

Grand Challenges: Manipulation for Human Environments

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Overview

- Putting it all together
- Three sessions
 - Platform design
 - Custom, off-the-shelf, compliance, robustness, form factors, legs, wheels, dynamic wheeled platforms
 - Learning
 - Grasping
 - Exploration, teleoperation, simulation
 - Task execution
 - Revolution for the workers (give them robots!)
 - Everyday tasks (getting a drink from a fridge)
 - Controller refinement for move-to-grasp

#1

- preparing and delivering an order at a burger joint
 - full menu, multiple restaurants, custom burgers
 - tool use
 - unstructured & dynamic environment
 - manufacturing

#2

- A disordered house to an ordered house (reverse entropy, creating beauty)
 - household chore, home environment
 - finding objects, fetching objects, placing objects
 - navigation

#3

- Build a habitat
 - Collaborative construction
 - Pitch a tent together
 - working closely with a person
 - Teaching
 - robot tool use