Frustum PointNets for 3D obj detection from RGB-D data

Summary

1. The task of 3D object detection :
   - classify object category.
   - estimate oriented 3D bounding boxes of physical objects.

   from 3D sensor data.

2. The main challenge the paper tackles is how to efficiently propose possible locations of 3D objects in 3D space.

3. This is hard because the comp. complexity of 3D search grows cubically wrt resolution.

4. They reduce the search space by using 2D obj detector.

5. Given a RGB image, they extract the 3D bounding frustum of an object by extruding 2D bounding boxes from image detectors.

6. Then, within the 3D frustum, they perform 3D obj. instance segmentation and amodal 3D bounding box regression.