Scene reconstruction and depth map / wireframe from arbitrary stereo/pan-video

Computer Vision (CS6350)
TPA - 5

1 Problem Statement

The purpose of this project is to develop algorithms capable of three-dimensional Scene Reconstruction from a pan-video or Stereo Images. The basic steps in the reconstruction process are : predicting the depth map (disparity map), estimating depth of (visually) salient landmarks, tessellation to create a wireframe representation and finally rendering (preferably use OpenGL) with pseudo-color or pixels from an image. Depending on the model used, alternative methods can be adopted.

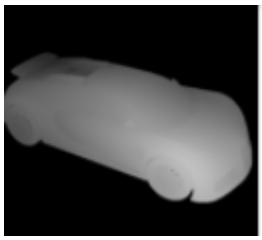
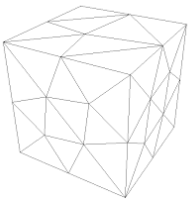
2 Input

- **A pair of stereo Images / Sequences of Images from Pan Video**



3 Output

- **Depth Map, Wireframe, Rendered 3D scene with novel views**


Depth -Map

Wireframe

Rendered 3-d object

4 Datasets

- KITTI stereo Dataset

  link -http://www.cvlibs.net/datasets/kitti/eval_object.php?obj_benchmark=3d

- Pan-videos downloaded from the web
  For e.g. https://www.youtube.com/watch?v=eBL6vu9NQtw

- Any other standard stereo dataset.

Caution/Warning: Reconstruction from pan-video may be considered more challenging than from arbitrary (not perfect) stereo; the former may get you more marks**.**

References

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