Object exploration using visual/haptic information by a human-robot team

Florian Wirnshofer, Benedikt Schmidt
Project Laboratory Cognitive Robotics and Control
Supervisor: Denis Cehajic

Lehrstuhl für Informationstechnische Regelung
Technische Universität München

Content

Task

Load Identification - State of the Art

Load Identification with Human

Persistent Excitation

Cooperative Excitation

- Robot can give orders to the human through a wrist band
- Target: Get more information about the load
- Problem: How will a human react to a certain stimulus?

Tools

- Cobot: Two arms with seven joints each
- Force and torque sensors at the endeffector and the grapsing points of the human
- Motiontracking system for positions
- Video cameras at the robot for visual input
- Implementation in Matlab Simulink

Milestones

1. Get familiar with the system
2. Implement load identification with one grasping point
3. Implement load identification with more than one grasping point
4. Trigger additional exciation by the human through the wrist band

Time Schedule

1. Get familiar with the system: 19.11.2014
2. Implement load identification with one grasping point: 5.12.2014
3. Implement load identification with more than one grasping point: 19.12.2014
4. Trigger additional exciation by the human through the wrist band: 16.01.2015

References