CS545 LAB 4: **Planning in Task-Space Regions**

Pranavi Jalapati jalapati@usc.edu
Satya Narapata narapata@usc.edu
Seokjoo Yoo seokjooy@usc.edu
Stephen Iota iota@usc.edu

Viterbi School of Engineering, University of Southern California

Question 2

See figure 1.

Question 3

See figure 2.

Question 6

Does the final pose of the can look accurate? The final pose is close, but not quite 100% accurate. It appears that the final pose of the can has deviated slightly in the xy plane. It should have been directly above its initial position, differing only in the z axis. The difference is due to the fact that we are deriving the Jacobian from the robot's end effectors. This, over multiple iterations, takes smaller steps towards the goal position. Hence when we do just one iteration, it does not give an accurate result. See figure 3.

Question 8

See `full_trajectory.mp4` on the github repo.

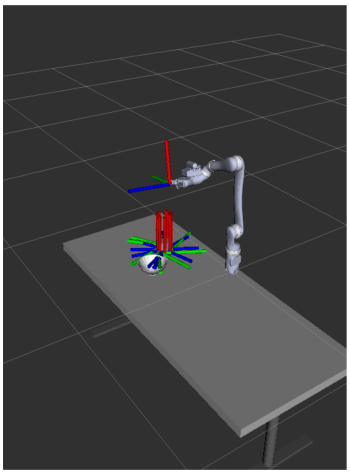

Figure 1: TSRs sampled uniformly around soda can at a fixed height.

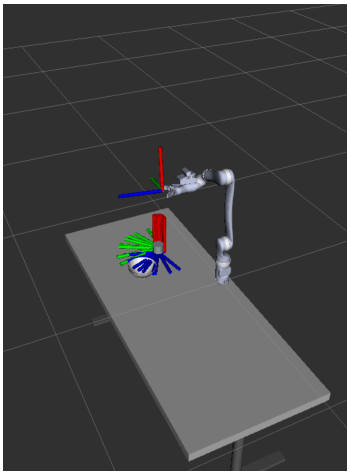

Figure 2: Only TSRs in the semicircle facing the robot are sampled.

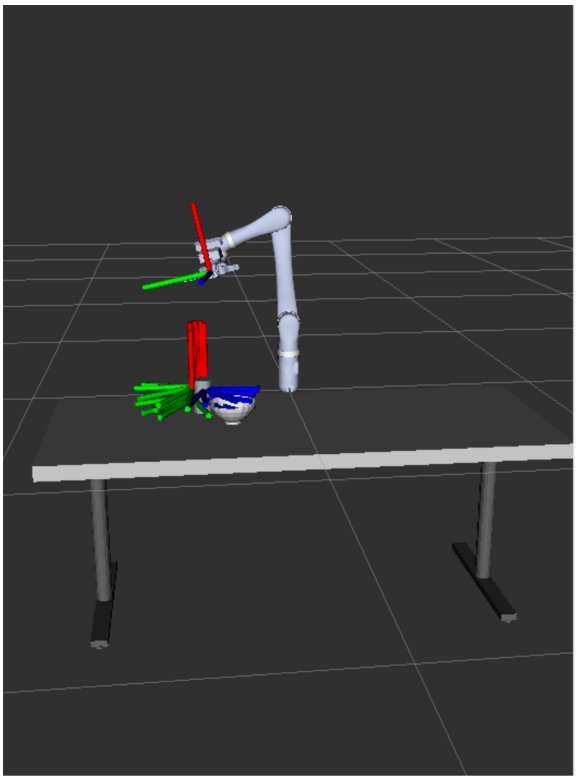

Figure 3: Final pose of the soda can after one iteration of Jacobian pseudo-inverse algorithm.