

Glyph Detection for Augmented Reality

List of References

Calibrating the camera - We use a chess board to calibrate the camera. We need intrinsic parameters of webcam to find correspondence between 3D object and the 2D image plane. We took help from this official OpenCV tutorials http://opencv-python-tutroals.readthedocs.io/en/latest/py_tutorials/py_calib3d/py_calibration/py_calibration.html

Before projecting real 3D objects onto our background renderer we used the following

Pose Estimation :

http://opencv-python-tutroals.readthedocs.io/en/latest/py_tutorials/py_calib3d/py_pose/py_pose.html

OpenCV Camera Calibration and pose estimation using python:

<https://rdmilligan.wordpress.com/2015/06/28/opencv-camera-calibration-and-pose-estimation-using-python/>

Getting the view angle, object placement center and the extrinsics to the object <https://stackoverflow.com/questions/25539898/how-to-apply-the-camera-pose-transformation-computed-using-epnp-to-the-vtk-camera>

Our approach to glyph detection part (2D) is heavily motivated from this blogpost and several others like these

<https://rdmilligan.wordpress.com/2015/07/19/glyph-recognition-using-opencv-and-python/>

Several Youtube Videos

Algorithms for glyph detections

<https://rdmilligan.wordpress.com/2015/07/19/glyph-recognition-using-opencv-and-python/>

Our References for VTK

Understanding about renderers, actors and others:

<https://www.vtk.org/Wiki/VTK/Examples/Cxx/Images/BackgroundImage>

