

# ICAPS'05 Workshop

## “The role of ontologies in AI Planning and Scheduling”

### Workshop Chairs

Eva Onaindia, Juan Fdez-Olivares

## 1 Description of Workshop topic

### 1.1 Overview

Ontologies are becoming increasingly important in several AI fields (such as knowledge management and integration, cooperative problem solving, knowledge acquisition and knowledge-based systems, e-commerce and the Semantic Web) and, at present, there is also an increasing interest about their use in Planning and Scheduling (P&S) systems.

In the field of P&S ontologies allow , on the one hand, knowledge exchange between intelligent processes (performed both by humans and other intelligent systems) in real world applications. On the other hand they allow to describe more complex domains and problems, since they are based on very rich representation languages (for example, semantic web languages as RDF, OWL,OWL-S). These languages are more expressive than those presently used in P&S, since they use the Open World Assumption rather than the planner-friendly Closer World Assumption. However , they are really “static” languages and do not include (generally) knowledge about states and state change, what prevents their “direct” application in current P&S systems. In any case, the way the use of ontologies and such languages impact the field of AI P&S needs to be investigated.

In summary, the integration between ontologies and P&S techniques is demanding more attention both from theorists and practitioners, and there are many different approaches in the literature on this issue. Therefore, one of the main topics of this workshop will be the study of the benefits that an ontology-based knowledge representation could bring into current P&S technologies.

### 1.2 Scope

The goal of the workshop consists in trying to understand and discuss different ways of integration between ontologies techniques and intelligent planning. This can be seen as a different, general approach to bridge the gap that currently exists between the very efficient P&S technology and its application to real world. Papers submitted should either present theoretical / practical work or report experiences with applications (describing projects or applications, the

difficulties they had to overcome, some lessons learned, etc.) on the following topics:

- Definition of planning ontologies that overcome drawbacks detected on the real application of standard planning languages (such as PDDL)
- Use of ontologies as the basis for knowledge exchange between different components of intelligent systems, where planning is a core technology
- Planning applications that use ontology concepts for their development
- Integration of ontology editing tools with planning systems
- Deriving planning domain models from existing ontological knowledge
- Planning and Scheduling ontologies for the Semantic Web
  - Ontologies for web services discovery and composition
  - Ontologies for the definition of ubiquitous services

## 2 Interest of the workshop

At this time, ontologies are becoming a milestone in the development of AI based systems, and the scientific events related to the general field of ontologies are constantly growing in the last few years. However, since there are no specific events dedicated to the interdisciplinary field of “Ontologies, Planning and Scheduling”, the concrete advances done about the links between ontologies and P&S systems are dispersed in other non-P&S related events. This workshop can be seen as an opportunity to gather and synthesize such work and advances.

In addition, it is important to point out the links with this year’s inaugural competition on knowledge engineering for planning systems. Many of the participants might be interested in this workshop, since a goal of the competition is to encourage sharing of domain knowledge between systems, and since several acquisition techniques are likely to make a significant use of ontologies.

## 3 Workshop format

The workshop will be structured to allow ample time for discussion and interactions, with the following format:

- An invited talk will be given by a person with recognized experience in the interdisciplinary field of “Ontologies applied to Planning and Scheduling”.
- In order to foster interaction, selected papers accepted by the program committee will be coupled with commentaries aimed at raising different, complementary or possibly opposing viewpoints.

## 4 Important dates

- Deadline for submission of papers: January 24th, 2005
- Notification of acceptance/rejection: February 21th, 2005
- Deadline for receipt of camera-ready copy: Mars 18th, 2005
- Whorkshop date: June 6 or 7, 2005

## 5 Organizing committee

### 5.1 Workshop Chairs

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### 5.2 Program Committee

- Jose Luis Ambite, University of Southern California (USA)
- Jim Blythe, University of Southern California (USA)
- Luis Castillo, University of Granada (Spain)
- Lee McCluskey, University of Huddersfield (U.K.)
- Angelo Oddi, ISTC-CNR (Italy)
- Bernd Schattenberg, University of Ulm (Germany)
- Evren Sirin, University of Maryland (USA)
- Laura Sebastiá, Technical University of Valencia (Spain)
- Paolo Traverso, ITC/IRST (Italy)
- Ioannis Vlahavas, Aristotle University of Thessaloniki (Greece)
- Christoph Lenzen, German Space Operation Center (Germany)
- Falk Mrowka, German Space Operation Center (Germany)