

Towards Cognitive Humanoid Robots

Workshop on the Humanoids 2006
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Dillmann, Cheng, Ude, Asfour

History

- Humanoids 2004
Building Humanoid Heads
- Humanoids 2005
Cognitive Architectures for Humanoids
- Humanoids 2006:
Recent methodologies towards the
realization of "humanoid cognition"

Challenging task

- How to construct artificial robotic system capable of
 - developing perceptual, behavioural and cognitive categories in a measurable way and
 - communicating and sharing these with humans and other artificial agents?
- Interdisciplinary collaboration needed: engineers, robotics and computer vision scientists, linguists, theoretical neuroscientists and cognitive psychologists.

Major topics of cognitive systems

- Problem-Solving
- Knowledge Representation and Reasoning
- Perception & Action
- Memory
- Learning
- Language and communication
- Integrative Studies of Cognitive Systems

Program (1)

- Ales Leonardis
Hierarchically Learned Structure of Object Categories: From Pixels to Semantic Parts
- Olivier Stasse
Walking and Vision Integration to Increase Humanoid Robot Autonomy
- Ales Ude
Sensorimotor primitives for building object representations

Program (2)

- Aude Billard
Combining Imitation Learning with other Motor Control and Learning Abilities
- Danica Kragic et al.
Experience based Learning and Control of Robotic Grasping
- Joyca Lacroix et al.
The NIM model as a brain for a humanoid robot

Program (3)

- David Vernon et al.
The iCub Cognitive Architecture
- Richard Alan Peters II
Robot Dreams: Conjectures on Creative Problem Solving
- Gordon Cheng
Humanoid Robotics Perspectives to Neuroscience.

Program (4)

- Jiri Wiedermann
Towards Conscious Humanoid Robots
- K. S. Jayakumar and Ming Xie
Computational Model of Mind for a Robot and Its Application to Spatial Language Understanding in Virtual Environment
- Christopher Geib et al.
Object Action Complexes as an Interface for Planning and Robot Control
- Hartwig Holzapfel et al.
- **Providing Cognitive Functions for Interactive Learning with Speech and Multimodal Processing**

Presentations

- Presentations will be available on-line on the workshop homepage
- Selected papers for a special journal issue " Journal on Humanoid Robots"