Grasp Pose Detection Package – Tutorial

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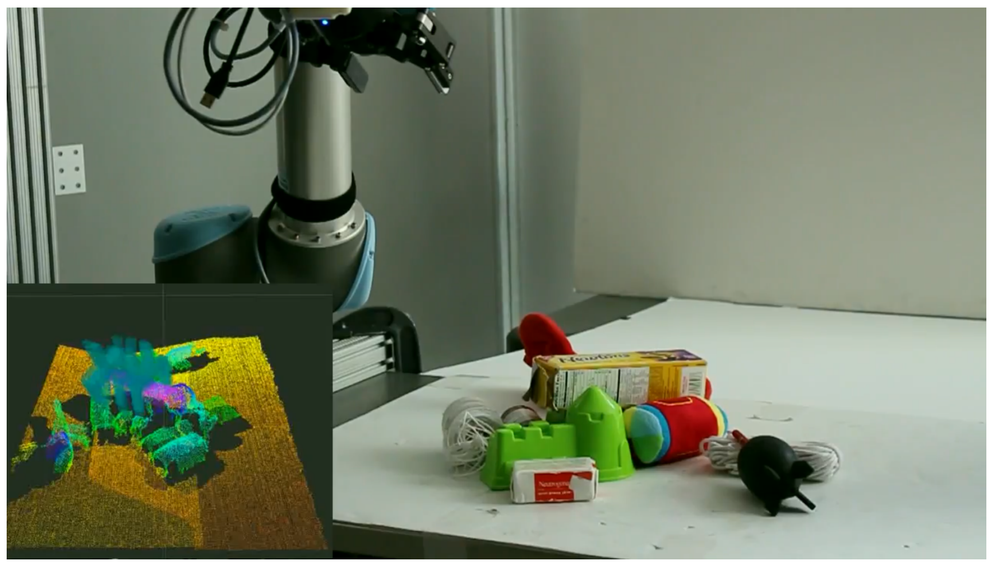
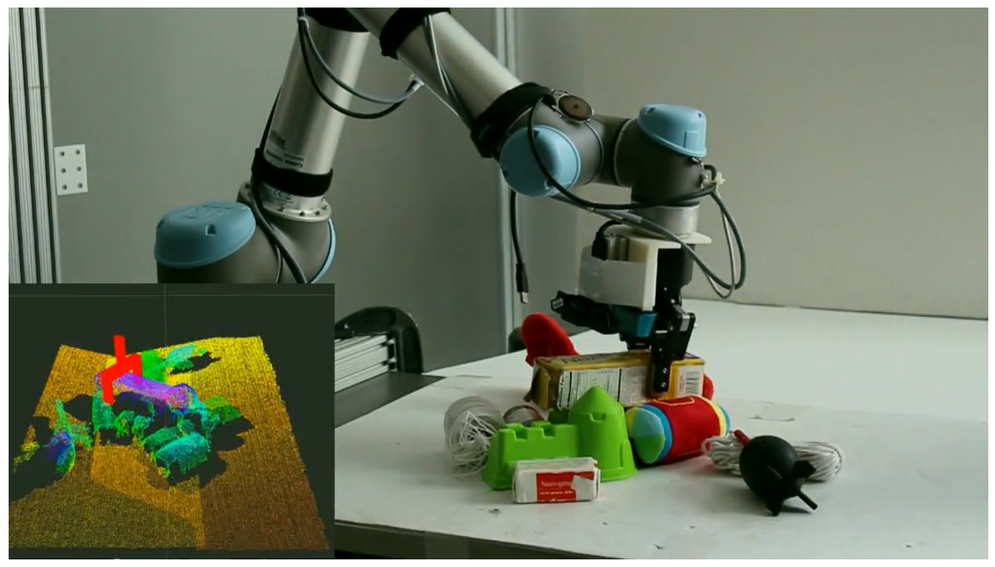
Goal: Detect Grasps With an RGBD Camera





Requirements

Hardware

- Computer with Nvidia GPU
- RGBD camera: Microsoft Kinect, Asus Xtion Pro, Carmine, Structure.IO, etc

Software

- Ubuntu 14.04
- ROS Indigo

GPD Package

`https://github.com/atenpas/gpd`

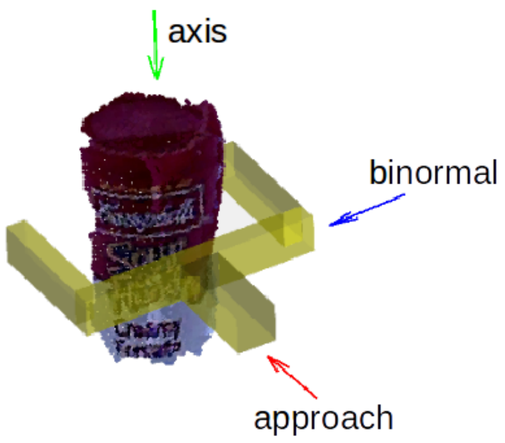
Setup

1. Connect an RGBD camera to your robot/computer.
2. Start the driver for your RGBD camera:
   `roslaunch openni2_launch openni2.launch`
3. Start rviz:
   `rosrun rviz rviz`
4. In rviz, load the config file *gpd/tutorials/openni2.rviz*.

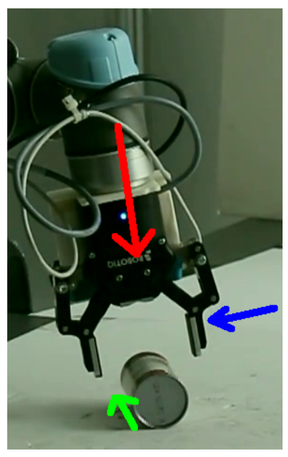
Detect Grasps

- Launch the ROS node that detects grasps:
  `roslaunch gpd tutorial1.launch`
- Produces grasps on the ROS topic */detect_grasps/grasps*

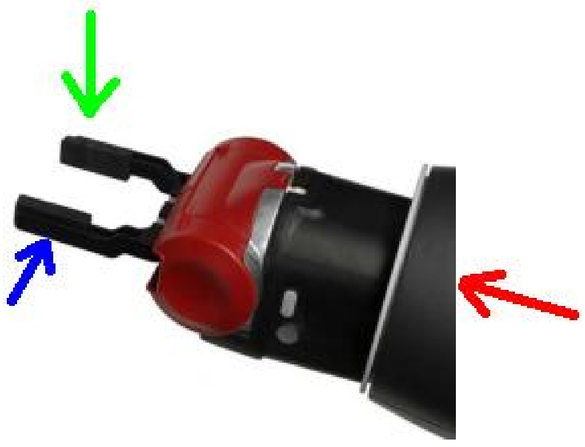
Grasp Frame and Robot Hands



(a) Grasp Frame



(b) Robotiq 2-Finger Gripper



(c) Baxter Electric Gripper

References

[1] Marcus Gualtieri, Andreas ten Pas, Kate Saenko, and Robert Platt. High precision grasp pose detection in dense clutter. IROS 2016.
[2] Andreas ten Pas and Robert Platt. Using geometry to detect grasp poses in 3d point clouds. ISRR 2015.