We will implement the algorithm of Image stitching mentioned in the research project. But that won't give a faithful reconstruction of the image every time.

Hence, we are planning to include a GAN ML model which takes the stitched image (as outputs from the image processing algorithm we implement from the paper) as inputs, original image as ground truths and tries to minimize the error created due to joining of the images.

Thus our algorithm will be, to take an image from the dataset. Cut it up to create multiple overlapping images.

Then we will use our image processing algorithm to stitch them together and process it. Then we will apply an ML model to fine-tune the stitched image to make it closest to the original dataset image.

To evaluate the effectiveness of our purely non machine learning based image processing algorithm to stick together the large image, we will evaluate that using metrics like mse with the original image from our dataset which we cut up, and fed to the ML algorithm.

We are thinking of verifying our machine learning model by metrics like reconstruction error metric, and f1 score.

We will also verify the final images by looking at them.

Hence these are the algorithms that we will try to implement in our project.

