

Lecture Notes in Artificial Intelligence 5920

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Agents for Games and Simulations

Trends in Techniques, Concepts and Design

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Preface

Multi-agent system research offers a promising technology for implementing cognitive intelligent non-playing characters. However, the technologies used in game engines and multi-agent platforms are not readily compatible due to some inherent differences in concerns. Where game engines focus on real-time aspects and thus propagate efficiency and central control, multi-agent platforms assume autonomy of the agents. Increased autonomy and intelligence may offer benefits for a more compelling gameplay and may even be necessary for serious games. However, it raises problems when current game design techniques are used to incorporate state-of-the-art multi-agent system technology. A very similar argument can be given for agent-based (social) simulations.

This volume contains the papers presented at AGS 2009: The First International Workshop on Agents for Games and Simulations held on May 11 in Budapest. In this workshop people came together to address the particular challenges of using agent technology for games and simulations. Submissions were invited for the following three main themes:

- Technical:** Connecting agent platforms to games and simulation engines; who is in control?, Are actions synchronous or asynchronous? How to monitor results of actions. Can agents communicate through the agent platform? How efficient should the agents be?
- Conceptual:** What information is available for the agents from the game or simulation engine? How to balance reaction to events of the game or simulation with goal-directed behavior. Ontological differences between agents and game/simulation information.
- Design:** How to design games/simulations containing intelligent agents. How to design agents that are embedded in other systems. Of course we also welcomed papers about experiences in the use of agents in games and simulations. Both successes as well as “failures” were welcome, as both can help us better understand what are the key issues in combining agents with game and simulation engines.

We received 17 submissions of high quality covering many of the aspects mentioned above. Each submission was reviewed by at least two Program Committee members. We accepted 11 papers for presentation, which can be found in these proceedings. We also invited some authors who covered aspects that were considered to be important in this area, but were not present in the workshop yet. Together the selection of papers in the present volume constitutes a good overview of the state of the art in this area. Among the papers we find a strong example of a description of middleware that is used to connect agents to Unreal Tournament (an extension of Gamebots). But we also have a paper describing how to design agents for games that have to behave according to cognitive and

emotive theories in order to mimic or respond to human behavior in a naturalistic way. Several papers describe experiences with particular agent models used for games and simulations. Finally, the book also contains a paper that discusses how to evaluate the behavior of the agents in the games. When are they performing “well”? All in all we are very happy with the papers contained in this volume. We are sure they form a valuable starting point for people that want to combine agent technology with (serious) games. Finally, we would like to thank the Program Committee members, without whom the reviewing would not have been possible, and for their valuable comments on all papers allowing for a tough selection of the best paper.

October 2009

Frank Dignum

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