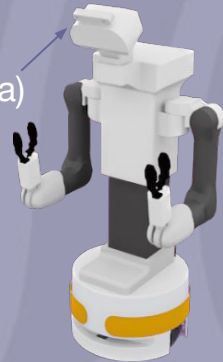


Looking Good: Visually Informative Motion Generation for Mobile Manipulation

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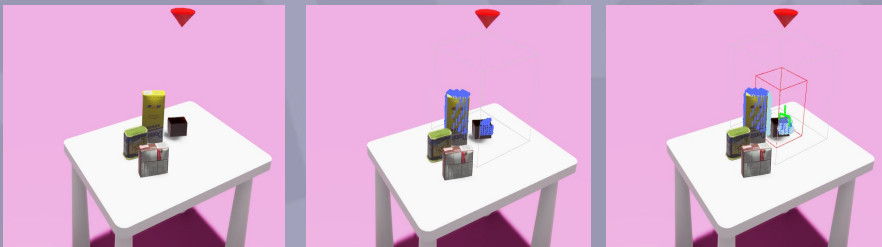
Motivation

- Challenges in household robotics:
- ◆ Unstructured environments
 - ◆ Embodied camera agents
- We need **Active Perception** to obtain relevant information



Setup

- Mobile Manipulator (head-mounted camera)
- TSDF -> Grasp Prediction
- Assumption:
 - Rough object position known (Object inside red bounding box)



Method

- Robot Motion to maximize Information Gain
- IG of view = #rear-side voxels unveiled
- Execute best grasp if stable

Naive solution: Move to high IG view

→ Very inefficient motion

1. Solution:
Introduce cost for distance
→ **Bias to explore nearby solutions**

2. Solution:
Compute velocity as a vector sum of views, weighted by gain

→ use all provided information

Further Work

- Ray-casting in batch allows IG computation for many views:
 - Sample feasible trajectories & IG for all possible views from trajectories
- Grasps are only useful for a Mobile Manipulator if they are *reachable*
 - Include 6DoF grasp reachability metric in the grasp quality criterion

Stay tuned for our full paper :)

