

# Agile and Dynamic Interactions for Mobile Manipulation

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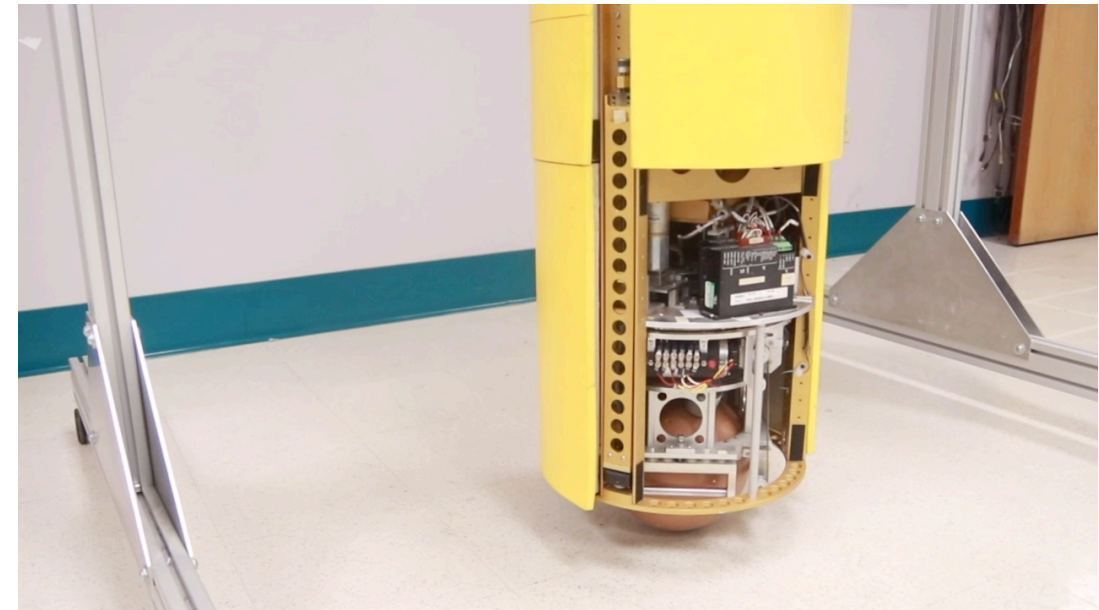
## Overview

- Work safely with people in crowded environments
- Exploit dynamic interactions with robot's surroundings

## Approach

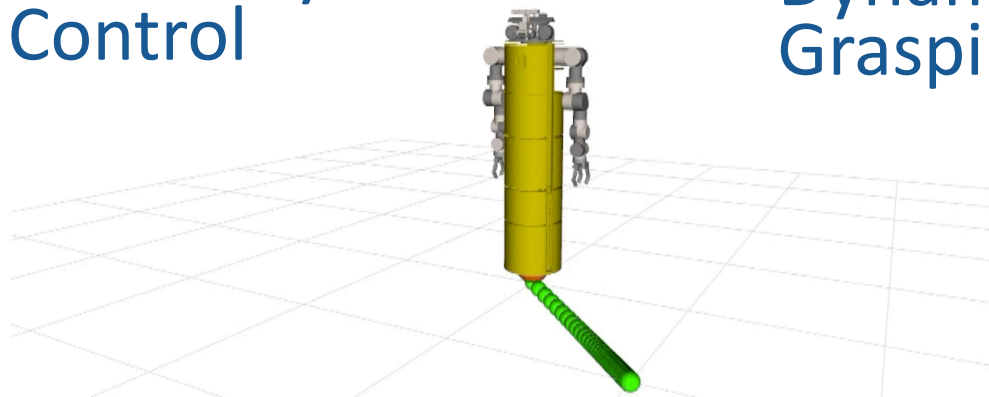
- Human subject study
- Learn from observing humans
- Dynamic skills and reflexes

## Ballbot

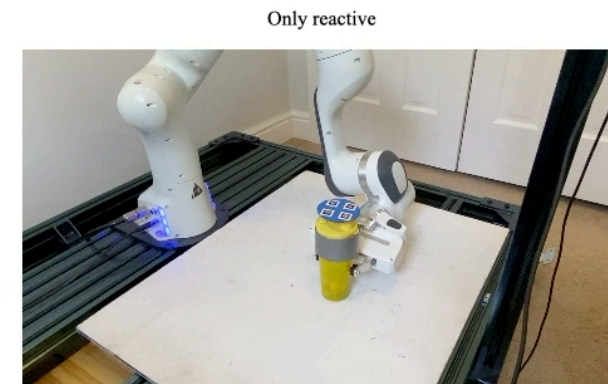


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Whole-body Control



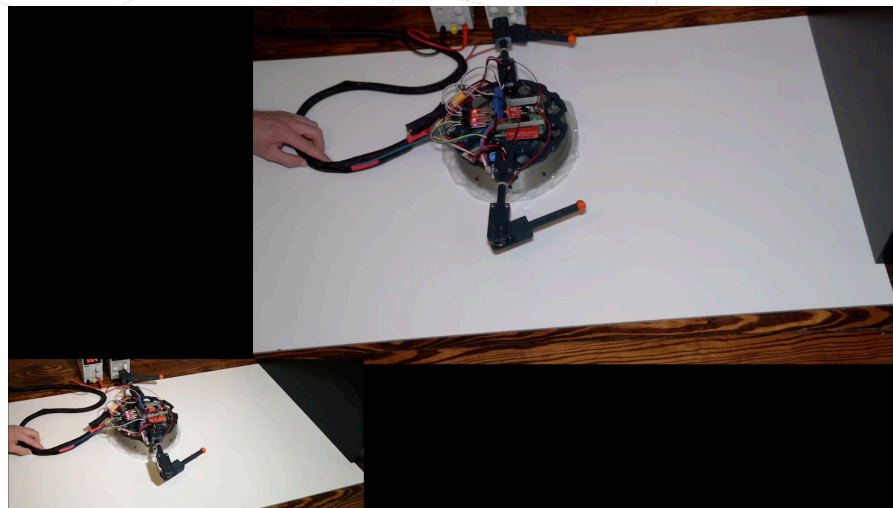
Dynamic Grasping



Robot slows down to pick up object and then speeds up to reach goal location

Failure: Robot comes to a complete stop right before object location - does not switch to the next mode

Push-off Reflexes



Human Interactions

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