

# Software components for a dialogue multiagent system

**Maxime Morge**

PhD Candidate

ENS Mines Saint Etienne (France)

morge@emse.fr

**Steven Collins**

Research Engineer

ENS Mines Saint Etienne (France)

collins@emse.fr

## Abstract

This work proposes a software component approach to design a dialogue multiagent system.

## 1 Introduction

Interaction is widely recognized as the most important issue to design complex software (Singh, 1997). In a software engineering viewpoint, a MAS software system is made up of multiple independent and encapsulated loci of control (i.e. agents) interacting with each other in the context of a specific application.

MAST (MultiAgent System Toolkit) is a project developed in our laboratory (Vercoouter et al., 2003). The goal of this project is to provide a software framework to simplify the implementation of agent-based applications. MAST is composed of different modules :

- DeMas : agent platform for distributed execution providing low level services like registry (**Agent Identifier AID**) or message transport ;
- AdMas : an administrator's tool to supervise the deployment and the execution through observation of DeMas services ;
- GeMas : a library of software components providing models and tools coming from academic works, to build applications ;

- MeMas : an Integrated Development Environment (IDE) for building applications based on GeMas.

## 2 MASTComponents

This library of MASTComponents is based on the vowels approach where : (1) facet "agent" provides several models of reasoning, (2) facet "environment" is a model for perception and action, (3) facet "interaction" is a dialogue system, (4) facet "organization" : an organizational model for multiagent systems and (5) facet "user" : a Graphical User Interface (GUI) for agents.

Figure 1 shows the UML class diagram that explains the relationships between the classes that represent components, roles and events. A MASTComponentRole, an abstraction of services provided by a component, specifies behaviours implemented by a MASTComponent. A MASTComponentRole is a member of one or several Facets. The MASTEvents link MASTComponentRoles in the same Facet.

This paper focuses on the INTERACTION-FACET.

## 3 InteractionFacet

The dialogue system proposed is for an argumentation system (Parsons et al., 2002), a generic model of reasoning. Figure 2 reports the UML object diagram that explains the relationships among the objects that represent MASTComponentRoles in the InteractionFacet, and InteractionEvents between them.

