

ICRA-07 Workshop on
Semantic Information in Robotics

April 10, 2007 — Rome, Italy

Synopsis. There is a growing tendency to introduce high-level semantic information into robotic systems. This tendency is visible in many areas, including mapping and localization, robotic vision, human-robot interaction, and the increasing use of ontologies in robotics. While all these efforts share many common questions and issues, work in each area is often pursued in isolation, without being aware of the related achievements in other areas. This workshop will lay the first stone in building a community of people who are all tackling the problem of using semantic information in robotics, in all its different forms. The workshop will provide a common forum where people can exchange ideas and experiences on this problem, and identify the common questions and concerns. It will also emphasize the link between the robotic community and the knowledge representation (KR) community in AI.

Aims and Objectives

The tendency to introduce high-level semantic information is visible, in different forms, in several areas of robotics. Recent work in mapping and localization tries to extract semantically meaningful structures from sensor data during map building, or to use semantic knowledge in the map building process, or both. A similar trend characterizes the cognitive vision approach to scene understanding. Recent efforts in human-robot interaction try to endow the robot with some understanding of the human meaning of words, gestures and expressions. Ontological information is increasingly being used in distributed systems in order to allow automatic re-configuration in the areas of flexible automation and of ubiquitous robotics. Ontological information was also used recently to improve the inter-operability of robotic components developed for different systems. While all these trends share many common questions and issues, work on each one of them is often pursued in isolation within a specific area, without being aware of the related achievements in other areas.

The ambition of this workshop is to lay the first stone in building a community of people who are all tackling the problem of using semantic information in robotics, in all its different forms. The workshop will provide a common forum where people can exchange ideas and experiences on this problem, and identify the common questions and concerns. One such question is: where is the real *added value* of using semantic information in our field?

This workshop will also emphasize the link between this community and the knowledge representation (KR) community in AI. The perspective taken in this workshop is that there are possibly many ideas and formalisms that can be taken from the KR community, but that these should be evaluated from the point of view of robotics: any KR formalism of interest need not only be representationally and inferentially efficient (as normally required for a KR formalism), but also *effectively grounded* in the robot's sensor and motor signals. This workshop will also help KR researchers to better understand what aspects of the worlds are accessible using sensors for building representations.

Topics

The Workshop will cover all topics related to the creation, representation and use of semantic information in robotic systems. The topics of interest include, but are not limited to:

- Human-robot interaction
- Building semantic maps
- Semantic-guided map building
- Semantic expectation monitoring
- Semantic communication languages
- Semantic interoperability
- Ontology for robot self-configuration
- Introspection

Submissions

We solicit submissions of research papers reporting significant research results. Papers should be maximum 8 pages, following ICRA-2007 paper format instructions available at <http://www.icra07.org>. Submissions must be sent by e-mail to <asaffio (a) aass.oru.se> as a PDF file. Other, non-standard formats (e.g., Word) cannot be accepted. In the body of the e-mail message, you must specify the following:

Paper title
Name and affiliation of all authors
Name, email, and postal address of corresponding author
Phone and fax of corresponding author
Keywords (max 5)
Abstract (maximum 200 words)

All submissions will be acknowledged within a few days. Papers will be reviewed for quality and relevance and the decision of acceptance will be mailed to the corresponding author. Accepted papers will be included in the workshop notes, distributed at the workshop, and published on the workshop's web site. At least one author of each accepted paper must register in ICRA-2007 and attend the workshop.

Policy for multiple submissions. Submission of papers reporting work which is under review of accepted to other conferences is possible, subject to the conditions that: (1) the submission is a revised version of the conference paper, and (2) the authors explain this in an accompanying mail. Submission of papers currently under review (verbatim) at the main ICRA-2007 conference is possible. If the paper is eventually accepted to the main conference, it will not be included in this workshop program, but the authors will have the possibility to briefly introduce their paper at the workshop.

Important Dates

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December 14, 2006	Submissions due
January 12, 2007	Notification of acceptance
January 25, 2007	Camera ready papers due
April 10, 2007	Workshop day

Organizers

Chairs

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Workshop Home Page

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