

# Creating intelligent games with agents



CIGA

Creating (serious) games becomes more and more complex. The use of agent technology to support the modeling and implementation of seemingly natural behaving characters in the game seems a promising way forward.

**V**STEP earlier has created several procedure and incident trainings. Virtual humans play a central role in these applications. Technology currently used limits the variability of their behavior and the range of situations they can cope with. Extending behavior and scope can be very time-consuming. There is much need for more autonomous behavior and the creation of generic models for these virtual humans to increase reusability and efficiency. The use of agent technology can contribute to these problems.

The CIGA project aims to develop a framework

*“Agent technology can provide a more intelligent game play”*

that supports the use of agent technology in building serious games. In order for this goal to succeed we will not just develop some software tools to connect game engines and agent platforms, but will also explicitly support translating the game ontology to the agent ontology and vice versa. Finally it will be important to develop methodolo-

gies for game design that take into account the possibilities of intelligent agent behavior.

### Intelligent and natural interactions between characters

In order for characters to behave intelligent in a game they have to interact with other characters in a natural way. An important aspect is the communication between the characters and the characters and the trainee. Making the communication look natural, while keeping it very flexible is notoriously hard. An ontology based design of the communication seems to give a good handle on this problem.

### Going from scripts to scenes boundaries

The relevance of this research project is both theoretical and practical. Theoretically this research helps to understand the crucial contribution of agent technology in complex systems. Practically it will contribute to the design and implementation possibilities of serious games. The tools and framework developed in this project will support the design of serious games with agents, which will create new possibilities for training that are hard to achieve at the moment without human intervention.

**Knowledge Transfer Project:**  
CIGA: Creating Intelligent Games with Agents

**Partners**  
Utrecht University  
VSTEP B.V.

**Budget**  
202.000 euro

### Key Publications

*F. Dignum et.al. Games and Agents: Designing Intelligent Gameplay. International Journal of Computer Games Technology. Vol. 2009, pp. 1-18.*

*J. van Oijen et.al. Goal-based Communication using BDI Agents as Virtual Humans in Training: An Ontology Driven Dialogue System, Agents for Games and Simulations*

**Contact details**  
Frank Dignum  
Utrecht University  
dignum@cs.uu.nl

