Agent Academy

A Data Mining Framework for Training Intelligent Agents

2001-2003

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For more information and related publications visit our web site:
http://agentacademy.iti.gr
AA Main Objective
The development of an integrated environment for embedding and improving intelligence in newly created agents through the use of Data Mining techniques performed on data derived from monitoring agent data and agent behavior. Agent Academy (AA) is a training facility that supports:
• the creation of agents with limited initial referencing capabilities, and
• the training of these agents in order to augment their intelligence efficiently, according to user specifications and preferences.

AA Architecture

Creating an application with AA
• The project name, along with the application schema and data are stored into the Agent Use Repository (AUR)
• By the use of Agent Factory (AF), the agent community is designed, ontologies are created and agent behavior is specified
• Data Miner (DM) is used for performing data mining on data extracted from the AUR
• The extracted knowledge is sent to the Agent Training Module (ATM), in order to embed it into the newly created by the AF, agents.
• Finally, the MAS is instantiated

AA vision
Using Agent Academy and its data-mining capabilities, software companies can reduce the effort required to:
• Develop new applications with intelligent agents, and
• Upgrade them, as needed, by retraining the agents deployed

Technologies adopted...
- JADE platform ⇒ for agent creation
- JESS engine ⇒ for rule generation
- Protégé ⇒ for ontology design and specification
- WEKA data mining tool ⇒ for knowledge extraction
- XML ⇒ for internal data exchange
- PMML ⇒ for knowledge model representation
- PostgreSQL RDBMS ⇒ for data and meta-data storage
- JMI ⇒ for meta-repository implementation

The working prototype...

Three test cases
• Intelligent Recommendation Policy on Supply Chain Management (ALTEC)
• Real-time monitoring and assessment of environmental measurements (IDI-EIKON)
• Web-based Distributed Service Management (AMADEE)