An Improved CenterNet for Detecting Bags for Robot

1. Introduction

In

1. The algorithm

A six-axis robot with a vacuum suction cup mounted on the end of the arm is used to pick up the bags. An RGB depth camera hanging above the robot is used to observe the whole 堆料区, and an objects detecting algorithm need be developed to locate the bags. For robot picking up bags, it is more

1. The center of the bags, such that the robot can put the
2. The direction of the bags

A number of objects detecting algorithms have been proposed and applied both in theory and in applications. Among them YOLOs are the most widely used so far, which detect the objects and mark them with various boxes. As bags lie in various directions, their center may not coincide with that of the boxes accurately.

Moreover, the direction of the bags cannot be detected directly by an YOLO algorithm.

1. Related works

Among one-stage object detecting algorithms, YOLO is so far the most popular both in theory and application. An YOLO algorithm typically surround detected objects by anchor boxes. As bags lie in various directions, the center of the boxes may not coincide with that of the bags accurately. Moreover the direction of the bags cannot be determined directly by YOLO. A simple improvement is to add angle regression in the algorithm. However…

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