

## AGENTOWL: SEMANTIC KNOWLEDGE MODEL AND AGENT ARCHITECTURE

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**Abstract.** MAS is a powerful paradigm in nowadays distributed systems, however its disadvantage is that it lacks the interconnection with semantic web standards such as OWL. The aim of this article is to present a semantic knowledge model of an agent suitable for discrete environments as well as implementation and a use of such model using the Jena semantic web library and the JADE agent system. The developed library allows interconnection of Agent and Semantic Web technologies can be used in an agent based application where such interconnection is needed. The defined model and methodology show the use of the library in knowledge management applications where the proposed model has been used and evaluated in the scope of the Pellucid and K-Wf Grid IST projects.

**Keywords:** Semantics, agent, architecture, knowledge model

### 1 INTRODUCTION

Multi-Agent Systems (MAS) is a powerful paradigm [1, 2, 3] for distributed heterogeneous information systems when representation and reasoning using knowledge is needed. At present, MAS lacks interconnection with current commercial technological standards and the results of semantic web research [1]. The MAS needs to incorporate results of many areas of computer sciences such as artificial intelligence,