ROS Workshop

HANDLE strand

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Introduction

Partner presentation:

• The Institute of Systems and Robotics (ISR-UC, www.isr.uc.pt) is an associated university research institution of the University of Coimbra. ISR-UC promotes advanced multidisciplinary R&D in the areas Robotic Manipulation, Medical Robotics, Assistive Systems, Autonomous Mobile Robotics, Intelligent Transportation Systems, Computer Vision, Biomedical Engineering, Automation, Control Theory, Operations Management, Sustainable Energy Systems, and cooperates with local neurosciences groups.

• ISR-UC is involved in over 25 national projects and over a dozen international projects. More recently in BACS - Bayesian Approach to Cognitive Systems (FP6-IST-027140), PROMETHEUS - Prediction and interpretation of human behaviour based on probabilistic structures and heterogeneous sensors (FP7 - 214901) and HANDLE - Developmental pathway towards autonomy and dexterity in robot in-hand manipulation (FP7-2008–231640), both applying Bayesian learning and inference techniques, resulting in 2 completed PhD thesis and 3 under work.

• ISR-UC received the outstanding grade "Excellent" as a result of the last R&D Portuguese Unit Evaluation, being the only Electrical and Computer Engineering (among a total of 25 units) to receive that distinction.
European Project Handle
EU-7th Framework Program – Large Scale Integrated Project- Contract Agreement 231640
02/02/2009 - 01/02/2013

- The HANDLE project aims at understanding how humans perform the manipulation of objects in order to replicate grasping and skilled in-hand movements with an anthropomorphic artificial hand, and thereby move robot grippers from current best practice towards more autonomous, natural and effective articulated hands.

Partners:
http://www.handle-project.eu/
Challenges

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• Each partner is responsible for different modules.
• Challenges in organizing and integrating different modules.
• Keep a stable development platform
European Project Handle
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• University of Coimbra experimental setup
European Project Handle
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• It is an open-source, meta-operating system that provides hardware abstraction services.
• It implements low and high level functionality components addressing robot perception, control and planning, focusing on the modularity and reusability of code contributed by a growing user community.
• ROS is designed to be as thin as possible, with no wrapping of user code so that it can be used with other robot software frameworks.
• The preferred development model is to have ROS independent libraries with clean interfaces. It is language independent, easy to use and scalable to large runtime systems and processes.
Thank you!