Utility Functions

1. *match_features()*
   Using the feature matching that was implemented in one of the course homeworks, we matched our sift features, maintaining the 0.7 ratio test.

2. *resize_ImageSet()*
   Resizes the images to make the feature extraction and matching less computationally intensive.

3. *SIFT_Extraction()*
   Uses SIFT to extract relevant features from an image pair.

4. *camera_metric_cal()*
   Using singular-value-decomposition we recover the camera pose.

5. *triangulation()*
   Triangulates the 3D points from matched 2-D features using triangulatePoints().

6. *pixel_value_points()*
   Obtains RGB values for corresponding 3D points.

7. *PnP():*
   Uses OpenCV's solvePnPRansac() to compute the next camera's pose and return inliers that correspond to the camera matrix found.

8. *common_points():*
   Finds common features that have been matched across three images to be fed into PnP.

Following the pipeline mentioned in the report, a base reference of 3D points is calculated across the first two images, before moving on to triangulating points across all image pairs sequentially to obtain *X ('x,y,z' coords),* our final 3D reconstruction.