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# Project Report



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on Computer Vision

## **Title: Photo “Uncrop”**

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## Overview

The aim of the project is to extend the field of view of a photo - *Uncrop*. Given a reference photograph to be uncropped, the approach selects, reprojects, and composites a subset of internet imagery taken near the reference into a larger image around of the reference using the underlying scene geometry. The proposed MRF based approach is capable of handling large photo collection with arbitrary viewpoints, dramatic appearance variation, and complicated scene layout.

## Specifications

Some concepts involved are structure from motion (SfM), Markov random field (MRF), Poisson Blending etc. Cost functions for MRF are mentioned in the slides.

## Results

- **Original Image**



- Above is MRF Labelling after 2 iterations.

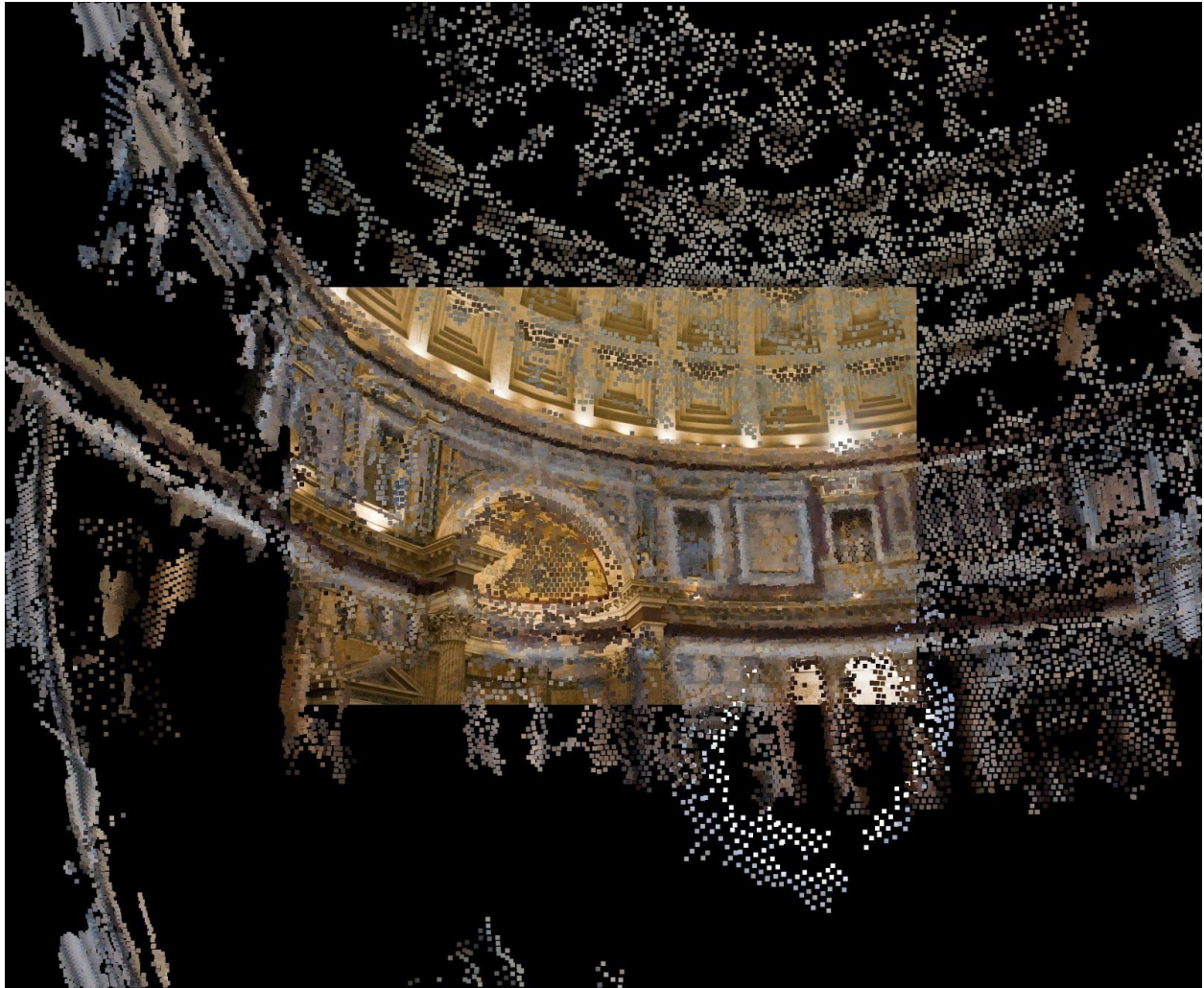


- Above is MRF Labelling after 10 iterations.





- **3-D Reconstruction**







## Observation

For a general image with high resolution, it becomes very difficult to apply max-flow on it in less time (mainly due to resource constraint). In our experiment, we tried to apply the methods described in the research paper, after downscaling the image.

The results, however, were good. We show two images above, for comparison and understanding how the algorithm goes about incorporating the labels for each pixel using MRF. We have also included screenshots of our observations for 3-D scene reconstruction.

## Conclusion

The method mentioned in the research paper, indeed presents really good results. In spite of it not performing that well in case where there is huge lighting difference in source image and one of the label images, we can safely conclude that this seems to perform well to great extent for generalized cases.