WP 4
Grasping under uncertainty: The Soft-Hand point of view

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High-Level Planning for Object Passing

Hamal Marino, Mirko Ferrati, Alessandro Settimi, Carlos Rosales, and Marco Gabiccini,
High-level Planning for Dual Arm Object Passing Tasks, Submitted to IROS 2015
Workspaces and Reachability

Target: I can reach it only with my LEFT hand!

Source: I can reach it only with my RIGHT hand!
Quantized possible grasps...
... and “table grasps”!
...and associated feasible exchange!
A possible sequence of actions...

Semantic planning + backtracking → Motion planning + execution
…but execution may differ!
A different target
Action scheme

Obj. recognition + Pose estimation

Reachability

Grasps

Transitions

Mobility

DB

Semantic planning + backtracking

Motion planning + execution

Obj. tracking + Reactive strategies
Semantic Planning
Semantic Planning
Motion planning and execution

Random Planners

IPTP
A full run

WP 5 - Task 5.3 DEMO

Moving objects from one location to another by bimanual object passing (if needed)
How to build the DB?

Table grasps

Hand grasps
How to build the DB?

“Generalization”

Transitions

To be improved!
Future Work

Integrate different grasp generation methods

Improve the automatic transitions generation

Consider different costs and different types of transitions