Motivation

The need of a Robotics Cognitive Architecture to:
- to drive robots in real world scenarios
- to use a modular software approach
- to allow the inclusion of task-independent aspects
- to facilitate the integration of task-dependent aspects

CORTEX: a new Cognitive Architecture for Social Robots

A. Bandera, J.P. Bandera, P. Bustos, I. García-Varea, L. Manso, J. Martínez-Gómez

Use Cases

Shelly: social robot that assists people in daily activities
Gualzru: advertisement robot for social events

Agents
Planning / Executive: AGGL Planner / PELEA / other
Localization: GMapping, CGR
Navigation: RRT, Elastic bands
Manipulation: IK, discrete rep. of IK
Dialog: ASR, Senna
Grasping: forward simulation
Object perception: VFH, Conv. Networks, pose fitting
Person perception: Kinect SDK, dynamic descriptors

Graph representation

Multi-labeled directed graph which holds symbolic and metric information within the same structure

Planning Human-Robot Interaction Tasks using Graph Models.

A Perception-aware Architecture for Autonomous Robots.

Use and advances in the Active Grammar-based Modeling architecture. L. J. Manso, L.V. Calderita, P. Bustos, A. Bandera
Conference of the Spanish Association for Artificial Intelligence, CANTAM'15 Albacete, Spain.

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